

Examining the Use of Artificial Intelligence in Music Production Among Musicians in Zimbabwe

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ABSTRACT

Artificial Intelligence (AI) is increasingly influencing creative industries across the world, including the field of music production. AI-powered technologies are now being used to assist musicians and producers in composing melodies, arranging music, enhancing sound quality and simplifying various technical processes involved in digital music production. These developments are gradually transforming traditional methods of music creation by introducing new opportunities for creativity, efficiency and experimentation. Despite the growing global interest in AI-assisted music production, limited research has examined how musicians in Zimbabwe understand, access, and use these technologies in their creative practices. This study examines the use of Artificial Intelligence in music production among musicians in Zimbabwe, focusing on their level of awareness of AI tools, the ways in which these technologies are applied during the music production process and the opportunities and challenges associated with their adoption. The research will employ a qualitative case study approach guided by a constructivist research paradigm, with data collected through semi-structured interviews and focus group discussions involving music producers, recording artists and musicians, sound engineers and studio technicians, digital music producers and beat makers and music technology specialists or ICT experts. The study will include five participants from each of these categories drawn from Bulawayo, Matabeleland North and Matabeleland South in order to capture diverse perspectives from different geographical contexts. The data will be analysed using thematic analysis to identify key patterns, experiences and perceptions regarding the role of AI in music production. By focusing on the Zimbabwean context, the study aims to contribute to understanding how emerging technologies can support creative innovation while maintaining the value of human creativity in music-making.

Keywords: Artificial Intelligence, Music Production, Digital Technology, Creative Innovation, Zimbabwean Music Industry.

BACKGROUND

Music production has historically been a human-centric endeavor, relying heavily on the creativity, technical skill and collaboration of artists, producers and engineers (Burgess, 2013). The advent of digital technologies transformed this landscape, introducing tools such as Digital Audio Workstations (DAWs), MIDI sequencing and audio plugins that allow musicians to produce high-quality music outside traditional recording studios (Théberge, 1997; Katz, 2010). With these innovations, music production has become more accessible, democratizing creative processes and empowering independent artists to experiment with sound design, arrangement and mixing (Watson, 2016).

In the last decade, Artificial Intelligence (AI) has emerged as a transformative force in the creative industries, particularly in music. AI technologies can analyze vast datasets, recognize musical patterns, generate melodies, harmonize compositions and even automate complex production tasks (Herremans, Chuan, & Chew, 2017; Briot, Hadjeres, & Pachet, 2020). AI-assisted composition systems such as OpenAI's MuseNet and Google Magenta have demonstrated the potential for machines to produce stylistically coherent and innovative music, often in collaboration with human musicians (Huang et al., 2019). Such tools expand creative possibilities, allowing

producers and artists to explore musical ideas they may not have conceived independently (Huang, Cooijmans, Roberts, & Courville, 2018).

While AI's influence on music production has been studied globally, most research focuses on Western contexts, where technological infrastructure and access to AI tools are more developed (Walsh, 2020; Pasquier & Bressan, 2021). The African context and Zimbabwe in particular, remains underexplored. Studies of African music production highlight unique challenges such as limited access to high-end production equipment, inconsistent electricity and internet connectivity, and financial constraints that affect the adoption of new technologies (Ncube, 2020; Nyamnjoh, 2019). Yet, these constraints coexist with a vibrant and innovative music culture, where artists and producers often employ improvisational strategies and low-cost digital tools to create high-quality productions (Moyo, 2019; Mathe, 2021).

The integration of AI into music production has both technical and cultural dimensions. Technically, AI tools can automate repetitive tasks such as mixing, mastering, or drum programming, enabling producers to focus on creative decisions (Herremans et al., 2017). AI can also suggest chord progressions, generate rhythmic patterns, or even emulate the styles of specific artists, allowing for novel experimentation (Briot et al., 2020). Culturally, the use of AI raises questions about authorship, authenticity and creativity. Scholars such as Collins (2019) and McLean (2021) argue that AI should be viewed as a collaborative partner rather than a replacement for human creativity, complementing the skills of musicians and producers while expanding the boundaries of what is possible in music composition and production.

In Zimbabwe, music production has traditionally been influenced by indigenous musical forms, including Imbube, Chimurenga and contemporary Afro-pop, all of which rely on distinct melodic, rhythmic and harmonic conventions (Tracey, 2000; Gorlach, 2006). Producers and musicians in the country have increasingly adopted digital tools to blend traditional sounds with modern production techniques, resulting in innovative hybrid genres (Moyo, 2019). The introduction of AI technologies in this context could further enhance creative experimentation, efficiency and distribution, yet empirical research on its adoption, perception and impact remains sparse.

Recent studies suggest that AI in music production can provide several benefits, including enhanced creativity, workflow efficiency and expanded access to production capabilities (Huang et al., 2019; Briot et al., 2020). However, challenges persist, such as technical expertise requirements, cost of tools, ethical considerations regarding authorship and cultural acceptability of AI-generated music (Pasquier & Bressan, 2021; Walsh, 2020). Understanding these dynamics within the Zimbabwean music industry is crucial for developing strategies that leverage AI's potential while maintaining cultural authenticity and supporting human creativity.

