

## The Impact of AI-Generated Art on the Creative Process of Painting Artists: A Conceptual Paper

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### ABSTRACT

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#### KEYWORDS:

Artificial Intelligence Generated Art  
Creative Process  
Chinese Background  
Self-Efficacy  
Technology Acceptance Model

#### CITATION:

Wang, X., Rainal Hidayat Wardi, & Rusmawati Ghazali. (2025). The Impact of AI-Generated Art on the Creative Process of Painting Artists: A Conceptual Paper. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 10(2), e003011.  
<https://doi.org/10.47405/mjssh.v10i2.3110>

This conceptual paper explores how AI-generated art tools impact the creative processes of painters in Beijing, Shanghai, and Shenzhen, China. By constructing a conceptual framework, the study analyzes the effects of AI tool dependency and technology acceptance on creative inspiration, efficiency, innovation, and satisfaction, with self-efficacy considered a moderating factor. Based on existing literature, it can be inferred that current research lacks empirical studies on different types of painters who use AI-generated art, including in China. This study provides a new perspective for understanding the potential role of AI in artistic creation, offering a theoretical foundation and guidance for future research. The findings of this conceptual paper contribute to understanding the influence of AI on artists' creative processes and promote the integration of artistic creation with modern technology.

**Contribution/Originality:** The paper's primary contribution is finding that AI-generated art tools influence the creative processes of Chinese artists by linking technology acceptance, self-efficacy, and creativity. This conceptual framework highlights how artists integrate AI into their work, offering insights for innovation in art and establishing a foundation for future research in AI-driven creativity.

## 1. Introduction

In recent years, artificial intelligence (AI) has garnered significant attention in art creation, particularly AI-generated art tools represented by OpenAI (Shi, 2023). AI-generated art learns and replicates different styles and techniques by analyzing vast amounts of existing artistic data (Cotroneo & Hutson, 2023). Techniques like Generative

Adversarial Networks (GAN) and deep learning are commonly used: the former generates new images through the interaction between generator and discriminator, while the latter produces works that mimic human creativity through extensive data analysis (Rosado et al., 2021). With these tools, ordinary individuals can use deep learning algorithms to create stunning images and paintings, such as the portrait "Edmond de Belamy" and AI models like DALL-E and Midjourney, which can transform text descriptions into images (Brand et al., 2021). Driven by public and private incentives and the widespread application of these powerful tools, AI's impact on the creative and cultural fields is increasingly significant, leading to many articles, reports, and studies on AI and artistic practices. The allure of AI-generated art lies in its ability to transcend the limitations of traditional creation, enabling ordinary creators to innovate in fields such as painting, music, and literature through advanced algorithms and technology (Brand et al., 2021). This technology is also viewed as a shortcut, making it possible for ordinary people to write like Shakespeare, compose like Bach, or paint in the style of Van Gogh (Rosado et al., 2021).

Despite the opportunities AI technology brings to art creation, debates and controversies surrounding AI use in artistic creation are intensifying among scholars (Rombach et al., 2022; Epstein et al., 2023). They point out that the application of AI in art creation faces numerous challenges, such as those related to authorship and the definition of creativity. AI's involvement blurs the identity of traditional artists, disrupting conventional creative motives and processes (Crimaldi & Leonelli, 2023). Additionally, issues of cultural neutrality in AI tool usage have sparked discussions, as AI algorithms and training data are influenced by the developers' cultural backgrounds and values (Caramiaux & Alaoui, 2022). Some studies also explore legal and ethical issues of AI, such as Epstein et al.'s (2023) discussion on the challenges and opportunities of generative AI in culture, aesthetics, and labor economics, highlighting that the introduction of generative AI not only redefines the role of creators but also raises complex legal issues regarding copyright and ownership (Epstein et al., 2023). These issues lead traditional artists to question the originality and technique heritage of creation and engage in discussions on the cultural and ethical issues of AI-generated works.

