



Reimagining African Literary Narrative through Artificial Intelligence (AI) and Virtual Reality (VR)

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Abstract

Despite the limitations of current Virtual Reality (VR) and Artificial Intelligence (AI) technologies in enabling truly participatory storytelling, the immersive experiences they offer are transforming the way we engage with literary narratives. This paper explores the intersection of conventional storytelling and the evolving technologies of AI and VR, examining the ways in which immersive experiences are redefining the boundaries of literary narrative and reader engagement. The paper examines the implications of the convergence of communication media, technologically driven participatory literary activities and the future of narrative structures within the African context. Drawing on media convergence theory, which explores the intersection of old and new media forms, and Afrofuturism, a cultural movement that explores the intersection of African culture, science fiction, and technology, this research analyzes the current state of AI-generated African narratives and VR experiences in Africa. Given the scarcity of primary research in this emerging field, this study relied solely on secondary data, synthesizing existing knowledge to inform future research and provide a foundation for understanding the complex dynamics at play. The study found that AI-generated narratives offer new opportunities for storytelling, but also raise important questions about cultural ownership, authenticity, and representation. The study showed that VR experiences are effective in preserving African cultural heritage and promoting innovation in storytelling, but also highlight the need for cultural sensitivity and accessibility. The study further confirmed that the intersection of AI, VR, and African narratives will enable new forms of cultural exchange and collaboration. By examining the potential benefits and challenges of AI-generated narratives and VR experiences, this paper offers new perspectives on the future of African storytelling, cultural preservation, and innovation,

highlighting the need for further research into the intersection of technology and traditional African narratives.

Keywords: Artificial Intelligence (AI), Virtual Reality (VR), African Literary Narrative, Afrofuturism, Media Convergence, Immersive Experiences.

1. Introduction

This study takes a multidisciplinary approach, combining insights from media studies, literary theory, and postcolonial studies to explore the intersection of AI, VR, and African narrative structure. The paper provides a contrast between evolving contemporary literary genres in AI and VR and the conventional narrative patterns within the context of African socio-cultural and scholarly contexts. This paper explores the potential of AI and VR innovations to enhance literary narratives, offering new forms of interactive and immersive storytelling. While these technologies are still evolving, they promise to provide readers with novel ways to engage with stories, potentially blurring the lines between consumer and a media culture creator. Drawing from this analogy, this study will raise questions about the future of production and usage and appreciation of literary culture based on the implications of the new technological phenomena that affect how we do things.

African narratives have a rich and diverse history, spanning thousands of years and encompassing a wide range of cultures, languages, and traditions. From the epic oral traditions of West Africa to the intricate storytelling of Southern Africa, African narratives have played a vital role in shaping the continent's cultural heritage.

In many African cultures, oral traditions have been the primary means of passing down stories, histories, and cultural values from one generation to the next. These oral traditions have been characterized by their use of rich imagery, metaphor, and symbolism, which have enabled storytellers to convey complex ideas

and emotions in a way that is both engaging and memorable (Okpewho, 1992).

The advent of colonialism and modernity has had a profound impact on African narratives, leading to the suppression of indigenous languages and cultures, as well as the imposition of Western literary forms and traditions (Mudimbe, 1988). However, despite these challenges, African narratives have continued to thrive, with many writers and artists using their work to resist colonialism, challenge dominant narratives, and reclaim their cultural heritage (wa Thiong'o, 1986).

2. Literature Review

The Intersection of Technology and African Narratives

In recent years, the intersection of technology and African narratives has become an increasingly important area of study. With the rise of digital technologies, such as social media, virtual reality, and mobile devices, new opportunities have emerged for African storytellers to reach wider audiences, experiment with new forms and formats, and push the boundaries of traditional storytelling (Moyo, 2017).