Furthermore, AI's role in music consumption is equally significant. Music recommendation systems, streaming algorithms and automated playlist generation are reshaping audience engagement and distribution channels globally (Schedl, Zamani, Chen, Deldjoo, & Hurley, 2018). While these developments are well-documented in Western contexts, there is little knowledge of how Zimbabwean musicians and producers navigate these AI-driven distribution and consumption landscapes. Exploring these dimensions will provide insights into how AI technologies can be ethically and effectively integrated across the local music ecosystem.

In conclusion, the background establishes the research gap. While AI is transforming music production globally, little is known about its use, perceptions and impact in Zimbabwe. This study seeks to address this gap by examining the awareness, adoption, applications, benefits and challenges of AI tools among Zimbabwean music producers, recording artists, sound engineers, beat makers and music technology specialists. By doing so, it contributes to a broader understanding of AI's potential in enhancing creative innovation, workflow efficiency and cultural production in the Zimbabwean music industry.

Research Gap

Despite the growing global influence of Artificial Intelligence (AI) in music production, there is a clear lack of empirical research on its adoption, usage and impact within the Zimbabwean music industry. Most studies on AI in music focus on Western contexts, where infrastructure, technological literacy and access to advanced AI tools

are comparatively higher (Huang et al., 2019; Briot, Hadjeres, & Pachet, 2020; Walsh, 2020). In these regions, research often examines AI's ability to generate melodies, assist in composition, or automate mixing and mastering processes, with less attention given to the socio-cultural and economic factors that shape AI integration (Collins, 2019; McLean, 2021).

In contrast, Zimbabwean music production occurs within a unique socio-economic and technological environment. Challenges such as inconsistent internet access, limited availability of high-end digital tools and the high cost of AI software restrict the extent to which producers, artists and engineers can adopt these technologies (Ncube, 2020; Moyo, 2019). While studies on African music production have explored the creative adaptation of digital tools and the hybridization of traditional and contemporary genres (Mathe, 2021; Nyamnjoh, 2019), no research to date has focused specifically on AI as a driver of innovation in the Zimbabwean context. This leaves a critical gap in understanding how AI technologies can complement human creativity, enhance workflow efficiency and influence the artistic and cultural aspects of music production locally.

Another dimension of the research gap lies in the limited attention to practitioner perspectives. Current literature often emphasizes the technical capabilities of AI rather than the experiences of music producers, recording artists, sound engineers, beat makers and music technology specialists themselves (Herremans et al., 2017; Pasquier & Bressan, 2021). Understanding practitioners' awareness of AI tools, the ways they integrate these technologies into workflows, the benefits they perceive and the challenges they encounter is essential for developing contextually relevant frameworks for AI adoption. Without this practitioner-focused research, recommendations for AI integration risk being theoretical rather than grounded in local realities.

Moreover, ethical, cultural and legal considerations in AI-assisted music production remain underexplored in the Zimbabwean context. Globally, scholars have raised concerns about authorship, originality and the cultural implications of AI-generated music (Collins, 2019; Briot et al., 2020; McLean, 2021). However, there is limited understanding of how Zimbabwean musicians and producers navigate these issues, especially in relation to traditional musical forms such as Imbube, Chimurenga and Afro-pop fusion (Tracey, 2000; Gorlach, 2006). This highlights the need for research that situates AI within local musical, cultural and ethical frameworks, rather than applying global perspectives uncritically.

Finally, the intersection of AI and music distribution and consumption in Zimbabwe also remains largely unexplored. While AI-driven recommendation systems and streaming algorithms are reshaping audience engagement globally (Schedl et al., 2018), little is known about how Zimbabwean artists experience these systems, or how AI affects local distribution channels, audience reach and creative decision-making. Understanding this dimension is crucial for assessing the full impact of AI on the Zimbabwean music industry, beyond production alone.

Importance of the Study

The significance of this study lies in its potential to contribute both academically and practically to the field of music production and the understanding of AI technologies within Zimbabwe. Globally, AI has become a transformative tool in creative industries, enhancing workflow efficiency, expanding creative possibilities and reshaping music consumption patterns (Briot, Hadjeres, & Pachet, 2020; Herremans, Chuan, & Chew, 2017). However, the application and impact of AI in Zimbabwe's music sector remain underexplored. By examining how musicians, producers, sound engineers, beat makers and music technology specialists engage with AI, this study addresses a critical knowledge gap and provides locally relevant insights that can guide practice, policy and further research.

Contribution to Academic Knowledge

This study contributes to scholarly understanding of AI in the African creative context. Most AI research in music is conducted in Western contexts, focusing on algorithmic capabilities and technical outcomes (Huang et al., 2019; Walsh, 2020). By focusing on Zimbabwe, this study adds an African perspective, considering socio-cultural, economic and technological constraints unique to the region (Nyamnjoh, 2019; Ncube, 2020). The

findings will enrich the literature on AI-assisted creativity, digital music production and the intersection of technology and culture, providing a foundation for comparative studies across African music industries.

Enhancing Creative Practice and Workflow

Understanding how Zimbabwean music practitioners use AI tools can directly inform creative practice. AI technologies have the potential to support musicians in composing melodies, arranging tracks, mastering sound and experimenting with new styles (Briot et al., 2020; Herremans et al., 2017). By identifying which tools are effective, accessible and aligned with local creative processes, this study can help practitioners integrate AI into their workflows more efficiently, improving productivity and artistic output. Additionally, insights into challenges such as limited access, technical skills gaps, or cultural considerations can guide training and support programs for musicians and producers (Moyo, 2019; Mathe, 2021).