Chinese scholars are also contemplating these issues (Shi, 2023). Notably, contemporary Chinese painting, influenced by historical and cultural heritage, merges the diversity and innovation of modern art to create a unique artistic style (Xing et al., 2023). In developed cities like Beijing, Shanghai, and Shenzhen, integrating artistic activities and technological innovation fosters a rich artistic ecosystem (Ren & Sun, 2011). Artists are typically categorized by their creative methods and media into three types: traditional painters, digital painters, and mixed-media artists. Traditional artists continue to use classic media such as ink, oil, printmaking, and mixed materials (Yin, 2022). Digital painters use drawing tablets and computers to store their works in digital form (Zhao et al., 2022). Mixed-media artists explore new artistic expressions between these realms (Xi et al., 2023). Compared to Western painting, contemporary Chinese painting emphasizes the expression of mood and emotion, focusing on the work's inner spirit and cultural meaning. In contrast, Western painting emphasizes a realistic representation of form and light (Duan, 2023). This uniqueness suggests that AI-generated painting is particularly worth studying in the context of Chinese culture.

Beyond discussions on originality and ethics, more research focuses on AI's code, algorithms, and recognition accuracy, exploring technical applications and

optimizations. For instance, [Wajid et al. \(2023\)](#) analyzed deep learning and knowledge graphs in image and video captioning ([Wajid et al., 2023](#)). [Tanugraha \(2023\)](#) explored MidJourney's role in architectural design ([Tanugraha, 2023](#)). Although these studies enrich the technical perspective of AI-generated art, most do not focus on artists' perspectives and experiences, overlooking their creative processes and actual use of AI tools. This limits researchers' understanding of how AI affects artists' creative processes, originality, and sources of inspiration. As AI technology continues to penetrate the art field, its impact on artists' creative processes needs further exploration, especially regarding how artists use AI tools to assist their work and how this reshapes their artistic expression and creative logic ([Epstein et al., 2023](#)). Empirical studies on artists' experiences when using AI are lacking ([Caramiaux & Alaoui, 2022](#)). Comprehensive research is thus urgently needed to fill this gap and understand how AI-generated art significantly alters artists' creative processes and inherent artistic concepts.

This conceptual paper focuses on how AI impacts artists' creative processes and the practical use of AI tools in painting. Current research lacks empirical studies on AI-generated art's impact on artists' creative processes, particularly within the Chinese cultural context. This paper will review related research to understand the challenges and opportunities faced by artists from different cultural backgrounds due to AI, identifying relevant research gaps. It will establish a conceptual model to understand how dependency on AI tools affects painters' creative processes, particularly in the Chinese cultural context, thereby contributing to diverse future applications of AI and art integration.

### **1.1. Research Significance**

This conceptual paper analyzes AI tools' impact on artists' creative processes in Beijing, Shanghai, and Shenzhen. The research will explore how these tools reshape artists' thinking, creative habits, and self-expression. This study not only provides theoretical support for understanding the complexity of art creation but also contributes to the development of related theories. The findings of this conceptual paper will lay the groundwork for future empirical research, helping painters effectively utilize AI tools to improve efficiency, inspire creativity, and increase satisfaction. The paper will reveal the advantages and challenges of AI tools in practice, offering artists practical usage advice and strategies. This data aids artists in optimizing their creative processes and guides inspiration and personal style expression. Furthermore, the results can serve as a reference for art industry practitioners, educational institutions, and policymakers, promoting the integration of art creation with modern technology and fostering diverse development in the creative ecosystem.

### **1.2. Research Objective**

To develop a conceptual framework that examines the impact of AI-generated art tools on the creative processes of painters in Beijing, Shanghai, and Shenzhen by analyzing the influence of AI tool dependency and technology acceptance on creative inspiration, creative efficiency, innovation, and satisfaction with creation, while assessing the moderating role of self-efficacy.

## 2. Method

The Critical Literature Review (CLR) is a method used to evaluate and synthesize existing research. It goes beyond summarizing studies by critically analyzing their assumptions, methods, and conclusions (Verger et al., 2021). This approach identifies gaps, inconsistencies, and trends in the literature, providing a deeper understanding of the field (Gruber & Oopen, 2017). In this paper, CLR is used to examine the intersection of artificial intelligence and art (Dalebroux et al., 2008). It focuses on both the technological advancements in AI art creation and the psychological, social, and artistic factors that affect painters' creative processes. The artist's perspective is often overlooked in existing research (Gao et al., 2022). This review reveals the complex relationship between AI-generated art and painting artists in Beijing, Shanghai and Shenzhen.

