

The Impact of Artificial Intelligence on Animated Dance Creation: A Study of Audience Engagement and Creative Transformation

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ABSTRACT

As a result of advancements in technology and software, the artificial intelligence (AI) has integrated into creative industries. AI has introduced novel approaches to various aspects of dance production, including costume design, choreographic composition, and animated dance creation. As a result, dance has extended beyond the boundaries of live stage performance and has increasingly become integrated into virtual and digital platforms. The creation of dance animation is a complex and multi-layered process that involves the anthropomorphizing of non-living or virtual characters into lifelike forms. It requires the integration of full-body movement, expressive gestures, costume design, in to rhythmic cultural and traditional way to achieve a coherent and believable performance. The primary problem of this research is to determine whether human-created or AI-generated animated dance is more effective and realistic from the audience's perspective. In addition, the study seeks to investigate the extent to which artificial intelligence influences dance animation in terms of visual quality, emotional expression, and conceptualization. This study adopts a mixed-method research design to examine audience perceptions of AI-generated and human-created animated dance. A purposive sample of fifty participants with prior knowledge of dance and media will be selected. Quantitative data collected through questionnaires and qualitative data collected from audience observation and discussions. The findings of this research AI-generated dance content enhance visual appeal and accessibility, particularly in digital and social media contexts and it may lack the depth of emotional expression typically associated with human performance. The study concludes that AI does not replace traditional dance practices but rather expands the possibilities of dance as a hybrid digital art form.

Keywords: Artificial Intelligence, Animation, Dance Art, Audience Engagement, Digital Creativity

INTRODUCTION

As a result of an advancement in technology and software, artificial intelligence (AI) has increasingly integrated into creative industries, transforming traditional artistic practices into hybrid digital forms. Within the field of dance, AI has introduced innovative approaches to choreographic composition, costume visualization, motion capture, and animated dance creation. Consequently, dance has extended beyond the boundaries of live stage performance and has become embedded within virtual, interactive, and digital platforms.

Dance, traditionally understood as a cultural expressive art form, is deeply connected to human emotion and social context (Adshead-Lansdale & Layson, 2006). However, with the AI-driven animation tools, non-human agents are capable of generating movement, simulating gestures, and producing visual dance performances. This transformation raises critical questions regarding authorship, authenticity, and audience perception.

The creation of animated dance is a complex and multi-layered process that involves the anthropomorphizing of virtual or non-living characters into lifelike performers. It requires the integration of full-body movement, expressive gestures, costume design, and rhythmic synchronization within cultural and traditional frameworks to achieve coherence and believability. AI has rapidly progressed in recent years, revolutionizing fields such as computer vision, natural language processing, and human-computer interaction. A significant frontier in this

evolution is generating human-related content, including realistic facial synthesis, expressive gestures, and complex motion sequences (LLM Lab Org, 2025).

This study seeks to explore the comparative impact of AI-generated and human-created animated dance on audience engagement and creative transformation. Benedikte Wallace et al., 2021 evaluated AI-generated dance improvisation against human performances, finding that while AI models successfully mimicked certain aspects of “dance-likeness and expressivity,” they struggled with sound-motion mappings compared to human dancers.

The objectives of this research are:

- To determine whether AI-generated or human-created animated dance is more effective and realistic from the audience’s perspective.
- To examine how AI influences dance animation in terms of visual quality, emotional expression, and conceptual development.
- To analyze audience engagement with AI-driven dance content in digital environments.
- To study the process of AI-generated and human-created animated dance creation.

METHODOLOGY

This study adopts a mixed-method research design to provide a comprehensive understanding of audience perceptions of AI-generated and human-created animation in a comparative context. The integration of quantitative and qualitative approaches enables both measurable analysis and in-depth interpretation of audience engagement. For the purpose of this study, two categories of animated dance were selected: AI-generated animation and human-created dance animation. For the human animation, Moana film dance has been selected. Following the viewing sessions, questionnaires were administered to collect quantitative data. A purposive sampling method was employed to select fifty participants who are within the 20- 40 age limit with prior knowledge of dance and media studies without considering gender. This ensured that participants possessed the necessary background to critically evaluate both the technical and aesthetic aspects of the animations. Structured questionnaires were used to collect measurable data related to visual quality, realism, emotional engagement, and overall audience preference. Responses were recorded using a likert-scale format. To complement the quantitative data, qualitative data were gathered through an observation method. Participants were observed during the viewing sessions to analyze their immediate reactions, levels of attention, and emotional responses. In addition, discussions with field experts were conducted to obtain deeper insights and professional perspectives on the effectiveness, authenticity, and creative aspects of both AI-generated and human-created dance animations. Quantitative data was analyzed using SPSS software. Qualitative data were interpreted through thematic analysis using Nvivo identifying recurring patterns related to engagement, realism, and creative perception.