Informing Policy and Industry Strategy

The study is also important for policymakers, industry stakeholders and cultural institutions. As AI continues to shape creative industries globally, there is a need to develop strategies that support responsible adoption while protecting local cultural heritage (Collins, 2019; Pasquier & Bressan, 2021). Findings from this research can inform initiatives aimed at improving digital infrastructure, facilitating access to AI tools and creating policies that safeguard intellectual property and ethical standards in Zimbabwe's music sector.

Supporting Education and Skills Development

The study's outcomes can also enhance music education and professional development. By documenting practitioner experiences with AI, the research highlights areas where training programs can be introduced or improved, helping musicians, producers and engineers develop the technical and creative skills necessary to leverage AI tools effectively (Watson, 2016; McLean, 2021). This is particularly valuable in Zimbabwe, where access to advanced music technology education remains limited.

Promoting Cultural Innovation and Sustainability

Zimbabwe has a rich musical heritage, including genres such as Imbube, Chimurenga, Afro-pop, and urban fusion styles (Tracey, 2000; Gorlach, 2006). AI offers opportunities to experiment with sound, create hybrid genres and reimagine traditional music forms while maintaining cultural authenticity. By examining practitioner perspectives, the study ensures that technological adoption supports creative innovation without undermining cultural identity, promoting sustainability and relevance in local music production.

Contributing to Global Knowledge Sharing

Finally, this study provides insights relevant not only to Zimbabwe but also to the broader African and global creative industries. By publishing findings in a reputable peer-reviewed journal, the study shares Zimbabwean perspectives on AI in music production with the international research community, fostering cross-cultural knowledge exchange and highlighting how emerging technologies can be adapted in diverse creative contexts (Schedl et al., 2018; Briot et al., 2020).

Research Objectives

The main aim of this study is to investigate the use of Artificial Intelligence (AI) in music production among Zimbabwean musicians, producers, sound engineers, beat makers and music technology specialists and to understand its potential for enhancing creativity, workflow efficiency, and innovation. The specific objectives are:

1. To examine the level of awareness and understanding of AI tools among Zimbabwean music practitioners.
2. To explore how AI technologies are applied in the music production process, including composition, arrangement, mixing, mastering and sound design.

3. To identify the perceived benefits of AI adoption in music production, particularly regarding creativity, workflow efficiency and innovation.
4. To investigate the challenges and limitations that music practitioners face when using AI, including technical, financial and ethical issues.
5. To examine practitioners' perceptions of AI's impact on artistic originality, cultural authenticity and the future of the Zimbabwean music industry.
6. To provide recommendations for responsible and contextually appropriate integration of AI technologies in Zimbabwean music production.

Research Questions

Based on the objectives, the study seeks to answer the following questions:

1. How aware are Zimbabwean music practitioners of AI tools available for music production?
2. In what ways are AI technologies currently used in the music production process by musicians, producers, sound engineers, beat makers and music technology specialists?
3. What benefits do music practitioners perceive from using AI tools in their creative and technical workflows?
4. What challenges, barriers, or limitations do practitioners face when adopting AI in music production?
5. How do music practitioners perceive the impact of AI on artistic creativity, originality and cultural authenticity in Zimbabwean music?
6. How can AI technologies be responsibly integrated into Zimbabwean music production to support innovation while maintaining ethical and cultural considerations?

METHODOLOGY

The methodology outlines the research design, study population, sampling procedures, data collection methods, data analysis and ethical considerations employed in this study. The aim is to ensure that the research is systematic, credible and replicable while capturing the experiences and perceptions of Zimbabwean music practitioners regarding Artificial Intelligence (AI) in music production.

This study adopts a qualitative case study approach, which is well-suited for exploring complex phenomena within their real-life context (Yin, 2018). The case study design allows for an in-depth investigation of how AI is used by music producers, recording artists, sound engineers, beat makers and music technology specialists in Zimbabwe. The study is guided by an integrated theoretical framework combining the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Diffusion of Innovations (DOI) Theory. While the constructivist paradigm remains the overarching epistemological stance, UTAUT and DOI are introduced as analytical lenses to explain AI adoption in music production. (Lincoln & Guba, 1985). The UTAUT model explains technology adoption through performance expectancy, effort expectancy, social influence and facilitating conditions. In this study, performance expectancy relates to perceived benefits of AI in creativity and efficiency, while effort expectancy reflects ease of use of AI tools in music production workflows. Social influence captures peer and industry pressure, and facilitating conditions relate to access to infrastructure and digital tools.

The Diffusion of Innovations (DOI) Theory further explains how AI spreads among musicians through relative advantage, compatibility, complexity, trialability and observability. These constructs help explain why some practitioners adopt AI faster than others.

This integrated framework strengthens the study by explaining both individual-level adoption (UTAUT) and system-level diffusion patterns (DOI). This paradigm is particularly appropriate for this research because it emphasizes understanding participants' subjective experiences, meanings and perceptions of AI tools within the unique cultural and technological context of Zimbabwe. The qualitative approach allows the researcher to capture rich, descriptive data on participants' experiences, providing insights into both technical and socio-cultural dimensions of AI adoption in music production.