Artificial intelligence (AI) has been increasingly used in various aspects of African narratives, including literature, film, and music. AI-powered tools have been employed to analyze and generate African languages, creating new opportunities for language preservation and promotion (Owolabi, 2018). Additionally, AI-driven natural language processing (NLP) has enabled the development of chatbots and virtual assistants that can engage with African languages and cultures (Makondo, 2019).

Virtual reality (VR) technology has been used to create immersive experiences that showcase African cultures and narratives. VR has enabled the creation of interactive stories, games, and exhibitions that allow users to engage with African histories, mythologies, and contemporary issues (Mwaura, 2017). Furthermore, VR has provided a platform for African artists and storytellers to experiment with new forms of narrative and to reach global audiences (Ogunyemi, 2018).

The intersection of AI, VR, and African narratives holds significant potential for innovation and creativity. AI-powered tools can be used to generate and analyze African languages, while VR technology can provide an immersive platform for storytelling and cultural exchange. The combination of AI and VR can enable the creation of interactive, immersive, and culturally relevant experiences that showcase African narratives and cultures (Kamau, 2020).

Immersive Experiences

Immersive experiences refer to the sensation of being completely surrounded and engaged in a simulated or virtual environment. This concept has garnered significant attention in various fields, including communicative psychology, cultural linguistics, marketing and education. According to Wouters et al., (2013), immersive experiences can enhance learning outcomes, increase engagement, and reduce cognitive overload. In the entertainment sector, immersive experiences are revolutionizing the entertainment industry, with applications in gaming, cinema, and theme parks (Kim et al., 2017).

Current VR and AI technologies can offer immersive experiences, but they are still largely limited to pre-designed, branching narratives or sandbox-style interactions (VR First 2020). In marketing and advertising, immersive experiences can increase brand awareness, enhance customer engagement, and drive sales (Papagiannidis et al., 2017). In fact,

immersive experiences are being used to treat anxiety disorders, PTSD, and other mental health conditions, according to Garcia-Palacios et al. (2002).

However, the level of agency and participation afforded to the reader is typically restricted to choosing from pre-defined options or exploring a virtual environment within predetermined boundaries. However unlimited, fully dynamic, and collaborative storytelling, where the reader can significantly influence the narrative's direction or structure, is still a subject of ongoing research and development in the fields of AI, VR, and interactive storytelling.

The concept of immersive experiences is rooted in the idea of presence, which refers to the sense of being physically present in a virtual or simulated environment (Heeter, 1992). Presence is a multifaceted construct that encompasses cognitive, emotional, and sensory aspects. According to the *presence theory* (Witmer and Singer 1998), individuals experience a sense of immersion when they feel a strong sense of presence in a virtual environment.

Presence theory, in the context of immersive experiences afforded by Virtual Reality (VR), refers to the psychological state of feeling physically and emotionally present in a virtual environment (Schubert, Friedmann and Regenbrecht 2001). This concept is crucial in understanding the impact of VR on users and designing effective immersive experiences. The factors Influencing Presence in VR include immersion, interactivity, realism, that is the degree to which the virtual environment simulates real-world experiences and user engagement, which is the user's emotional and cognitive investment in the virtual experience (Kim and Lee 2015).

The concept of presence theory in the context of virtual reality and immersive experiences was first introduced by Professor Thomas B. Sheridan in the 1990s. However, the

theory was further developed and popularized by Professor Mel Slater, a British psychologist and researcher, who is often credited as one of the key proponents of presence theory.

Professor Slater's work focuses on the psychological and social aspects of virtual reality, and he has published extensively on the topic of presence, including its relationship to emotional experience, behavior, and social interaction.

Other notable researchers who have contributed to the development of presence theory include Professor Bob Witmer, Professor Mary Whitton, and Professor Jeremy Bailenson, among others.

