

Innovation of Hand-drawn Expression Techniques in the Era of Artificial Intelligence

Yefang Hu¹

¹ Yunnan College of Business Management, Kunming, Yunnan 650106, China

ABSTRACT

In the era of artificial intelligence, the upgrading and transformation of traditional industries has become a trend, and artificial intelligence technology plays an important role in it. The development of artificial intelligence has not only increased productivity and improved medical technology, but also brought new opportunities for the development of traditional education. In this context, the course of hand-painted expression techniques, as a basic course for environmental design majors, is facing a huge challenge.

Keywords: *Artificial intelligence, Hand-drawn expression techniques, Innovation.*

1. INTRODUCTION

The combination of artificial intelligence and design can bring many advantages. Artificial intelligence can help designers better understand user needs and market demands so that they can better design and launch products. By analyzing user data, AI can help designers better understand users' needs and preferences to design more appropriate products. In addition, AI can also help designers automate some repetitive tasks, thus saving time and energy and allowing designers to devote more energy to more valuable ideas and designs.

Although AI can provide a lot of help, it does not replace designers. Designers still need to be creative, imaginative, and innovative, all of which cannot be replaced by AI. Designers need to create unique designs based on their intuition and creativity, while AI is just a tool that cannot replace human creativity and imagination. Therefore, the combination of AI and design is a useful way of cooperation that allows designers to better use their creativity and imagination, while also being able to better meet the needs of users and the needs of market.

2. THE STATUS OF HAND-DRAWN EXPRESSION TECHNIQUES

Hand-painted expression techniques still have a very important position in today's art field. It is not only the basis of traditional art but also the cornerstone of modern art experiments and innovation.

From the perspective of traditional art, the unique artistic language and form of expression of hand-painted expression techniques are one of the main means for artists to convey their thoughts and emotions. From sketch, sketch to color and other aspects, hand-painted techniques have gone through a long process of development, forming a unique charm of artistic expression. Many artists still rely on traditional hand-painted techniques when creating, and through brushstrokes and lines, they perfectly integrate rich and colorful emotions and expressiveness to achieve the best effect of the artwork.

From the perspective of modern art, the uniqueness of hand-painted expression techniques is still one of the necessary tools for artists to experiment and innovate. Against the background of today's highly developed digital technology, more and more artists have begun to explore the combination of hand-painted techniques and digital technology, thereby further expanding the expressive space of hand-painted art. For example,

the combination of hand-painted art with 3D and AR/VR technology provides artists with new creative methods and forms of expression, greatly expanding the scope and possibility of hand-painted expression techniques.

2.1 Hand-drawn Expression Technique Is the Basic Course for Environmental Design Majors

In the environmental design program, the hand-drawn representation techniques course is a very important foundation course. It helps students to better express their ideas and concepts in environmental design. Through this course, students can learn to use different materials and tools to express their ideas, including pencil, charcoal, watercolor, and oil.

The skills students can learn in the hand-drawn expression techniques course include perspective, composition, shading, and color. These skills can help students better understand and express their design ideas. Students also learn how to use different materials and tools to create different effects, which can be very helpful for their future careers.

In terms of teaching, teachers can use a variety of teaching methods such as lectures, demonstrations, and exercises to help students learn hand-drawn expression techniques. In addition, teachers can also guide students to participate in practical projects so that they can apply the skills they have learned to real projects. Through this course, students can learn a range of skills and knowledge that will be very helpful for their future career development.

2.2 The Role of Hand-drawn Expression Techniques in Design

Hand-drawn presentation techniques play an important role in design. With the rapid development of computer technology, the importance of hand drawing may diminish in some areas, but in others, it remains irreplaceable. Hand-drawing techniques can help designers better express and communicate their ideas, and thus better communicate with clients, team members, and other stakeholders [4]. Hand-drawing techniques can help designers quickly generate and explore multiple design options at an early stage, thus helping them to better understand and define the problem and ultimately find the best solution. In addition, hand-drawing techniques can help

designers better understand and master design fundamentals such as perspective, proportion, color, and light and shadow. Through hand drawing, designers can better feel and understand the form, texture, and spatiality of objects, thus better presenting the design. It can help designers better express and communicate their ideas, quickly generate and explore multiple design solutions, and better understand and master design fundamentals [5].

3. INNOVATION

Exploring the application of artificial intelligence in hand-drawn expression techniques can help to enhance and improve traditional art techniques and create new and innovative expressions.

