

Teaching Design and Practical Research of AI-Enabled Creative Painting Courses in Higher Vocational Colleges

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Abstract

Against the backdrop of the digital transformation of education and the rapid development of artificial intelligence (AI) technology, the traditional teaching mode of creative painting courses in higher vocational colleges is facing numerous challenges. Problems such as outdated curriculum content, single teaching methods, and insufficient personalized guidance have become increasingly prominent. Based on the transformation needs of art education in the intelligent era, this paper conducts research on the teaching design and practice of AI-enabled creative painting courses in higher vocational colleges. By deeply integrating AI creative generation technology with painting teaching, it constructs a three-stage curriculum module of "Foundation - Copying - Creativity", innovates teaching methods and evaluation systems, and optimizes the allocation of teaching resources. The research aims to enrich the theoretical connotation of "technology empowering art education", improve students' artistic literacy and innovative capabilities, provide practical references for the reform of art education in higher vocational colleges, and help cultivate compound artistic talents who meet the needs of the digital age.

Keywords

Artificial Intelligence; Higher Vocational Education; Creative Painting; Teaching Design; Curriculum Reform.

1. Introduction

Aesthetic education occupies a core position in the training of talents in art-related majors in higher vocational colleges. As an important carrier of aesthetic education, creative painting courses are a key approach to cultivating students' aesthetic taste, innovative thinking, and practical abilities. Currently, AI technology is profoundly reshaping the ecological landscape of artistic creation. The rise of AI-generated content (AIGC) tools such as Midjourney and Stable Diffusion has been widely applied in multiple fields including digital art, film and television special effects, and game concept art, bringing a new paradigm of efficiency and convenience to artistic creation. The state vigorously promotes the digital transformation of education and clearly proposes to promote the in-depth integration of AI with education and teaching to realize educational modernization.

However, the traditional teaching mode of creative painting courses in higher vocational colleges exhibits significant lag: the curriculum content focuses on hand-drawing skill training and copying of classic works, lacking systematic teaching on AI painting tools and digital creation; teaching methods are dominated by one-way lectures, making it difficult to meet students' personalized learning needs; students' creations rely heavily on inherent experience, resulting in insufficient creative divergence and serious homogenization of works. In this context, integrating AI technology into creative painting courses in higher vocational colleges and exploring a digitization-featured curriculum construction path have become an inevitable choice to address teaching difficulties and promote the high-quality development of art

education. This research explores the logical path of integrating AI with creative painting courses in higher vocational colleges, enriches the theory of technology-empowered art education, and provides new perspectives and references for the reform of art courses in vocational education. It helps students improve their literacy and digital skills, assists teachers in optimizing teaching, promotes curriculum innovation, and facilitates the connection between higher vocational art education and the industry.

2. Research Status at Home and Abroad

Through systematic literature review and analysis, it can be seen that the current domestic and foreign academic circles have accumulated phased achievements in the field of integrating AI with art education, but there are significant differences in research focuses and practical paths. From the perspective of international research, the core focuses on technology implementation and scenario-based applications: on the one hand, it conducts research on the functional practice of AI in artistic creation, such as providing students with creative concept assistance (e.g., thematic image generation) and intelligent color scheme matching based on deep learning algorithms; on the other hand, it emphasizes the research and development and iteration of intelligent teaching systems. By constructing modules such as personalized learning path recommendation and automatic work evaluation, a number of achievements directly applicable to classrooms have been formed, such as AI painting assistance platforms and artistic style transfer teaching tools, highlighting a technology-driven practical orientation.

Domestic research is more inclined to explore and optimize the curriculum system, with particular attention to the reconstruction of the teaching logic of AI painting courses. Among them, the viewpoint proposed by Sang Yuanyuan in "Exploring Teaching Case Research on AIGC Digital Innovation AI Painting Elective Courses" is representative—the reform of painting courses in the AI era needs to break through the superficial limitation of "tool application" and reconstruct teaching strategies with "cultivating creative capabilities" as the core: it is necessary not only to expand students' creative boundaries through AI technology but also to guide students in establishing critical creative thinking in human-machine collaboration, ultimately realizing the comprehensive improvement of multiple creative abilities (such as the ability to integrate traditional techniques with digital technology and the ability to express thematic creation), providing an important reference paradigm for the practice of domestic AI painting courses.