## 3. Findings

### 3.1. Background and Impact of Artificial Intelligence (AI) in Art Creation

In recent years, advancements in algorithm design and computational capabilities have positioned AI as an increasingly significant player in art creation. With the widespread adoption of technology, AI not only offers new forms of artistic expression but also influences the conceptual thinking and operational processes of art creation (Radford et al., 2021; Ramesh et al., 2021). The introduction of AI technology provides creative methods for art creation, encouraging artists to rethink their artistic practices (Vaswani et al., 2017).

The application of AI technology, particularly in art, has shown a diversified development trend. The emergence of technologies like Generative Adversarial Networks (GANs) has made art creation more diverse and innovative (Goodfellow et al., 2014). Launching models such as DALL-E, CLIP-VQGAN, and Stable Diffusion marks significant advancements in image generation and other fields (Rombach et al., 2022). These AI tools enhance the generative and interactive capabilities during the art creation. They are increasingly applied across various art forms, such as image and music creation (Mazzone & Elgammal, 2019). Existing research indicates that the application of AI technology in art creation faces cultural, aesthetic, legal, and creative labor reward challenges (Audry, 2021; Cetinic & She, 2022).

The impact of AI technology on art creation has been demonstrated in multiple studies. Nitsche and Weisling (2019) pointed out that AI serves as a tool and a collaborative partner in the creative process, reshaping artists' creative concepts and interaction methods (Nitsche & Weisling, 2019). Scurto et al. (2021) emphasized AI's crucial role in enhancing creation efficiency and providing new inspiration. AI can help artists alleviate task burdens, allowing them to focus more on creative concepts and experimentation (Scurto et al., 2021). Additionally, Graham Dove et al. (2017) noted that the unpredictability of machine learning (ML) outcomes can bring creative joy but also potential difficulties, making AI both an efficiency-boosting tool and a challenge within the creative process (Graham Dove et al., 2017). However, current research predominantly focuses on AI technology itself and its interactive design with art, with less attention paid to the role and experiences of artists in the actual creative process.

[Caramiaux and Alaoui \(2022\)](#) explored the application of AI technology in art creation. Through semi-structured interviews with five internationally renowned artists, the researchers analyzed how these artists use AI in their creative processes. The artists grasp AI technology through hands-on practice and experimentation rather than relying on theoretical knowledge. When using AI, they focus more on the experience and adjustment of algorithmic behavior, challenging traditional concepts of control, aesthetics, and authorship. AI's unexpected outcomes and errors have a particular allure in art creation. Artists use these surprises to create unique and exciting artworks ([Caramiaux & Alaoui, 2022](#)). Although this study reveals that the experience of using AI and adjusting algorithms significantly impacts the artists' creative processes, it seems to lack sufficient representation of artists. It offers a limited understanding of the creative process, focusing only on experience and algorithm adjustment.

[Gao et al. \(2022\)](#) suggest that the profound impact of artificial intelligence (AI) on art creation is primarily reflected in three areas: reliance on technological means, conception of artistic content, and diversity of artistic forms. AI technology enhances the technical reliance of art creation through intelligent robots and virtual reality, making the presentation of artworks more dependent on high technology. Additionally, AI breaks through traditional two-dimensional artistic expressions, achieving multidimensional expression of artistic concepts and transforming abstract artistic ideas into concrete and perceptible forms. Moreover, introducing AI continuously enriches and develops traditional art forms, contributing to the emergence of various new art forms and blurring the boundaries of art types, thereby promoting innovation and cross-border integration in art creation ([Gao et al., 2022](#)). However, this study does not explore aspects such as the frequency of use by artists, acceptance of technology, and satisfaction with creations. Therefore, this research intends to approach from the artists' perspective.

### 3.2. Research on the Creative Psychology and Behavior of Painters

Research indicates that artistic creation activities significantly impact an individual's self-efficacy and emotional state. Firstly, a study on evaluation and artistic creativity suggests that creative self-efficacy plays a crucial moderating role in this process ([Haase et al., 2018](#)). Specifically, individuals with low creative self-efficacy experience a significant decrease in creativity levels under anticipated evaluation, whereas those with high creative self-efficacy remain unaffected. This implies that the level of creative self-efficacy determines the stability of individuals' creative performance when evaluated. Moreover, artistic creation positively improves emotional states ([Dalebroux et al., 2008](#)). Studies have found that creating art in a free environment reduces negative emotions while enhancing positive emotions and self-efficacy. For the college student demographic, research also indicates that self-efficacy mediates between social support and psychological resilience, illustrating that positive social support can further enhance psychological resilience by boosting self-efficacy ([Verger et al., 2021](#)). Therefore, artistic creation activities not only aid in emotional regulation but also enhance psychological resilience and self-concept by improving self-efficacy, ultimately increasing overall creative satisfaction ([Gruber & Oopen, 2017](#)).