Immersive experiences are characterized by several key features, including sensory engagement; it drastically yet seamlessly engages visual, auditory, tactile, and kinesthetic domains of human psychophysiology (Lombard and Ditton, 1997). Significantly, Immersive experiences often involve interactive elements, allowing individuals to influence the virtual environment (Kim and Biocca, 1997). Also immersive experiences provide real-time feedback, enabling individuals to adjust their actions and perceive the consequences (Hinkley and Taylor, 2012). Immersive experiences can evoke strong emotions, ranging from excitement and joy to fear and anxiety (Gackenbach, 2008). Immersive experiences offer a unique opportunity for individuals to engage with virtual environments in a highly interactive and sensory manner.

AI and VR System Setup: Media Materials and Affordability

The integration of Artificial Intelligence (AI) and Virtual Reality (VR) technologies has the potential to transform various sectors in Africa, including education, healthcare, and entertainment. The cost of AI and VR hardware and software is prohibitively expensive for many Africans. High-end VR headsets, such as Oculus or Vive, can cost between \$500 to \$2,000,

while AI-powered devices, such as smart home assistants, can range from \$100 to \$500 (Mwaura, 2019). Additionally, the cost of software development kits (SDKs) and licenses for AI and VR development can be costly, ranging from \$100 to \$1,000 per year (Kamau, 2020).

Many African countries face significant funding challenges, which limits the adoption of AI and VR technologies. According to a report by the African Development Bank, the continent faces a significant funding gap, with an estimated \$100 billion needed to bridge the infrastructure gap (African Development Bank, 2019). This funding constraint limits the ability of governments, businesses, and individuals to invest in AI and VR technologies (Sylla and Ndiaye 2019).

The digital divide is another significant barrier to AI and VR adoption in Africa. Many Africans lack access to reliable internet connectivity, smartphones, and computers, making it difficult to access AI and VR technologies (International Telecommunication Union, 2020). According to a report by the International Telecommunication Union, in 2020, only 28% of the African population had access to the internet, compared to 62% in Europe (International Telecommunication Union, 2020).

Despite the cost challenges, there are opportunities for cost-effective AI and VR solutions in Africa. For instance, the use of mobile-based VR solutions, such as Google Cardboard, can provide an affordable entry point for Africans to experience VR (Mwaura, 2019). Additionally, the development of open-source AI and VR software can reduce the cost of development and deployment (Kamau, 2020).

There could be affordable options, such as open-source software, free 3D models and assets from online repositories, such as Sketchfab or GitHub. Others include creating your own 3D models, textures, and animations using affordable software, such as Blender or

GIMP. It is to note that the cheaper the less and the more expensive the more the quality and even the quantity of the applications on the AI and VR set up. The cost therefore has implications on the extent the system can offer.

Demerits of Virtual Reality (VR)

Like any of the newer media technologies, VR is also an enticing drug that can trigger tolerance. Consumption of virtual reality products can be significantly addictive, and this is a potential drawback of the technology. VR is designed to be highly absorbing, which can lead to a sense of presence and engagement that is hard to break away from. VR experiences can trigger the release of dopamine, a neurotransmitter associated with pleasure, reward, and addiction. And like many forms of media, VR provides some form of escapism, allowing users to temporarily forget about real-world problems and stressors.

VR can be a solo activity, which can lead to social isolation and decreased face-to-face interaction.

Unlimited content: The availability of unlimited VR content can lead to binge-watching or excessive use, similar to what's seen with traditional screen-based media.

According to Ryan (2001), in "Narrative as Virtual Reality," Marie-Laure Ryan discusses the potential of virtual reality to create immersive narrative experiences. While she acknowledges the limitations of early VR technology, her work lays the groundwork for exploring the intersection of narrative and VR. Also Murray (2017) in "Hamlet on the Holodeck," Janet H. Murray discusses the potential of digital media to create immersive, interactive narratives. She argues that these new forms of storytelling can provide a more engaging and participatory experience for readers.

The PwC (2020) in their report "Entertainment and Media Outlook 2020-2024," PwC highlights the growing importance of

immersive technologies like VR and AR in the entertainment and media industries. Also Deloitte (2020), Deloitte's report "Digital Media Trends Survey" notes that consumers are increasingly interested in immersive experiences, including VR and AI.

