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The Reshaping of Teaching Models in Arts and Crafts Design by Artificial Intelligence

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Abstract: The rapid development of artificial intelligence (AI) technology has brought profound opportunities for transformation to arts and crafts design teaching in colleges and universities in China. Its impact is not only reflected in the updating of teaching tools, but more importantly in the reconstruction of teaching philosophies and models. When addressing issues in traditional teaching such as simplistic creative methods, rigid learning pathways, and limited teacher-student interaction, the active introduction of AI technology can effectively promote the expansion of teaching content and the innovation of teaching methods. In the process of reforming arts and crafts design courses in Chinese colleges and universities, it is necessary to systematically reshape concepts in terms of creative ethics, originality of works, and intellectual property protection, and establish a new paradigm of design education under the context of AI collaboration. In terms of practical approaches, the involvement of AI can not only reconstruct curriculum processes and promote the blended teaching model of "intelligent assistance + prototype creation", but also drive the transformation of teachers' roles into learning guides and resource integrators.By fully leveraging AI's advantages in intelligent analysis, creative generation, and interactive experience, arts and crafts design teaching in Chinese colleges and universities is expected to realize the transformation from traditional skill imparting to the cultivation of multi-dimensional innovative capabilities, thus opening up a new landscape of AI-empowered teaching.

Key words: Arts and Crafts design, Artificial intelligence, Teaching research

exploration, Teaching Application

1. Introduction

With the rapid development of Artificial Intelligence (AI) technology, its penetration in the field of education is deepening day by day, and it has gradually become an important force promoting the teaching reform in colleges and universities. Especially in the interdisciplinary field of arts and crafts design, which combines both technicality and artistry, the changes brought about by AI are not only reflected in the upgrading of tools, but also profoundly influence the reshaping of teaching concepts, methods and models. The transformation from traditional teaching to intelligent and personalized teaching has become an important trend in the current development of art and design education in colleges and universities. For a long time, the courses of arts and crafts design in Chinese universities have generally suffered from problems such as single creative methods, rigid course structure, and insufficient student participation. Teachers mainly impart experience, and the teaching resource structure is closed, resulting in students lacking the input of diverse information and the driving force for creative generation during the learning process. In addition, the teaching evaluation methods are rather traditional and it is difficult to accurately reflect students' design thinking and creative potential. Against this backdrop, the intervention of AI technology not only injects new impetus into design teaching but also provides a practical path and theoretical support for the reconstruction of teaching models.

In recent years, the capabilities of AI in image recognition, semantic analysis, style transfer, and intelligent recommendation have been continuously enhanced, providing more efficient auxiliary means for the teaching of arts and crafts design. With the help of AI tools, students can quickly complete the creative process from conception to prototype, break through the limitations of manual drawing and single-medium expression, and improve the efficiency of visual presentation and concept expression. Teachers can also conduct multi-dimensional evaluations and style analyses of students' works based on the AI platform, thereby achieving dynamic adjustments to teaching content and personalized guidance. In addition, with the support of interactive media such as virtual reality (VR) and augmented reality (AR), AI can expand the experience

boundaries of arts and crafts design and stimulate students' potential for cross-media integration and perceptual design. However, AI-enabled teaching is not merely a transfer of tools, but rather a systematic reshaping of the traditional teaching model. In the process of AI's participation in creation, issues such as the originality determination of works, the ethical boundaries of creation, and the ownership of intellectual property rights need to be clarified urgently. Especially in the educational environment of higher education institutions, it is necessary to establish a set of design education concepts and evaluation systems that are compatible with the background of AI's symbiosis. Therefore, conducting in-depth research on the new teaching ecosystem of "human-machine" collaboration and exploring the comprehensive impact of AI technology on teaching models, curriculum systems, teacher-student relationships, and educational goals holds significant theoretical value and practical significance.

This paper takes the teaching activities of arts and crafts design in Chinese universities as the research object. Based on the dual background of the development and educational application of AI technology, it systematically analyzes the reconstruction path of AI on the teaching content, teaching structure, teaching process and teaching role of related courses, and proposes a blended teaching paradigm with "intelligent assistance + prototype creation" as the core. And further explore key issues such as the transformation of teachers' roles, the cultivation of students' innovative abilities, and the governance of teaching ethics. With the aim of providing theoretical support and practical reference for the upgrading and transformation of the teaching of arts and crafts design in colleges and universities under the background of the new era, and constructing a new innovative teaching pattern supported by artificial intelligence.