### 3.3. The Art Ecosystem in China

Its diversity and innovation mark the characteristics of contemporary Chinese painting. Artists not only explore a wide range of themes, from traditional landscapes and flower-

and-bird paintings to modern urban scenes and social issues, but they also continually experiment with techniques, attempting to blend elements of tradition with modernity and East with West, thus creating new artistic languages and modes of expression (Xing et al., 2023). Some studies indicate that cultural policies in cities like Beijing, Shanghai, and Shenzhen are crucial in shaping artistic practices. At the same time, artist communities promote diversity and innovation in art through collective activities and resource sharing (Ren & Sun, 2011). This interaction supports artistic creation and provides opportunities for artists' career development, enabling them to navigate better the constantly evolving cultural and policy environments (Ren & Sun, 2011). However, emerging artists face numerous challenges in this commercialized art environment, such as market pressures and financial sustainability (Zhang, 2021). This environment also encourages artists to explore new possibilities with a global perspective, making them more open to embracing innovations like artificial intelligence. The painting artists in these regions can be seen as a microcosm of Chinese painting art.

### 3.4. Technology Acceptance Model

The Technology Acceptance Model (TAM), proposed by Davis in 1989, is used to understand users' acceptance and usage behaviors concerning new technologies (Davis, 1989). The core framework of this theory includes two key variables: Perceived Usefulness and Perceived Ease of Use. The Technology Acceptance Model effectively delineates the attitudes and behaviors of artists when using AI-generated art tools. Specifically, the degree of reliance on AI tools can be seen as a concrete manifestation of artists' perceived usefulness of these tools. Artists who frequently use these tools believe they can significantly enhance their creative efficiency. Additionally, perceived ease of use directly relates to satisfaction (King & He, 2006). If artists find these tools easy to use and effective in improving the quality of their creations, they are likely to rely more on AI tools in their creative processes. Through this theoretical framework, this study not only explores the intrinsic motivations behind artists' acceptance of AI tools but also reveals how this acceptance influences their satisfaction with the creative process.

## 4. Proposed Conceptual Framework

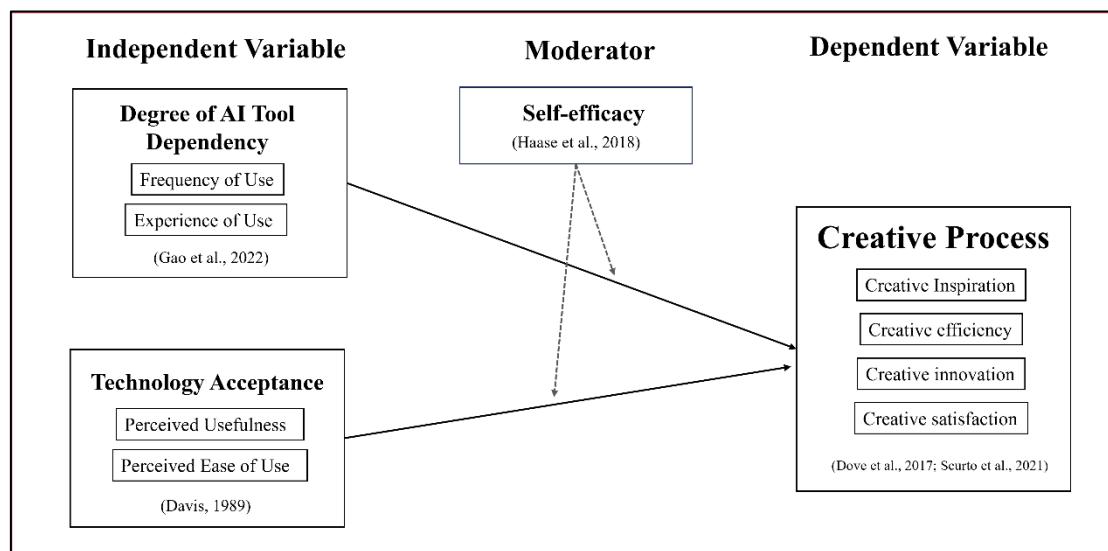
The conceptual framework of this study revolves around "the impact of AI-generated art on the creative process of painters," focusing on the three major cities of Beijing, Shanghai, and Shenzhen in China. The research model designates the "Creative Process" as the dependent variable, with "Degree of AI Tool Dependency" and "Technology Acceptance" as independent variables and "Self-efficacy" as a moderating variable, as illustrated in Figure 1. The following is a specific interpretation of these variables.