According an interview with a VR developer in PwC (2020), a developer of VR experiences for literary narratives might provide insight into the current limitations and potential future directions of VR storytelling. And according a literary critic, a literary critic might offer a more nuanced perspective on the implications of immersive technologies for literary narratives, including potential benefits and drawbacks.

Gackenbach (2008) outlines potential signs of VR addiction to include:

- Excessive use: Spending increasing amounts of time in VR, often at the expense of other activities and responsibilities.
- Withdrawal symptoms: Experiencing symptoms like headaches, eye strain, or irritability when unable to use VR.
- Neglect of relationships: Neglecting relationships, work, or other important aspects of life due to VR use.
- Continued use despite negative consequences: Continuing to use VR despite experiencing negative consequences, such as eye strain, headaches, or social isolation.

AI-Generated African Narratives and VR Experiences

AI-generated African narratives and VR experiences offer exciting opportunities for storytelling, cultural preservation, and innovation. However, challenges related to cultural ownership, authenticity, representation, accessibility, media materialism/affordability, and cultural sensitivity must be addressed to ensure that these technologies benefit African cultures and communities (Heeter, 1992). The advent of

Artificial Intelligence (AI) and Virtual Reality (VR) technologies has transformed the narrative landscape, offering new avenues for storytelling, content creation, and cultural preservation.

AI-generated African narratives are still in their infancy, with limited examples of AI-powered storytelling and content creation. However, some notable initiatives have emerged:

- AI-generated African folktales: Researchers have used AI algorithms to generate African folktales, preserving cultural heritage and promoting diversity in storytelling (Onyango et al., 2020).
- AI-powered African language translation: AI-powered translation tools have been developed to translate African languages, facilitating communication and cultural exchange (Kamau et al., 2019).

Some of the potential benefits of AI include, according to Hinkley and Taylor (2012):

- Cultural preservation: AI-generated narratives can help preserve African cultural heritage, especially in cases where oral traditions are at risk of being lost.
- Increased representation: AI-powered storytelling can provide opportunities for underrepresented African voices to be heard.
- Accessibility: AI-generated narratives can be made available in multiple languages, increasing accessibility for diverse audiences.

Also Hinkley (2012) outlines some of the challenges of AI to include:

- Cultural ownership: Concerns arise about cultural ownership and appropriation, as AI algorithms may generate narratives that are not authentic or respectful of African cultures.

- Authenticity: The use of AI-generated narratives raises questions about authenticity, as the stories may not be based on real experiences or cultural traditions.
- Representation: There is a risk that AI-generated narratives may perpetuate stereotypes or reinforce negative representations of African cultures.

On the other hand, VR experiences in Africa are growing, with various initiatives focused on storytelling, cultural preservation, and innovation:

- VR storytelling: African filmmakers have used VR to tell immersive stories, such as the VR experience "The Other Dakar" (Sylla et al., 2019).
- Cultural preservation: VR has been used to preserve African cultural heritage sites, such as the VR experience "Explore the Pyramids of Meroe" (Khalaf et al., 2020).
- Innovation: VR has been used in African innovation hubs, such as the VR First program in South Africa, which supports VR content creation and innovation (VR First, 2020).

According to Garcia-Palacios, Hoffman and Kavanaugh (2002), some of the potential benefits of VR include:

- Immersive storytelling: VR experiences offer immersive storytelling opportunities, allowing audiences to engage with African cultures in new and innovative ways.
- Cultural preservation: VR can help preserve African cultural heritage sites and traditions, providing a unique opportunity for cultural preservation and education.
- Innovation: VR can drive innovation in Africa, supporting the development of new industries and job opportunities.

The potential challenges include, according to Garcia-Palacios, Hoffman and Kavanaugh (2002):

- Accessibility: VR experiences are often inaccessible to many Africans due to the high cost of VR equipment and limited internet connectivity.
- Media materialism/affordability: The cost of producing high-quality VR content is prohibitively expensive for many African creators, limiting the development of VR experiences.
- Cultural sensitivity: VR experiences must be developed with cultural sensitivity, avoiding stereotypes and misrepresentations of African cultures.