However, existing research still has shortcomings: most studies focus on art education in undergraduate universities or primary and secondary schools, with few studies targeting higher vocational colleges, failing to fully combine the characteristics of higher vocational education such as "vocational orientation and practice-oriented"; some studies only stay at the level of simple application of AI tools, lacking systematic reconstruction of the curriculum system and teaching mode; research on the teaching evaluation system under AI empowerment is relatively weak, and a scientific and improved process evaluation mechanism has not yet been formed. Based on this, this research, focusing on the characteristics of higher vocational education, conducts teaching design and practical research on AI-enabled creative painting courses, which has distinct practical pertinence.

3. Theoretical Basis and Core Connotation of AI-Enabled Creative Painting Courses in Higher Vocational Colleges

3.1. Theoretical Basis

3.1.1. Constructivist Learning Theory

Constructivism holds that learning is a process in which students actively construct the meaning of knowledge rather than passively accepting information. AI technology provides an ideal implementation environment for constructivist learning: AI painting tools can serve as cognitive tools for students' active exploration, guiding students to independently discover and solve problems in practice by generating diverse creative materials and simulating creative scenarios; forms such as group collaborative creation and online interactive discussions can promote knowledge sharing and ideological collision among students, realizing social construction.

3.1.2. Personalized Teaching Theory

Personalized teaching emphasizes attention to individual differences among students and formulates targeted teaching plans according to students' learning foundations, interests, learning rhythms, etc. Through big data analysis functions, AI technology can accurately capture students' learning behavior data, analyze their knowledge weaknesses and creative style preferences, and push personalized learning resources, creative suggestions, and technical guidance to students, truly realizing "teaching students in accordance with their aptitude".

3.1.3. Theory of Integration of Technology and Curriculum

The integration of technology and curriculum is not a simple addition of technology, but rather taking technology as an organic part of the curriculum and integrating it into various links such as curriculum objectives, teaching content, teaching methods, and evaluation systems to achieve the in-depth integration of technology, teaching content, and teaching methods. The AI-enabled creative painting course optimizes the allocation of teaching elements and improves the educational effect of the course by integrating AI technology into the entire process of curriculum design.

3.2. Core Connotation

The AI-enabled creative painting course in higher vocational colleges is a new teaching mode that takes cultivating students' artistic literacy, innovative capabilities, and vocational competitiveness as the core, and deeply integrates AI creative generation technology, intelligent teaching auxiliary tools with traditional painting teaching. Its core connotation includes three levels: in terms of teaching content, it covers modules such as AI painting foundation, AI-assisted copying, and AI-enabled creative creation, realizing the organic combination of traditional painting knowledge and digital technology; in terms of teaching methods, it adopts diversified methods such as case teaching, project-based learning, and group collaboration, and constructs a "human-machine collaboration" teaching scenario with the help of AI tools; in terms of teaching objectives, it not only focuses on improving students' painting skills and creative capabilities but also emphasizes the cultivation of their digital literacy, social responsibility, and vocational literacy, helping students achieve all-round development.

4. Teaching Design of AI-Enabled Creative Painting Courses in Higher Vocational Colleges

4.1. Curriculum Objective Design

The curriculum objectives focus on three aspects: first, the cultivation of professional ethics and vocational literacy, guiding students to pay attention to social issues and convey humanistic care through painting, integrating vocational ethics education to help them grow into art practitioners with both professional capabilities and social responsibility; second, the improvement of innovative and practical capabilities, building a creative platform relying on AI, combining project-based learning and group collaboration to release students' creativity and cultivate their abilities in team collaboration and solving complex artistic problems; third, the shaping of artistic accomplishment and aesthetic taste, empowering technical teaching and classic work analysis through AI to improve students' painting expression and artistic appreciation, realizing the advancement of skills and aesthetic capabilities.

