Application Innovation of AIGC Generation Technology in Visual Design Teaching of Digital Media Art

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Keywords: Digital Media Art; AIGC; Visual Design Teaching

Abstract: This paper discusses the application of AIGC (Artificial Intelligence Generation Content) technology in the visual design teaching of digital media art, and demonstrates its ability to quickly generate creative content through advanced algorithms and big data analysis, thus improving teaching efficiency and broadening students' creative space. The advantages of AIGC technology lie in improving teaching efficiency, enhancing students' participation, promoting personalized learning, expanding creative boundaries, strengthening interdisciplinary learning, improving teaching quality and cultivating students' skills in the future. Specific applications include theme conceptual design, color matching and style design and dynamic visual design practice. However, high technical threshold, low controllability of creative process and copyright and ethical issues are challenges in application. Therefore, this paper puts forward some countermeasures, such as lowering the technical threshold, improving the controllability of creation and strengthening the education of copyright and ethics. Generally speaking, the application of AIGC technology not only revolutionizes the traditional teaching mode, stimulates students' creativity and interest in learning, but also opens up a new path for cultivating innovative and practical design talents, and its future application prospect in this field is very broad.

1. Introduction

As a new art form, digital media art has penetrated into all aspects of our lives. Visual design, as the core component of digital media art, is becoming increasingly important. It can not only display information intuitively, but also lead the audience to explore the mystery of art through unique visual language [1]. However, the traditional visual design method has gradually failed to meet the needs of modern society in some aspects, especially in terms of creativity generation and efficiency improvement.

The rise of AIGC technology has injected new vitality into the field of digital media art [2]. This technology uses advanced algorithms and big data analysis capabilities to quickly generate creative and artistic content. The emergence of AIGC technology not only greatly improves the efficiency of content production, but also provides artists with a broader creative space [3]. In this context, it is particularly important to explore the application innovation of AIGC generation technology in the visual design teaching of digital media art. By introducing this cutting-edge technology, we can change the traditional teaching mode, stimulate students' interest in learning and cultivate their innovative thinking and practical ability.

2. Advantages of AIGC generation technology in visual design teaching of digital media art

AIGC generation technology has become an important tool in the visual design teaching of digital media art, and its advantages include improving teaching efficiency, helping teachers to prepare materials quickly by automatically generating design elements and samples; Teachers enhance students' participation, so that students can see the design ideas transformed into visual results in real time, stimulating creativity and interest in learning; Educators promote personalized

  DOI: 10.25236/eeim.2024.020

learning and provide customized resources according to students' progress and preferences; Instructional programs expand the creative boundary, providing unlimited design possibilities and encouraging innovation; Curriculum designers strengthen interdisciplinary learning, promoting the integration of multidisciplinary knowledge and establishing a comprehensive knowledge system; Teaching staff improve teaching quality, assisting teachers in monitoring learning progress and adjusting strategies; and Educational institutions cultivate future skills, enabling students to adapt to the wide application trend of AIGC technology in various industries and preparing them for their careers [4-5].

3. A concrete application case of AIGC generation technology in the teaching of visual design of digital media art

3.1. Theme conceptual design

In the visual design teaching of digital media art, theme conceptual design is an important link to cultivate students' creative thinking and design ability. However, the traditional hand-drawing or software operation method often takes a long time to generate the design scheme, and is limited by students' personal skills and experience. In order to overcome these limitations, AIGC technology is introduced to assist the teaching process of theme conceptual design.

In practical application, teachers first set a clear design theme for students, such as "future city", "environmentalism" or "integration of science and technology with nature". Then, using AIGC technology platform, teachers can quickly generate sketches of various design schemes related to this theme. These sketches combine the results of big data analysis and the creative output of deep learning algorithms, showing rich and diverse design elements and styles (see Figure 1).

Figure 1 Using AIGC technology to design the theme concept

Students can quickly get inspiration and expand their design ideas by observing these design schemes generated by AIGC technology in class. They can choose, modify and integrate these sketches according to their personal preferences and aesthetic concepts, thus forming their own unique design works. This teaching method not only greatly improves the generation speed of design scheme, but also provides students with more diversified creative sources, which is helpful to cultivate their innovative thinking and design ability.

By comparing and analyzing the design scheme generated by AIGC technology and the final works completed by students, teachers can also deeply understand the thinking track and creative development of students in the design process, so as to conduct more targeted teaching guidance and evaluation. This interaction and feedback mechanism further enhances the teaching effect and promotes the effective communication between students and teachers. Using AIGC technology to teach thematic conceptual design can quickly generate a variety of design schemes for students' reference and choice, and effectively improve students' design ability and innovative thinking [6].

3.2. Color collocation and style design

Color matching and style design are important parts of visual communication design, which are

very important for cultivating students' aesthetic ability and design skills. The application goal is to help students master the basic knowledge of color theory and its meaning in different cultural backgrounds by introducing AIGC tools, learn to use color psychology to influence the emotional response of the audience, and practice various visual styles to understand their importance in brand recognition. The ultimate goal is to enable students to create design works that are unique and fit for the target audience.