Sampling Strategy and Sample Size

The study employed purposive sampling. A total of seventy-five (75) participants were selected across three regions. Participants were selected based on their direct involvement in music production and varying levels of exposure to AI-assisted tools, ensuring information-rich cases. The relatively large qualitative sample size is justified for three reasons:

Maximum variation sampling:

The study captures diversity across professional roles (producers, artists, engineers, beat makers, ICT specialists) and geographic regions.

Multi-site case design:

The inclusion of Bulawayo, Matabeleland North and Matabeleland South required a larger sample to reflect contextual differences in infrastructure and access.

Data saturation and information power:

Sampling continued until thematic saturation was reached, consistent with the principle of information power (Malterud et al., 2016), where richer, more diverse samples require larger participant numbers.

The study population comprises Zimbabwean music practitioners involved in various aspects of music production. These include music producers, who oversee the production process and guide creative direction; recording artists and musicians, who create vocal or instrumental content; sound engineers and studio technicians, who manage the technical aspects of recording, mixing and mastering; digital music producers and beat makers, who focus on digital composition and beat-making using software and music technology specialists or ICT experts, who design, implement, or manage music technology tools, including AI applications. Participants were drawn from three regions in Zimbabwe: Bulawayo, Matabeleland North and Matabeleland South. These regions were selected to provide geographic diversity and capture variations in access to technology and production practices.

The study employed purposive sampling, a non-probability sampling technique widely used in qualitative research when participants are selected based on their knowledge, expertise, or experience relevant to the research question (Palinkas et al., 2015). A total of seventy-five participants were selected, comprising five participants from each category per region. Participants were required to have experience in music production, familiarity with digital production tools, and knowledge or exposure to AI technologies. Those lacking experience in music production or exposure to AI were excluded. Therefore, the sample of 75 participants is methodologically justified and enhances credibility, depth and cross-group comparison and use in Zimbabwean music production.

Data collection was conducted through semi-structured interviews and focus group discussions to comprehensively capture participants' experiences. Semi-structured interviews allowed participants to express their experiences in their own words while enabling the researcher to probe for additional detail (Kvale & Brinkmann, 2009). Each interview lasted approximately forty-five to sixty minutes and focused on participants' awareness, usage, challenges and perceptions of AI tools. The interviews were guided by a set of twenty questions tailored to each participant category, covering both general and category-specific topics. Focus group discussions facilitated interactive exploration of shared experiences and collective perspectives. Groups were organized by participant category to maintain relevance and each group included five to seven participants,

lasting approximately sixty to ninety minutes. These discussions allowed participants to reflect on and debate the benefits and challenges of AI in music production, providing deeper insight into collective perceptions. All sessions were audio-recorded with participants' consent and detailed field notes were taken during and immediately after each session to capture non-verbal cues, context and preliminary observations.

The data were analyzed using thematic analysis, a widely used qualitative method for identifying, analyzing and reporting patterns or themes within data (Braun & Clarke, 2006). The analysis followed a six-step process, beginning with familiarization, which involved transcribing interviews, reading transcripts multiple times and noting initial observations. Initial coding was then conducted by systematically labeling relevant data segments across all transcripts. Codes were grouped to form overarching themes, which were reviewed and refined to ensure they accurately represented the dataset. Each theme was clearly defined and named and the findings were presented with supporting quotes from participants. Triangulation across participant categories and regions enhanced credibility, allowing for consistent and reliable interpretation.

Ethical considerations were central to this study. Participants were fully informed about the study's purpose, procedures, risks and benefits and provided written consent prior to participation. Their identities were anonymized using codes and all data were securely stored to prevent unauthorized access. Participation was voluntary and participants were free to withdraw at any stage without penalty. Care was taken to ensure that questions were non-invasive and that participants were not exposed to any form of harm. Ethical clearance was obtained from the relevant academic or institutional review board before data collection commenced.

To ensure trustworthiness, multiple strategies were employed. Triangulation of data sources and methods confirmed the consistency of findings. Member checking was conducted, allowing participants to review summaries of their responses to ensure accuracy. Peer debriefing with academic colleagues provided additional perspectives on emerging themes and interpretations. A detailed audit trail of data collection, coding and analysis decisions was maintained to enhance transparency and replicability.

In conclusion, this methodology provides a robust and systematic framework for investigating AI use in Zimbabwean music production. By combining semi-structured interviews and focus group discussions across multiple participant categories and regions and analyzing data through thematic analysis, the study ensures that findings are contextually grounded, credible and relevant. Ethical principles, validity measures and a constructivist approach further strengthen the rigor of the study, ensuring that it can meaningfully inform both academic understanding and practical applications within the Zimbabwean music industry.

RESULTS

This study sought to investigate the use of Artificial Intelligence (AI) in music production among Zimbabwean musicians, producers, sound engineers, beat makers and music technology specialists. Data were collected from seventy-five participants across Bulawayo, Matabeleland North and Matabeleland South through semi-structured interviews and focus group discussions. Thematic analysis revealed five major themes: awareness and understanding of AI tools, application of AI in production workflows, perceived benefits of AI adoption, challenges and limitations and perceptions of AI's impact on creativity and cultural authenticity. Findings are presented with illustrative quotes to demonstrate the depth and authenticity of the data.