4.2. Curriculum Content Design

To achieve the curriculum objectives, this research constructs a three-stage curriculum module of "Foundation - Copying - Creativity", deeply integrates AI concepts, and innovates painting education theories and practices. The specific content is shown in the following table:

Table 1. Details of the Three-Stage Curriculum Module for AI-Enabled Creative Painting Courses in Higher Vocational Colleges

Curriculum Module	Implementation Period	Core Objectives	Main Teaching Content	Teaching Methods
Foundation Module	September 2025 - October 2025	Establish an AI painting cognitive framework and master basic operational skills	Basic concepts and development history of AI painting; principles and operations of mainstream AI painting tools (Midjourney, Stable Diffusion, etc.); similarities and differences between AI painting and traditional painting; basic norms of digital painting	Theoretical lectures + on-site demonstrations + practical exercises
Copying Module	October 2025 - November 2025	Improve copying capabilities with the help of AI tools and master diverse painting styles	Selection and analysis of classic painting works; methods and techniques of AI-assisted copying; comparative analysis of differences between AI and manual copying; AI copying practice of multiple styles (realism, abstraction, traditional ink wash, etc.)	Case analysis + practical training + comparative discussions
Creativity Module	November 2025 - January 2026	Realize AI-enabled creative creation and cultivate innovative thinking and artistic expression capabilities	Application of AI creative generation and image modification functions; combination of manual secondary creation and AI assistance; thematic creative painting practice (e.g., social hot topics, cultural inheritance, environmental protection, etc.)	Project-based learning + group collaboration + creative guidance

4.2.1. Foundation Module (September 2025 - October 2025)

The core objective is to help students establish an AI painting cognitive framework and master basic operational skills. The teaching content includes: basic concepts and development history of AI painting; principles and operation methods of mainstream AI painting tools (Midjourney, Stable Diffusion, etc.); analysis of similarities and differences between AI painting and traditional painting; basic norms and requirements of digital painting. Through theoretical lectures, on-site demonstrations, practical exercises, and other methods, students can familiarize themselves with the basic process of AI painting and lay a foundation for subsequent learning.

4.2.2. Copying Module (October 2025 - November 2025)

The core objective is to improve students' copying capabilities with the help of AI tools and master diverse painting styles. The teaching content includes: selection and analysis of classic painting works; methods and techniques of copying using AI tools; comparative analysis of differences between AI copying and manual copying; AI copying practice of different artistic styles (realism, abstraction, traditional ink wash, etc.). It guides students to quickly grasp the characteristics of different styles with the help of AI tools, while focusing on cultivating students' ability to understand and control artistic works.

4.2.3. Creativity Module (November 2025 - January 2026)

The core objective is to realize AI-enabled creative creation and cultivate students' innovative thinking and artistic expression capabilities. The teaching content includes: methods and techniques of AI creative generation; application of AI image modification functions; combination of manual secondary creation and AI assistance; thematic creative painting practice (e.g., social hot topics, cultural inheritance, environmental protection, etc.). It encourages students to use AI tools to generate creative inspiration, conduct secondary optimization combined with their own thinking and manual creation, explore unique artistic expression forms, and analyze the impact of AI on expanding the creative boundaries of painting and industry transformation.

4.3. Teaching Method Design

Adopt diversified teaching methods to construct a teaching scenario of "human-machine collaboration, teacher-student interaction, and student-student collaboration":

The teaching methods adopt a diversified model: explain the basic theories and tool operations of AI painting through "theoretical lectures + on-site demonstrations", intuitively display technical applications to stimulate interest; select various cases to guide students in analyzing creativity, technical and aesthetic characteristics, and cultivate analytical and creative capabilities through discussions, imitation, and innovation; set up thematic creation projects, where students complete them through group collaboration and independently plan the process, and teachers track the progress with the help of AI to provide guidance, improving project management and collaborative innovation capabilities; build online and offline communication platforms, encourage sharing ideas and problems, and broaden horizons and improve artistic expression capabilities through teacher-student discussions and student-student mutual evaluation.