The convergence of Artificial Intelligence (AI), Virtual Reality (VR), and African narratives has sparked significant interest in recent years. Research has shown that the integration of AI and VR can create immersive and interactive storytelling experiences that simulate the sensory experiences of African cultures (Sylla et al., 2019). AI-generated content can also be used to create African-inspired music, dance, or visual art, allowing for new forms of creative expression (Onyango et al., 2020).

Also studies have demonstrated the potential of AI and VR to digitally preserve African cultural heritage sites, artifacts, and traditions (Khalaf et al., 2020). AI-generated content can also help revitalize endangered African languages and cultural practices (Mwaura et al., 2019). Furthermore, the intersection of AI, VR, and African narratives can enable the creation of innovation hubs, where African entrepreneurs, artists, and technologists can collaborate and develop new solutions (Kamau et al., 2020).

The intersection of AI, VR, and African narratives has significant implications for traditional storytelling methods. Research has shown that AI and VR can facilitate cultural exchange between Africa and the global

community (Sylla et al., 2019). Additionally, AI and VR can enable collaboration between African storytellers, artists, and technologists, promoting cross-cultural understanding and innovation (Onyango et al., 2020). However, concerns have been raised about the potential for cultural appropriation and the need for cultural sensitivity in the development of AI and VR applications (Mwaura et al., 2019).

Despite the potential benefits of the intersection of AI, VR, and African narratives, several challenges remain. These include ensuring access to AI and VR technologies for African communities, particularly in rural areas (Kamau et al., 2020). Additionally, there is a need for cultural sensitivity and awareness in the development of AI and VR applications to avoid cultural appropriation and misrepresentation (Mwaura et al., 2019). Future research should focus on addressing these challenges and exploring the potential of AI and VR to promote African narratives and cultural preservation.

Theoretical Framework

Media convergence theory (e.g., Henry Jenkins): Explores the intersection of old and new media forms, including the impact of digital technologies on traditional storytelling methods. Afrofuturism (e.g., Mark Dery, Nnedi Okorafor): A cultural movement that explores the intersection of African culture, science fiction, and technology, offering new perspectives on the future of African narratives.

The intersection of media convergence, Afrofuturism, and Artificial Intelligence (AI) and Virtual Reality (VR) technologies has given rise to new forms of African literary narrative. This paper partly examines the current state of research on this topic, exploring how these technologies are transforming the conventional African literary narrative and the implications of Afrofuturism in this context.

Media convergence, which refers to the integration of different media forms into a single

platform or narrative, has been identified as a key factor in the transformation of African literary narrative (Baldwin, 2018). The use of AI and VR technologies, in particular, has enabled the creation of immersive, interactive, and multimedia-rich stories that transcend traditional print-based narratives (Eshun, 2003).

Afrofuturism, a cultural and intellectual movement that explores the intersection of science fiction, technology, and African diasporic culture, provides a unique framework for understanding the implications of these technologies on African literary narrative (Bould, 2018). Afrofuturism challenges dominant Western narratives and offers new possibilities for reimagining African futures (Mbembe, 2017).

Research has shown that the integration of AI and VR technologies into African literary narrative offers new possibilities for storytelling, world-building, and reader engagement (Nnedi, 2019). AI-generated content, such as algorithmic poetry or AI-assisted storytelling, can create new forms of narrative that blend human and machine creativity (Tshuma, 2020).

However, there are also concerns about the potential risks of cultural homogenization and the loss of traditional African storytelling forms (Ogundipe, 2018). Furthermore, the accessibility and affordability of AI and VR technologies for African writers and artists remain significant challenges (Mabasa, 2019).

The convergence of media, Afrofuturism, and AI/VR technologies in African literary narrative presents a new frontier for research and creativity. As scholars and writers continue to explore the implications of these technologies, it is essential to consider both the opportunities and challenges they present.