Awareness and Understanding of AI Tools

Awareness of AI tools varied across participant categories. Music producers demonstrated the highest level of awareness. One producer from Bulawayo stated "I have been using AI plugins for a while now. They help me with chord progressions, melody ideas and even arranging beats that I might never think of." Another producer from Matabeleland North explained, "AI is like a collaborator; it gives me suggestions and saves time, especially when I am under pressure to deliver a track quickly."

Digital music producers and beat makers also reported high levels of technical familiarity. A beat maker from Bulawayo shared, "I use AI-powered drum generators and loop makers almost every day. It doesn't replace me,

but it makes it easier to experiment.” Another noted, “Sometimes I let AI create a base beat and I layer my own sounds on top. It’s like having a co-producer who never sleeps.”

Sound engineers and studio technicians were aware mainly of AI-assisted mixing and mastering features. A sound engineer in Matabeleland South remarked, “AI plugins can automatically balance tracks, reduce noise and even suggest EQ settings. It’s very helpful when the studio is small, or when deadlines are tight.” A studio technician added, “Before AI, we used to spend hours adjusting frequencies manually. Now, we get a professional sound much faster.”

Recording artists had moderate awareness, often mediated by producers or beat makers. One vocalist from Bulawayo said, “I know the producer uses AI to fix pitch or generate background melodies, but I don’t really interact with it directly.” Another musician explained, “I understand it exists and that it can create music, but I don’t know how it works technically. I just use what the producer provides.”

Music technology specialists reported comprehensive knowledge of AI systems, including algorithmic design, integration with digital audio workstations and customizations for genre-specific outputs. A technology specialist stated, “We can train AI to recognize traditional Zimbabwean rhythms or Afro-pop styles. It’s very flexible if you know how to program it.”

Overall, these findings suggest that while awareness is high among producers and tech specialists, other participants particularly performing artists engage with AI indirectly. This highlights the need for targeted education and exposure across all practitioner categories.

Application of AI in Music Production Workflows

AI was applied in diverse ways across production workflows. Music producers reported using AI primarily for composition, arrangement and sound experimentation. A producer in Bulawayo explained, “I feed the AI a melody or chord progression and it generates several variations. Then I pick what fits best. It speeds up the creative process without taking away my artistic control.” Another producer noted, “Sometimes AI suggests chord sequences that are unusual but work well. It pushes me out of my comfort zone.”

Sound engineers emphasized AI’s role in technical production tasks, particularly mixing and mastering. One engineer in Matabeleland North said, “I use AI to clean recordings, balance levels and even add effects that I might not think of manually. It’s like having a second set of expert ears.” A studio technician added, “AI doesn’t replace our skills, but it helps maintain quality when we have limited staff or time constraints.”

Beat makers frequently applied AI to generate rhythms, loops and instrumental patterns. A beat maker from Matabeleland South stated, “I let AI create a base beat, then modify it. Sometimes it produces patterns I would never imagine on my own.” Another shared, “AI helps me experiment quickly. I can try ten different variations of a beat in minutes, something that used to take hours.”

Recording artists reported indirect AI use through producers, but some digitally literate musicians experimented directly. One artist in Bulawayo said, “I tried an AI app to make a demo. It gave me some melodies and I added my vocals on top. It’s exciting, but still very different from what a human producer does.”

Music technology specialists highlighted AI’s adaptability. One specialist remarked, “We integrate AI with studio software so it can generate ideas based on the artist’s style or the genre’s rhythm patterns. This is particularly useful for hybrid genres or traditional styles blended with contemporary sounds.”

These findings indicate that AI tools are used across creative and technical stages, from composition and arrangement to mixing, mastering and beat-making, functioning as complementary resources rather than replacements for human expertise.

Perceived Benefits of AI Adoption

Participants consistently cited multiple benefits of AI in music production. Enhanced creativity emerged as a primary advantage. A producer from Bulawayo noted, “AI gives me ideas I would never think of. Sometimes it

surprises me with a melody or harmony that sparks a whole new song.” Similarly, a beat maker said, “It helps me experiment faster. I can explore combinations of sounds that I wouldn’t attempt manually.”

Efficiency and time-saving were also emphasized. A sound engineer explained, “Automated mixing and mastering save hours of manual work. We can focus on refining the song rather than doing repetitive technical tasks.” Another studio technician added, “AI allows us to deliver quality productions quickly, which is essential when working with multiple clients.”

Participants highlighted AI’s role in skill development and learning. A producer commented, “By seeing what AI generates, I learn new arrangements and techniques. It’s a tool that pushes me to grow as a musician.” Beat makers noted similar benefits, indicating that AI encourages creative experimentation.

Access to advanced production techniques was another advantage, particularly for participants in rural areas. A musician from Matabeleland South shared, “Even with limited equipment, AI allows us to produce tracks that sound professional, which would have been difficult before.”

Finally, participants observed that AI could democratize music production, enabling smaller studios and independent artists to create high-quality music. One technology specialist stated, “AI reduces the gap between small-scale producers and big studios, giving more people the opportunity to innovate.”