RESULTS

The findings of this study reveal significant differences between AI-generated and human-created animated dance, particularly in relation to visual appeal, emotional expression, and audience engagement. The results indicate that 90% of participants considered human-created animation to be highly effective in enhancing visual realism and emotional depth. In contrast, 80% of participants noted that AI-generated content demonstrated smooth motion quality and innovative creative compositions. According to the observational findings, participants paid greater attention to AI-generated dance animations when viewed on social media platforms. Many participants identified AI-generated dance as a novel and visually attractive form of content compared to traditional human-created performances, which increased its appeal within digital environments.

Furthermore, when the dance sequences from the animated film Moana were screened as examples of human-created animation, 80% of participants stated that the performances appeared lifelike and natural rather than

artificially enhanced. Participants also emphasized that the animation effectively represented cultural traditions, symbolic gestures, and dance movements associated with a specific cultural identity and national background.

However, in addition to its technical strengths, 85% of participants mentioned that AI-generated dance was often perceived as lacking emotional depth. Furthermore, 90% of participants indicated that human-created dance conveys a stronger sense of emotional authenticity, as well as cultural and traditional identity. Participants were able to identify the country or cultural background of the performance through costume design, symbolic gestures, and movement patterns. Moreover, human-created dance presents subtle performance details such as natural eye blinking, toe and finger movements, and micro-movements, all of which enhance the realism and believability of the performance. In contrast, 95% of participants mentioned that AI animation is much more difficult to modify in terms of micro-movements, including eye blinking and toe movements. Participants further noted that making post-production changes to such detailed movements is highly challenging in AI-generated animation.

Additionally, although AI-generated movements are technically accurate and visually refined, they often appear emotionally neutral and less expressive when compared to human-created performances. This finding highlights a critical distinction between computational precision and human expressiveness within artistic performance.

The study further highlights that artificial intelligence should not be viewed merely as a tool, but rather as a collaborative creative agent. It expands the possibilities of dance by enabling experimentation with non-human forms, generating new choreographic patterns, and bridging traditional and digital art forms. However, the creative process remains fundamentally dependent on human input, particularly in terms of conceptualization, cultural interpretation, and emotional expression.

DISCUSSION

The findings of this study demonstrate that artificial intelligence has introduced a significant transformation in the field of animated dance creation. As a result of technological advancements, AI-generated dance has emerged as an innovative approach that expands the boundaries of traditional dance practices into digital and virtual environments. One of the major advantages identified in this study is the ability of AI to conceptualize non-living or virtual characters as dynamic dance performers. This process of anthropomorphizing non-living characters creates visually attractive and imaginative performances that effectively capture audience attention, particularly on digital platforms and social media environments.

The results of this study indicate that AI-generated dance animation is highly effective in enhancing visual quality and creative experimentation. Approximately 80% of participants noted that AI-generated content demonstrated smooth motion quality, innovative choreography, and visually refined compositions. Observational findings further revealed that audiences paid greater attention to AI-generated dance content when viewed on social media platforms. Participants identified AI-generated dance as a novel and visually attractive form of content compared to traditional human-created performances, which increased its appeal within contemporary digital viewing cultures. AI-generated animation feels believable in dance conceptualization. It is an achievement of artificial intelligence to generate human-believable motion through prompt based non-human character machine. This finding supports the argument that digital media transforms audience interaction with artistic content by increasing accessibility and engagement (Manovich, 2019).

In the present context, dance is no longer confined to live stage performances. With the integration of AI and animation technologies, dance has become increasingly accessible through digital and social media platforms, allowing audiences to engage with performances at their fingertips. This shift has significantly expanded audience reach and participation. Participants in this study emphasized that AI-generated dance content is particularly suitable for online viewing due to its visual complexity, technological novelty, and adaptability to digital platforms.