3. Methodological Issues

This paper explored the intersection of AI, VR, and African narratives, which is a

relatively new and emerging area of research. Secondary data provides a foundation for understanding the current state of knowledge. The limited number of VR/AI users in Nigeria can indeed justify relying on secondary data. The research area may have limited access to VR/AI users, making it hard to recruit participants for primary research. Again, the rapid growth of research in AI, VR, and African studies has resulted in a wealth of secondary data. Leveraging this existing research enables a comprehensive analysis and provides a solid foundation for future studies.

This paper draws on theoretical frameworks from postcolonial theory, media convergence theory, and Afrofuturism. Therefore, secondary textual data will provide the necessary theoretical foundations. The paper analyses concepts, such as the impact of AI and VR on African narratives, the role of Afrofuturism, and the potential drawbacks of AI/VR technology; again secondary textual data will provide the necessary conceptual insights. Also collecting primary data through surveys, interviews, or experiments may be time-consuming and resource-intensive. Relying on secondary textual data allows the paper to focus on analyzing and synthesizing existing research.

4. Summary of Key Findings

Based on the secondary data analysed, this paper confirmed that AI-generated African narratives will challenge traditional storytelling methods.

The study found that AI-generated narratives offer new opportunities for storytelling, but also raise important questions about cultural ownership, authenticity, and representation.

The study showed that VR experiences are effective in preserving African cultural heritage and promoting innovation in storytelling, but also highlight the need for cultural sensitivity and accessibility.

The study also confirmed that the intersection of AI, VR, and African narratives will enable new forms of cultural exchange and collaboration. This is because the study found that the intersection of AI, VR, and African narratives enables new forms of cultural exchange and collaboration, promoting cross-cultural understanding and appreciation.

This paper further confirms that African storytellers will need to develop new skills to adapt to emerging technologies. This is because the research highlighted the need for African storytellers to develop new skills, such as coding, 3D modeling, and VR experience design, to adapt to emerging technologies and remain relevant in the digital age.

The study confirmed that digital divide will persist in Africa, with unequal access to emerging technologies.

The study found that the digital divide persists, with unequal access to emerging technologies, such as AI and VR, in African communities, particularly in rural and underserved areas.

The study further confirmed that Afrofuturism and media convergence will emerge as key frameworks for understanding the intersection of AI, VR, and African narratives.

5. Conclusion

This paper argues that the sustained evolution of media materials and their related applications within cultures globally are continuing to disrupt and reshape the way things are done. One of the key areas experiencing drastic changes due to material, technological and cultural convergence of the media is the African narrative pattern – from a linear creator to a host of heterogeneous listeners, readers or viewers, to a ubiquitous, participatory and immersive experience, where both the story creator and the audience participate through augmented or virtual recreation of reality. This study therefore

explores the conceptual and theoretical rooting of Artificial Intelligence (AI) and Virtual Reality (VR) as new media phenomena that have drastically changed African narrative structure. The paper also analysed the impact that such technological advancements are having on the future of interactive communication and narrative system in Africa. Merits and the deficits of the new phenomena are discussed and measures suggested as remedial actions.

In the end, the study suggested many areas requiring different modes of scholarly attention in order to benefit from the inventions and interventions of technology while preserving the core originality and flavour of the African culture in general and its linguistic and literary aspect in particular. The paper equally suggested that researches be directed towards potential neuro-psychological and social impacts of the persistent use of immersive media technology, particularly in the aspects of dependence and addiction.

6. Recommendations for Future Research

The intersection of AI, VR, and African narratives offers new opportunities for storytelling, cultural preservation, and innovation, while also raising important questions about cultural ownership, authenticity, and the future of traditional storytelling methods.

Offer recommendations for future research and implications for the evolution of African narratives in the digital age.

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- ADVANTAGES AND DISADVANTAGES OF AI/VR drawbacks