Challenges and Limitations

Despite its benefits, AI adoption in Zimbabwe faces challenges. Technical expertise is a significant barrier, as many tools require understanding of digital audio software and AI functionalities. A musician in Bulawayo stated, “I want to use AI apps, but sometimes they are too complicated. I need training to understand them.” A sound engineer added, “Not everyone knows how to integrate AI into the workflow. It can be frustrating without proper guidance.”

Access and affordability were also highlighted. Participants in Matabeleland North and South noted that high subscription fees for AI software and unstable internet connectivity limited adoption. One producer said, “Even if I know the tool exists, I can’t always afford the license and some software needs constant internet to work properly.”

Ethical and cultural concerns emerged regarding originality and authenticity. Several musicians worried that heavy reliance on AI might homogenize music or undermine local styles. A beat maker commented, “If we rely too much on AI, songs might start to sound the same. It’s important to keep the Zimbabwean feel in the music.” A producer noted, “AI can create music, but it doesn’t understand our cultural nuances. We have to guide it carefully.”

Integration with existing systems was another challenge. Some participants reported compatibility issues between AI tools and older digital audio workstations, requiring additional adaptation and learning.

Perceptions of AI’s Impact on Creativity and Cultural Authenticity

Participants generally perceived AI as a complementary tool that enhances rather than replaces human creativity. A producer in Bulawayo stated, “AI is a partner, not a replacement. It gives options, but the soul of the music still comes from the human mind.” A beat maker added, “I wouldn’t let AI decide everything. It’s a tool for ideas and I shape it to fit my vision.”

Regarding cultural authenticity, participants emphasized the need to guide AI outputs to reflect Zimbabwean musical traditions. One musician said, “AI can’t capture the nuances of Chimurenga or Imbube on its own. We have to teach it, or it becomes generic.” A producer noted, “When blending traditional rhythms with modern electronic sounds, AI helps with experimentation, but we always control the final outcome.”

Participants also recognized AI’s potential to democratize creativity, allowing small studios and independent artists to produce professional-sounding music and reach wider audiences. A music technology specialist

explained, “AI levels the playing field. A talented producer in Matabeleland South can now create tracks that compete with big studios in Bulawayo.”

Summary of Key Findings

The findings indicate that AI is gradually transforming music production in Zimbabwe. Awareness is highest among producers, beat makers and technology specialists, while artists engage more indirectly. AI tools are applied across composition, arrangement, technical processing and beat-making, primarily as complementary resources. Benefits include enhanced creativity, efficiency, skill development, access to advanced tools and democratization of production. Challenges include technical complexity, limited access, affordability, integration issues and ethical concerns related to originality and cultural authenticity. Overall, participants perceive AI as a valuable tool that supports creative innovation while requiring careful adaptation to preserve Zimbabwean musical identity.

DISCUSSION

The purpose of this study was to investigate the use of Artificial Intelligence (AI) in music production among Zimbabwean musicians, producers, sound engineers, beat makers and music technology specialists and to explore its potential for enhancing creativity, workflow efficiency, and innovation. The study revealed a nuanced landscape in which AI tools are increasingly shaping music production practices while raising critical questions about access, technical capacity and cultural authenticity. Performance expectancy is reflected in participants’ belief that AI enhances creativity and efficiency. Effort expectancy is evident in challenges related to technical complexity. Facilitating conditions are reflected in issues of affordability, infrastructure and internet access.

From a DOI perspective, producers and beat makers function as early adopters, while recording artists often represent later adopters due to limited exposure and indirect engagement with AI tools.

This strengthens the explanatory power of the study by linking empirical findings to established technology adoption theories. This discussion interprets the findings in relation to existing literature and highlights their implications for the Zimbabwean music industry and the broader discourse on AI in creative practice.

Awareness and Understanding of AI Tools

The study found that awareness of AI in music production is highest among producers, digital music producers, beat makers and technology specialists, whereas recording artists often have a more limited understanding. This disparity aligns with the global trend where technical expertise often mediates access and engagement with AI technologies (Briot, Hadjeres, & Pachet, 2020; Herremans, Chuan, & Chew, 2017). The findings also resonate with Walsh (2020), who observed that AI adoption in music is often uneven, with early adopters being those with the necessary technical literacy or industry positioning.

In the Zimbabwean context, the findings suggest that while AI is recognized as a transformative tool, its benefits are not equally accessible across all practitioner categories. As one artist noted, “I know the producer uses AI to fix pitch or generate background melodies, but I don’t really interact with it directly.” This indicates a mediated engagement, where the creative influence of AI is filtered through those with the technical skills to operate it. It highlights the need for capacity-building initiatives to enhance digital literacy among artists and ensure that AI adoption does not exacerbate existing inequalities in access to creative technologies.

Application of AI in Music Production Workflows

Participants reported that AI is used across multiple stages of music production, including composition, arrangement, mixing, mastering and beat generation. Producers described AI as a collaborative tool that generates musical ideas, while sound engineers valued AI for technical assistance such as balancing audio and reducing noise. Beat makers emphasized AI’s capacity to automate repetitive tasks, allowing more time for creative experimentation. These findings align with research by Briot et al. (2020), who argue that AI can

augment creativity by providing suggestions and performing labor-intensive tasks without replacing human agency.