### 4.1. Independent Variables: Degree of AI Tool Dependency and Technology Acceptance

As an independent variable, the Degree of AI Tool Dependency primarily measures the extent to which artists rely on AI tools during the creative process, including usage frequency and experience (Gao et al., 2022). Usage frequency refers to how often artists use AI tools in their creations, while usage experience pertains to the depth of their interaction and proficiency with these tools. An increase in this variable may alter the artists' modes of creation, thereby impacting the process and outcomes of creative generation.

Technology Acceptance serves as another independent variable, based on [Davis's \(1989\)](#) Technology Acceptance Model (TAM), and is mainly assessed through "Perceived Usefulness" and "Perceived Ease of Use." Perceived Usefulness reflects artists' beliefs about AI tools' assistance in enhancing the efficiency and quality of their creations. Perceived Ease of Use captures their subjective feelings regarding the ease of using these tools. Increasing technology acceptance may encourage artists to adopt AI tools more frequently.

Figure 1: Conceptual Framework Developed for This Study from the Researchers



#### 4.2. Dependent Variable: Creative Process

These variables measure the specific impact of AI tool usage on artists during the creative process, encompassing "Creative Inspiration," "Creative Efficiency," "Creative Innovation," and "Creative Satisfaction." This series of dimensions reflect the multifaceted effects that AI tools have on the artists' creative process, including inspiration, creative expression, and innovation realization, as well as the overall satisfaction that artists derive from their creative experiences ([Graham Dove et al., 2017](#); [Scurto et al., 2021](#)).

#### 4.3 Moderating Variable: Self-efficacy

Self-efficacy, as a moderating variable, reflects the level of confidence that artists have in their ability to use AI tools for creation, according to the research by [Haase et al. \(2018\)](#). The level of self-efficacy may moderate the extent to which AI tool dependency and technology acceptance influence the creative process. Artists with high self-efficacy will likely be more confident and proactive when using AI tools, positively moderating the effects on creative generation and innovation.

### 5. Conclusion

This conceptual paper explores the impact of AI-generated art tools on the creative process of painters in Beijing, Shanghai, and Shenzhen. The paper constructs a conceptual framework to reveal the interrelationships among AI Tool Dependency, Technology Acceptance, and Self-efficacy in this process. The research indicates that AI Tool Dependency and Technology Acceptance play significant roles in the artists'

creative processes, explicitly affecting Creative Inspiration, Creative Efficiency, Innovation, and Creative Satisfaction. A high frequency of AI tool usage and a positive inclination toward technology acceptance enhance the artists' creative experience, stimulate creative inspiration, and improve efficiency. However, the influence of AI tools is not singular; the artists' self-efficacy significantly moderates it. Artists with higher self-efficacy are more likely to demonstrate greater proactivity and confidence in AI-assisted creation, and this confidence, to some extent, amplifies the positive effects of AI tools.

This conceptual paper is the first to conceptualize the impact of AI on the creative process of painters within the cultural context of China. It emphasizes how technology acceptance and self-efficacy can enhance the creative influence of AI tools, providing a fresh perspective on the role of AI in artistic innovation. The framework offers direction for future research. Future studies could further explore the varying impacts of AI tools on artists across different cultural backgrounds and technological environments using quantitative research methods. Further research findings will contribute to achieving a closer and more effective integration of AI and art.

### **Ethics Approval and Consent to Participate**

Not applicable

### **Acknowledgement**

Part of this article was extracted from a doctoral thesis submitted to Universiti Teknologi MARA, Shah Alam.

### **Funding**

No funding.

### **Conflict of Interest**

The authors declare no conflict of interest.

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