3.1 Application of Artificial Intelligence in Hand-drawn Representation Techniques

As an art form, the hand-painted expression technique has been experiencing innovation and progress since its birth. In today's era of rapid development of digital technology, hand-painted expression techniques are also constantly exploring and breaking through their own limitations, presenting many new innovations and possibilities [6]. The following are some representative innovations in hand-painted expression techniques:

3.1.1 Automatic Sketch Generation

A common application is the use of artificial intelligence to generate automatic sketches. Through the learning and training of AI algorithms, sketches can be automatically generated to match human aesthetics. This technique not only improves the efficiency of artists but also helps designers to express their ideas more accurately.

3.1.2 Automatic Coloring and Filling

Another application is the use of artificial intelligence technology for automatic coloring and filling. In the past, manual coloring and filling were very time-consuming and labor-intensive tasks, but by using AI technology, these tasks can be done quickly. This technology allows artists and designers to focus more on creativity and the development of design ideas.

3.1.3 Artificial Intelligence to Assist in the Creation

In addition to automated processing, AI can also assist artists and designers in their creative work. For example, through machine learning technology, the characteristics and styles of artworks can be analyzed and relevant suggestions and references can be provided to artists. Such technology can help artists better understand their creative style and direction, thus improving the quality and uniqueness of their artworks.

3.2 Challenges of Artificial Intelligence in Hand-painted Expression Techniques

The challenges of artificial intelligence in hand-drawn expression techniques are mainly focused on naturalness, color, creativity, and individuality.

3.2.1 Naturalness

The uniqueness of hand-drawn expression techniques lies in their naturalness, that is, the vivid, natural, and real feeling shown by hand-drawn works. However, with artificial intelligence in the performance of hand-drawn techniques, it is often difficult to achieve this degree of naturalness, because the images generated will often appear too smooth, too regular, and lacking the unique texture, form, and details of hand-drawn works.

Color: hand-painted works of color often have a distinctive personality and expressive power, while the images generated by artificial intelligence often appear too monotonous, too bland, lacking the rich color layers and changes of hand-painted works.

3.2.2 Innovation

Another unique feature of hand-drawn expression techniques is their innovation, that is, the unique creativity and imagination shown by hand-drawn works. However, with artificial intelligence in the performance of hand-drawn techniques, it is often difficult to achieve this innovation because the images generated by it often lack unique creativity and imagination, and it is difficult to present the unique charm of hand-drawn works.

3.2.3 Personalization

Another important characteristic of hand-drawn works is their personalization, that is, the unique style and characteristics of the individual author

expressed in the hand-drawn works. However, artificial intelligence often difficult to achieve this personalization when expressing hand-drawn techniques, because the images generated by it often lack the unique style and characteristics of the individual author, making it difficult to present the personalized characteristics of hand-drawn works.

3.3 The Innovation and Breakthrough Point of Hand-drawn Expression Techniques Under Artificial Intelligence

In terms of hand-drawn expression techniques, the application of artificial intelligence provides new possibilities for innovation and breakthroughs. There are the following points:

3.3.1 AI-assisted Hand-painting

By using AI technology, the quality, and efficiency of hand-painting can be improved. For example, AI can help painters quickly find the right colors and textures, and provide real-time feedback during the hand-painting process.

3.3.2 Automated Hand-drawing Generation

AI can generate high-quality hand-drawn works, including illustrations, comics, and animations. This automated generation technology can reduce the production time and cost of hand-drawn work.

3.3.3 Combining with Virtual Reality

Combining hand-drawn techniques with virtual reality technology can create stunning visual effects. Artificial intelligence can help render virtual reality scenes more realistically.

3.3.4 Hand-drawn Style Image Processing

Artificial intelligence technology can simulate various hand-drawn styles, making digital pictures more artistic. For example, a photo can be converted into a cartoon-style hand-drawn image, or a simple line drawing can be converted into a hand-drawn work with a watercolor effect.

In short, AI technology provides new tools and opportunities for hand-drawn expression techniques, but it does not completely replace the skills and experience of hand-drawn artists. The hand-painted expression technique is not limited to the traditional two-dimensional hand-painted form, it is constantly

integrating and innovating with modern digital technology, presenting a new look and form of expression. These innovations allow hand-painted expression techniques to better adapt to the needs of modern society and continue to create a better artistic experience for people.

4. CONCLUSION

The art of hand drawing has evolved and changed in the digital age. Although the traditional two-dimensional form of hand-drawing still exists, hand-drawing expression techniques are undergoing a revolution with the advancement of digital technology. Introducing new technologies has provided more tools and opportunities for hand-drawn art while creating many challenges and demands. While artificial intelligence technology can assist hand-drawn artists in their work, it must partially replace their skills and experience. In conclusion, digital technology has opened up new possibilities for hand-drawn art and allows it to continue to play an essential role in modern society.

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