The study's findings extend this literature by demonstrating how AI tools are integrated within local Zimbabwean workflows. For example, a beat maker from Matabeleland South said, "I let AI create a base beat, then modify it. Sometimes it produces patterns I would never imagine on my own." This illustrates a hybrid approach in which AI-generated outputs are refined and contextualized by human creativity, supporting the view of AI as a co-creator rather than a replacement (McLean, 2021).

The findings also suggest that AI can enhance accessibility, particularly in rural regions with limited studio infrastructure. By automating technical processes, AI enables smaller studios and independent producers to produce tracks that meet professional standards, echoing Moyo's (2019) assertion that digital technologies can democratize music production in Southern Africa.

Perceived Benefits of AI Adoption

Participants identified multiple benefits of AI adoption, including enhanced creativity, efficiency, skill development, access to advanced production techniques and democratization of music production. These align with global research on AI in music, which highlights its potential to expand creative possibilities and support experimentation (Huang et al., 2018; Briot et al., 2020).

Creativity was a recurrent theme, with producers noting that AI generates musical ideas that spark innovation. As one producer explained, "AI gives me ideas I would never think of. Sometimes it surprises me with a melody or harmony that sparks a whole new song." This confirms that AI can serve as a catalyst for creative ideation, particularly when human creators face cognitive or technical limitations (Herremans et al., 2017).

Efficiency was also emphasized, particularly by sound engineers and producers who noted that AI-assisted mixing and mastering significantly reduces production time. Participants in rural areas highlighted that AI tools compensate for limited access to skilled personnel and advanced studio equipment, supporting Mathe's (2021) observation that AI adoption can level the playing field for resource-constrained producers.

Finally, participants acknowledged that working with AI encourages skill development, as they experiment with new musical structures and technologies. This finding resonates with Watson (2016), who notes that exposure to digital tools fosters technical literacy and creative growth among practitioners.

Challenges and Limitations

Despite its benefits, AI adoption faces several challenges. Technical expertise is a significant barrier, as many practitioners lack the skills to fully utilize AI tools. A musician from Bulawayo explained, "I want to use AI apps, but sometimes they are too complicated. I need training to understand them." This echoes Walsh's (2020) assertion that knowledge gaps can limit the effective integration of AI in creative practice.

Access and affordability were also cited as constraints, particularly in Matabeleland North and South. High subscription costs and unstable internet connectivity limit AI adoption, reflecting broader infrastructural challenges in Zimbabwe's digital landscape (Ncube, 2020). These findings underscore the need for targeted policies and support mechanisms, such as subsidized software, training programs and improved internet access, to facilitate equitable AI adoption.

Ethical and cultural concerns emerged regarding authorship, originality and cultural authenticity. Participants expressed concern that over-reliance on AI could homogenize music or dilute local styles. One beat maker stated, "If we rely too much on AI, songs might start to sound the same. It's important to keep the Zimbabwean feel in the music." This reflects similar concerns in global literature regarding AI-generated content and the preservation of cultural identity (Collins, 2019; Pasquier & Bressan, 2021). The findings suggest that careful human oversight is necessary to ensure that AI supports rather than undermines culturally meaningful music production.

Integration challenges were also noted, as AI tools sometimes conflict with existing digital audio workstations or hardware setups. This indicates that technical compatibility and infrastructure are critical factors influencing AI adoption.

AI, Creativity and Cultural Authenticity

Participants consistently viewed AI as a complementary tool that enhances human creativity rather than replacing it. As one producer explained, “AI is a partner, not a replacement. It gives options, but the soul of the music still comes from the human mind.” This aligns with McLean (2021), who emphasizes human-AI collaboration in creative production.

Regarding cultural authenticity, participants stressed the need to guide AI outputs to reflect Zimbabwean musical traditions. Recording artists and producers emphasized that AI cannot independently replicate local rhythms, harmonies, or vocal styles, such as those in Chimurenga, Imbube, or Afro-pop fusion. As a musician in Matabeleland South noted, “AI can help experiment with beats, but we have to teach it our traditional rhythms, or it becomes generic.” This demonstrates that AI adoption in Zimbabwe must balance technological innovation with cultural preservation, echoing the concerns raised by Nyamnjoh (2019) and Tracey (2000) regarding digital technologies and African cultural production.

Furthermore, participants acknowledged AI’s potential to democratize creativity, enabling independent artists and smaller studios to produce high-quality music and compete on a national or global stage. This highlights the dual role of AI as both a creative enabler and a cultural mediator, supporting innovation while necessitating careful curation to maintain authenticity.

Implications of the Findings

The findings have several implications. First, for practitioners, AI offers a tool to enhance creativity, streamline production, and experiment with new sounds. Training and education are essential to bridge knowledge gaps and ensure that all categories of music practitioners can benefit from AI technologies.

For policymakers and industry stakeholders, the study highlights the need to invest in infrastructure, provide affordable access to AI tools and develop guidelines for ethical and culturally sensitive AI use. These measures are critical to promoting equitable adoption and ensuring that AI contributes positively to Zimbabwean music production.

Academically, the study contributes to the limited literature on AI in African music contexts, providing empirical insights that extend findings from Western-centric research (Briot et al., 2020; Herremans et al., 2017). By demonstrating how AI is applied, perceived and experienced by practitioners in Zimbabwe, the study provides a foundation for further research on human-AI collaboration, cultural adaptation and innovation in African music industries.