However, despite these technical strengths, the findings also reveal that AI-generated dance lacks the emotional depth and authenticity associated with human-created performances. Approximately 85% of participants

mentioned that AI-generated dance often appears emotionally neutral despite its technical precision. In contrast, 90% of participants indicated that human-created dance conveys a stronger sense of emotional authenticity, cultural identity, and traditional expression. Participants were able to identify the country or cultural background of performances through costume design, symbolic gestures, and movement patterns. These findings suggest that emotional engagement in dance is closely connected to human embodiment, cultural understanding, and lived experience, which remain difficult to replicate through artificial intelligence systems (Foster, 2011).

Furthermore, when dance sequences from the animated film *Moana* were screened as examples of human-created animation, 80% of participants described the performances as lifelike, natural, and culturally expressive rather than artificially enhanced. Participants also emphasized that the animation effectively represented traditional dance elements, symbolic gestures, and cultural identity. In addition, human-created animation presented subtle performance details such as natural eye blinking, toe and finger movements, facial expressions, and micro-movements, all of which contributed to the realism and believability of the performance.

The study also identified substantial differences between the production processes of human-created animation and AI-generated animation. Traditional animation involves manual keyframing, motion capture, choreographic planning, modeling, texturing, rigging, lighting, and rendering, all guided by human creativity and artistic intention. This process requires a deep understanding of rhythm, body movement, emotional expression, and cultural context. Although human-created animation is highly time-intensive and technically demanding, it offers a greater level of creative control. Animators and directors are able to modify detailed elements such as costume design, hand gestures, eye blinking, facial expressions, and cloth dynamics according to their artistic vision.

In contrast, AI-generated animation primarily relies on algorithms, machine learning models, and motion datasets to automate movement generation. While this approach increases production efficiency and reduces production time, it also limits flexibility in detailed customization and post-production editing. Approximately 95% of participants mentioned that modifying micro-movements, including eye blinking, toe movement, and subtle gestures, is significantly more difficult in AI-generated animation. Participants further noted that making post-production changes to such detailed movements remains highly challenging within AI-based workflows. As a result, AI-generated performances often appear mechanically accurate but less expressive when compared to human-created animation.

Another important limitation identified in this study is that AI systems depend heavily on pre-existing datasets, which may restrict originality and creative interpretation. Unlike human artists, who create performances based on personal experience, cultural understanding, and emotional interpretation, AI systems generate outputs according to learned patterns and computational data. Therefore, the creative process in AI-generated dance animation still requires substantial human involvement, particularly in conceptual development, storytelling, emotional expression, and cultural interpretation. In terms of audience engagement, the findings indicate that AI-generated dance is highly effective in attracting initial audience attention due to its novelty, visual complexity, and technological appeal. At present, AI technologies have advanced to a level where animated movements closely resemble realistic human dancing with refined performance quality. However, human-created dance was found to be more effective in sustaining long-term audience engagement through emotional connection, expressive realism, and cultural authenticity. These findings suggest that while visual appeal and technical innovation are important for attracting viewers, emotional resonance and expressive depth play a more significant role in maintaining audience engagement over time.

Despite these limitations, AI continues to play a significant role in advancing the dance animation industry. It functions as a supportive creative tool that enhances productivity, reduces production time, and enables experimentation with new forms of movement, choreography, and visual design. AI allows creators to explore virtual characters, fantasy-based performances, and hybrid digital art forms that may not be achievable within traditional performance settings. Additionally, AI contributes to the integration of dance into virtual reality, interactive media, and social media environments.

Furthermore, AI contributes to the democratization of dance creation by providing accessible tools for artists and content creators. Individuals with limited technical expertise are now able to utilize AI-based platforms to

generate animated dance content, thereby increasing participation within the creative industry. This demonstrates that AI supports not only professional production practices but also emerging creators within digital creative spaces.

In conclusion, the discussion highlights that AI-generated dance animation presents both advantages and limitations. While artificial intelligence enhances visual quality, accessibility, efficiency, and creative innovation, it lacks the emotional depth, authenticity, and cultural expressiveness associated with human-created dance. The comparison between AI-generated and human-created animation processes reveals that both approaches possess distinct strengths and weaknesses. Therefore, they should not be considered competing methods, but rather complementary creative practices. The future of dance animation is likely to evolve through a hybrid creative approach in which human artistic expression and artificial intelligence technologies work collaboratively to produce more engaging, meaningful, and innovative performances.

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