In the teaching method, the teacher first introduces the basic attributes of color, the relationship between salmon and the symbolic significance under different cultural and historical backgrounds to the students through theoretical explanations. Then, using AIGC tools to demonstrate how to generate color schemes, for example, using a palette generator based on machine learning to automatically create color schemes according to keywords or emotional descriptions. Then, students will have interactive exercises and try to create their own TINT by using AIGC tools, and apply it to practical projects such as poster design, website interface or product packaging. In the analysis and feedback session, students share their works and discuss the influence of the color scheme generated by AIGC on the design effect, and at the same time accept the evaluation of teachers and classmates. In addition, the style exploration part allows students to use AIGC technology to generate different styles of art works, such as minimalism, pop art and retro style, so as to understand the characteristics of various styles and integrate them into their own designs. Finally, in the group project, students choose a visual style in groups, use AIGC tools to complete a complete design project, and show the results to the whole class for evaluation. The specific teaching method is shown in Figure 2.

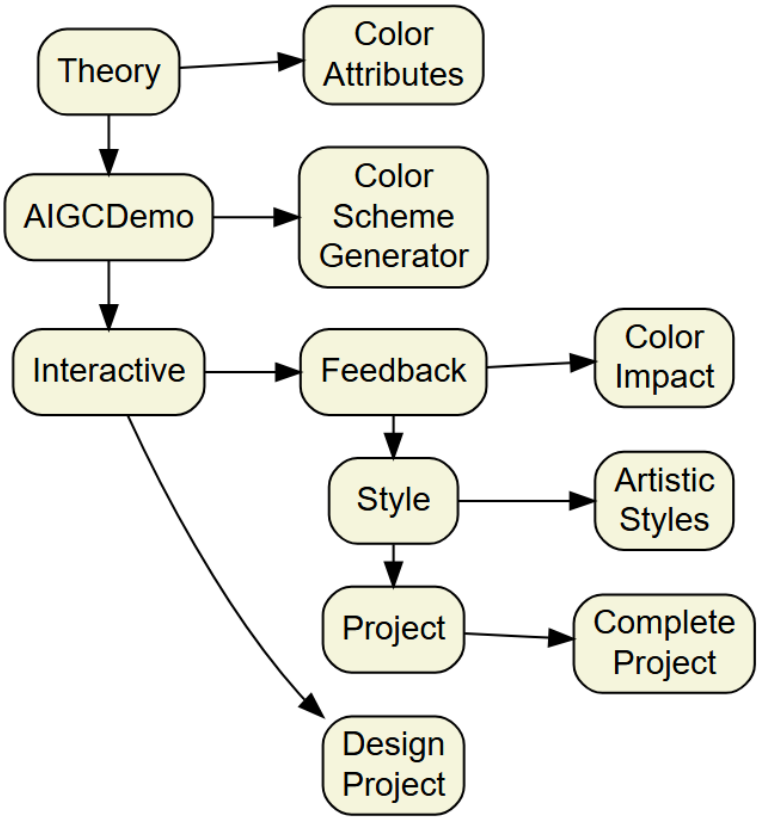

Figure 2 Teaching methods of color collocation and style design

Students can independently use AIGC tools for color matching and style design, enhance their understanding of color psychology and effectively apply it in practical design; In addition, they will improve their teamwork ability and creative thinking, as well as cultivate their critical thinking ability and learn how to evaluate and optimize their design works. By integrating AIGC technology into the teaching process of color matching and style design, it can not only improve teaching efficiency, stimulate students' creativity, make them better adapt to the needs of the rapidly developing design industry, but also facilitate teachers to keep abreast of students' learning progress

and provide more personalized guidance.

3.3. Practice of dynamic visual design

3.3.1. Teaching objectives

In the visual design teaching of digital media art, dynamic visual design is a key field. It not only requires students to master basic aesthetic principles and technical skills, but also requires them to have innovative ability and keen perception of dynamic effects. In order to improve students' practical ability and creative level, this case introduces AIGC technology to help students achieve higher expressiveness and attraction in dynamic visual design through specific teaching activities.

The teaching goal of this course is to enable students to deeply understand and master the basic principles and methods of dynamic visual design, and to enhance their creative ability and innovative consciousness by being familiar with and applying AIGC tools, so as to enhance the expressive force and attraction of works.

3.3.2. Teaching process

First of all, teachers explain the basic knowledge of dynamic visual design to students, including the basic attributes of dynamic graphics, such as time, space and speed, animation principles, such as slow motion, cycle and transition, and the application of color and composition in dynamic design. In addition, the teacher also introduced the specific application scenarios and advantages of AIGC technology in dynamic visual design.

Next, the teacher shows how to use the existing AIGC software or platform to assist dynamic visual design. For example, an animation generator based on machine learning is used to automatically generate a set of dynamic design schemes for students' reference after inputting keywords or emotional descriptions. The teacher demonstrated in detail the whole process from selecting tools, setting parameters to generating schemes, and emphasized the characteristics and applicable scenarios of different tools.