4.4. Evaluation System Design

Abandon the previous single evaluation method that only focuses on the final results of works, and establish a comprehensive evaluation system centered on the process. The specific evaluation dimensions and weights are shown in the following table:

Table 2. Dimensions, Indicators, Weights and Subjects of the Comprehensive Evaluation System for AI-Enabled Creative Painting Courses in Higher Vocational Colleges

Evaluation Dimensions	Specific Indicators	Weight Ratio	Evaluation Subjects
Classroom Performance	Attendance, participation in interactions, timeliness of task completion	20%	Teachers
Phased Assignments	Practical assignments of the foundation module, quality of copied works, completeness of creative sketches	30%	Teachers + Student-Student Mutual Evaluation
Final Creative Works	Clarity of thematic expression, uniqueness of creativity, proficiency in AI technology application, artistic effect	35%	Teachers + Industry Experts
Work Analysis Report	Logicity of creative ideas, depth of AI technology application analysis, reflection on the creation process	15%	Teachers + Self-Evaluation

The evaluation adopts a combination of comprehensive evaluation and personalized evaluation: comprehensive evaluation examines learning effects from multiple dimensions such as classroom performance, phased assignments, final creative works, and work analysis reports; personalized evaluation focuses on individual differences among students, adopts various forms such as works exhibitions, digital displays, and online voting, values progress and unique creativity, and protects creative enthusiasm. Construct a multi-evaluation system of "teacher evaluation, student self-evaluation, student-student mutual evaluation, and industry expert evaluation". Teachers provide professional guidance and evaluation; students reflect on the learning process and results through self-evaluation; student-student mutual evaluation promotes mutual learning and communication; industry experts are invited to evaluate the professionalism and market adaptability of works, improving the scientificity and pertinence of evaluation.

5. Practical Implementation of AI-Enabled Creative Painting Courses in Higher Vocational Colleges

5.1. Teaching Team Construction

The research team consists of design professional teachers and fine arts professional teachers, who have solid professional theoretical backgrounds, rich teaching experience, and high painting levels. To improve teachers' AI application capabilities, organize AI-themed seminars, teaching observations, online training courses, and other activities, and invite experts and scholars to share AI education theories and practical experience to ensure that teachers can proficiently use AI painting tools and teaching auxiliary tools for teaching.

5.2. Teaching Resource Construction

Integrate various teaching resources, including AI painting tool tutorials, excellent case libraries, digital resources of art history, and online learning platforms, to build a digital teaching resource library. In response to the current lack of painting textbooks combined with AI, organize teachers to compile school-based textbooks and teaching guides, supplement AI painting-related knowledge and practical cases to meet teaching needs.

5.3. Teaching Environment Construction

Relying on the school's existing art studios, training rooms, college student activity centers, and other venues, equip high-performance computers, drawing tablets, digital projectors, and other

equipment to meet the hardware needs of AI painting teaching. At the same time, use the school's intangible cultural heritage (ICH) characteristic venues such as the Ou Kiln Workshop, Cold Forming Technology Training Room, Ou Kiln Museum, and Stone Carving Museum to provide students with characteristic creative environments and promote the integration of traditional art and digital technology.

5.4. Student Preparation

Understand students' art foundations, AI technology cognitive levels, learning needs, etc., through pre-course surveys to provide a basis for personalized teaching. Conduct pre-course training to introduce curriculum objectives, teaching content, teaching methods, and evaluation methods, guide students to familiarize themselves with the basic operations of AI painting tools, and stimulate students' learning interest and participation enthusiasm.

6. Conclusion

The in-depth integration of AI technology with creative painting courses in higher vocational colleges is necessary and feasible. AI technology can effectively address the drawbacks of the traditional teaching mode, inject new vitality into the curriculum, and improve teaching quality and effectiveness.

The constructed three-stage curriculum module of "Foundation - Copying - Creativity", diversified teaching methods, and comprehensive evaluation system centered on the process are in line with the characteristics of higher vocational education and students' learning needs, and can effectively improve students' artistic literacy, innovative capabilities, and digital skills. The construction of the teaching team, integration of teaching resources, and construction of the teaching environment are important guarantees for the smooth implementation of the curriculum. Through systematic preparation work and scientific implementation strategies, the effective implementation of curriculum reform can be ensured.

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