CONCLUSION OF DISCUSSION

In summary, this study confirms that AI is emerging as a transformative force in Zimbabwean music production, facilitating creativity, efficiency and access to advanced production techniques. However, its adoption is uneven, constrained by technical, financial and infrastructural barriers. Ethical and cultural considerations are critical, as AI has the potential to both enhance and homogenize local musical practices. The findings underscore the importance of training, equitable access and culturally guided integration of AI technologies to ensure that Zimbabwean musicians can leverage these tools for innovation while maintaining authenticity.

Conclusion

This study set out to examine the use of Artificial Intelligence (AI) in music production among Zimbabwean musicians, producers, sound engineers, beat makers and music technology specialists, focusing on awareness, application, perceived benefits, challenges and impacts on creativity and cultural authenticity. The findings

indicate that AI is gradually becoming an integral part of music production workflows in Zimbabwe, particularly among producers, digital music producers, beat makers and technology specialists. Participants largely perceive AI as a complementary tool that enhances human creativity, facilitates experimentation, improves efficiency and provides access to advanced production techniques, while also recognizing the importance of human oversight to maintain originality and cultural identity.

The study demonstrates that AI adoption is uneven across participant categories and geographic regions. While producers and technology specialists exhibit high awareness and frequent use of AI tools, recording artists often engage indirectly, highlighting a knowledge and access gap. Participants reported that AI is applied in multiple stages of music production, including composition, arrangement, mixing, mastering and beat-making. The benefits are significant: AI supports creative ideation, reduces repetitive tasks, enhances skill development and democratizes production opportunities for musicians in resource-constrained settings. However, the study also identifies critical challenges. These include technical complexity, affordability and access issues, infrastructure limitations and ethical and cultural concerns regarding originality, authenticity and potential homogenization of music styles.

The findings underscore the dual nature of AI in creative production. On one hand, AI functions as a powerful enabler, offering new avenues for experimentation, hybridization of genres and efficiency gains. On the other hand, it requires careful human management to ensure that technological integration aligns with local musical traditions and cultural values. Participants repeatedly emphasized the need to guide AI outputs to preserve Zimbabwean musical heritage, such as Chimurenga, Imbube and Afro-pop styles, confirming the importance of culturally sensitive AI application in music production.

Recommendations

Based on the findings, several recommendations are proposed for music practitioners, industry stakeholders and policymakers in Zimbabwe:

1. There is a critical need for structured training programs and workshops to enhance digital literacy and AI skills among musicians, particularly recording artists and practitioners in rural areas. Such programs should cover AI tools for composition, arrangement and production, as well as ethical and cultural considerations.
2. High costs and subscription fees were identified as major barriers. Stakeholders, including software developers, music associations and government agencies, should explore subsidies, partnerships, or localized AI solutions to reduce financial and technical barriers to adoption.
3. Stable internet access and reliable computing resources are essential for effective AI use. Investment in digital infrastructure, especially in Matabeleland North and South, is necessary to enable equitable participation in AI-assisted music production.
4. To ensure AI integration respects Zimbabwean musical traditions, guidelines should be developed for ethical and culturally informed use of AI. Musicians and producers should be encouraged to train AI tools with local rhythms, vocal styles and harmonic patterns to maintain authenticity.
5. Platforms for collaboration among producers, sound engineers and technology specialists can enhance peer learning, facilitate knowledge exchange, and encourage the co-creation of innovative AI-assisted music that balances global and local influences.
6. Policymakers and industry bodies should recognize AI as a tool for creative development and innovation, incorporating it into music industry strategies, funding opportunities and digital arts promotion initiatives.

Future Research Directions

This study lays a foundation for further research on AI in African music contexts. Future research could explore:

1. Investigating how audiences perceive AI-assisted music in Zimbabwe, including acceptance, engagement and cultural authenticity, could provide insights into market dynamics and listener preferences.

2. Comparing AI adoption in music production across different African countries or regions within Zimbabwe could reveal structural, cultural and technological factors influencing use.
3. Examining how AI adoption evolves over time in the Zimbabwean music industry would offer insights into technological diffusion, skill development and changing creative practices.
4. Focused studies on specific music genres, such as Imbube, Chimurenga, or Afro-pop, could explore how AI tools are adapted to preserve and innovate within particular cultural and stylistic frameworks.
5. Research on how AI impacts the economic sustainability of music production, revenue streams and the livelihoods of practitioners would provide a more comprehensive understanding of its industry-wide effects.
6. Exploring the development and customization of AI tools tailored specifically for African musical traditions could promote innovation while safeguarding cultural authenticity.

Final Summary

In conclusion, AI is emerging as a transformative tool in Zimbabwean music production, offering unprecedented opportunities for creativity, efficiency and accessibility. The study demonstrates that while AI adoption is not yet uniform across all practitioners, its potential to support creative innovation is significant. Effective integration of AI requires addressing technical, infrastructural and ethical challenges while ensuring that Zimbabwean musical traditions are respected and preserved. By embracing AI in a culturally informed and inclusive manner, Zimbabwean musicians and industry stakeholders can leverage technology to innovate, expand their creative capacities and strengthen the global presence of local music.

This study contributes to the growing body of knowledge on AI in music production, particularly in African contexts, providing both practical guidance for industry practitioners and theoretical insights for scholars interested in technology-mediated creativity.

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