Students practice interactively in groups. Each group of students chooses a theme (such as "environmental protection", "science and technology" and "sports") and tries to create their own dynamic visual design scheme by using AIGC tools. Teachers set specific scene requirements, such as "designing a public service advertisement animation with environmental protection theme". In practice, students learn how to adjust the parameters and optimize the effect, and make secondary creation and improvement on the initial scheme generated by AIGC.

After completing the exercises, students share their works and discuss how the dynamic design scheme generated by AIGC affects the overall design effect. Teachers and other students provide feedback to discuss which dynamic combinations are more effective, why and how to improve them further. Through this kind of interactive communication, students can better understand the elements and skills of dynamic design, and enhance the expressive force and attraction of works. Using AIGC technology to generate different styles of dynamic art works, such as minimalism, pop art, retro style and so on. Students understand the characteristics of each style and try to integrate these style elements into their own dynamic design. Teachers guide students to explore the application of different styles in dynamic design, and encourage them to innovate boldly and break through traditional design thinking. Finally, students are divided into groups, and each group chooses a specific visual style to create a complete dynamic design project with AIGC tools. After the project is completed, each group shows their achievements to the whole class and receives comments from teachers and classmates. This link not only trains students' teamwork ability, but also enables them to deeply understand and apply AIGC technology in practice.

By introducing AIGC technology, students get more creative inspiration and technical support in the practice of dynamic visual design. They not only mastered the basic principles and skills of dynamic design, but also learned how to use AIGC tools to enhance the expressive force and attraction of their works. The whole teaching process pays attention to the combination of theory and practice, interaction and feedback in parallel, which effectively stimulates students' learning interest and creative enthusiasm. Finally, the students presented diversified and high-quality

dynamic design works, which fully demonstrated the great potential of AIGC technology in the visual design teaching of digital media art.

4. Challenges and countermeasures

AIGC generation technology faces multiple challenges in the teaching of visual design of digital media art, including high technical threshold, because it involves complex algorithms such as deep learning and neural network, which is difficult for non-computer majors to master; The content generated by AIGC is random and unpredictable, which reduces the controllability of the creative process and makes it difficult for students to achieve the expected effect in design [7]; Because AIGC can generate content similar to existing works, it is easy to touch on copyright and ethical issues when it is used, which poses a new test for students' legal consciousness and moral concept.

In the teaching of visual design of digital media art, lowering the technical threshold, improving the controllability of the creative process and strengthening the education of copyright and ethics are the key countermeasures [8]. Teachers can help students master AIGC technology more quickly by simplifying the operating interface, providing detailed teaching guidance and case demonstrations. At the same time, schools can also offer relevant elective courses to provide students with more learning opportunities and resources. Teachers can guide students to be familiar with the generation law of AIGC technology through many practices, so as to better control the creative process. Teachers can also encourage students to try to combine AIGC technology with other digital media technologies to enrich creative means and improve the quality of works. In the teaching process, teachers should emphasize the importance of copyright and ethics, and guide students to establish correct legal awareness and moral concepts [9]. At the same time, the school can also invite experts in related fields to give lectures or offer related courses to help students understand these issues more deeply.

AIGC generation technology brings new opportunities and challenges to the visual design teaching of digital media art. By lowering the technical threshold, improving the controllability of the creative process and strengthening the education of copyright and ethics, we can better meet these challenges, give full play to the potential of AIGC technology in digital media art education, and cultivate more talents with innovative spirit and practical ability.

5. Conclusion

AIGC technology can significantly improve teaching efficiency by automatically generating design elements and samples. At the same time, it enables students to see the visual results of design ideas in real time, thus stimulating creativity and interest in learning. AIGC technology provides customized resources, adjusts teaching content according to students' progress and preferences, and at the same time provides students with unlimited design possibilities and encourages the development of innovative thinking. This technology promotes the integration of multidisciplinary knowledge, establishes a comprehensive knowledge system, and enables students to adapt to the wide application trend of AIGC technology in various industries and prepare for their careers. Through specific application cases such as theme conceptual design, color matching and style design and dynamic visual design practice, the practical effect of AIGC technology in improving students' design ability and innovative thinking is demonstrated. Although AIGC technology shows great potential in teaching, it also faces challenges such as high technical threshold, randomness of content generation and copyright ethics issues. The countermeasures include simplifying the operation interface, providing teaching guidance and emphasizing the education of copyright ethics. By responding to the challenges reasonably, we can better play the role of AIGC technology in the field of education and cultivate more talents with innovative spirit and practical ability.

Acknowledgements

The authors acknowledge the Third Phase of the Employment and Education Integration Project Platform of the Ministry of Education: “Challenges and Practices of the ‘Mutual Empowerment’ Talent Cultivation Model for Animation Majors” (Project Number：2023123051251).

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