2.Challenges and Opportunities Faced by the Teaching of Arts and Crafts

2.1 Challenges Faced by the Teaching of Arts and Crafts major

Although Chinese universities have accumulated rich teaching experience and cultural resources in the field of arts and crafts education, in the context of the rapidly changing times, the traditional teaching system has gradually revealed the problem of insufficient adaptability. Especially in an environment where digital technology and aesthetic concepts are constantly evolving, the original teaching framework has

encountered practical difficulties at the levels of concept, content and method, which are specifically reflected in the following three aspects.

2.1.1 The teaching methods are traditional and creative expression is limited

At present, most of the arts and crafts courses in colleges and universities still follow the traditional model of "teacher lecturing + student imitation". The teaching content focuses on technique training and model reproduction, emphasizing the standardization of operation and the inheritance of craftsmanship. This teaching method was helpful for students to lay a solid technical foundation in the early stage, but with the diversified development of the design industry, its drawbacks have become increasingly prominent. Firstly, it is difficult to stimulate students' subjective consciousness and creative thinking. Students are more often in a passive state of acceptance, lacking the spirit of exploration and the motivation for self-expression. Secondly, there is a lack of interaction and immediate feedback mechanisms in the teaching process. Students often have to understand the teaching content through self-digestion after class, which is inefficient. Furthermore, traditional teaching pays far less attention to the creative process than to the outcome of the work. Students' creative exploration behaviors are often ignored or even suppressed, which directly affects their insufficient expansion capabilities in artistic style, cultural integration, media innovation, etc. Their creations tend to be homogenized and fail to meet the current society's demand for design talents with unique visual language and cross-border integration capabilities.

2.1.2 The course content is closed and the resource update lags behind

Although the major of arts and crafts itself has a profound historical accumulation and cultural heritage, the setting and update of its course content have failed to keep pace with the development rhythm of The Times. In many current universities, the courses of arts and crafts are still mainly classified according to traditional craft categories, such as pottery, lacquer art, dyeing and weaving, and metalwork, lacking organic integration with emerging fields like digital design, interaction design, and AI-generated art. The closed nature of the course content not only restricts students' knowledge horizons but also weakens their adaptability and innovation ability in cross-

disciplinary and cross-media situations. Meanwhile, the update of teaching resources is also relatively slow. Many courses still rely on paper textbooks, static images and fixed cases for teaching, lacking dynamic, interactive and open teaching platforms. Students find it difficult to access cutting-edge information, the latest creative tools and diverse expression methods during the learning process, gradually resulting in a lag in aesthetic and design language. This in turn affects their adaptability to the actual working environment after graduation.

2.1.3 Students lack interest in learning and have a weak sense of participation

The teaching of arts and crafts should originally be a highly participatory process that emphasizes experience and perception. However, in actual teaching, students often lack sufficient sense of participation and creative space. Traditional teaching emphasizes operation over critical thinking and results over process, which leads to insufficient creative motivation among students. Some students view the arts and crafts course as pure manual skills training and lack emotional connection and value recognition for the course itself. In addition, the tight class schedule and the assessment mechanism that focuses more on technical norms have left students with few opportunities to make mistakes and try new ideas during the creative process, further suppressing their interest in exploration. Due to limited equipment and material resources, some universities still have problems such as monotonous teaching activities and restricted creative conditions. As a result, students are unable to exercise their comprehensive design abilities in multi-dimensional media and material experiments. This kind of teaching environment with low participation and high control is difficult to meet the demands of the new generation of students for personalized learning, independent exploration and innovative expression.

2.2 Opportunities Brought by AI to the teaching Innovation of Arts and Crafts

The rapid development of artificial intelligence technology has provided a brand-new impetus for the reconstruction of arts and crafts teaching. AI can not only become a new teaching tool, but also a medium force for re-understanding artistic creation, organizing the teaching process and shaping teaching relationships. Its extensive perception, generation and analysis capabilities have brought new opportunities for

traditional arts and crafts courses to achieve leapfrog breakthroughs.

2.2.1 Build an intelligent creative support system to stimulate design potential

AI technology has demonstrated powerful capabilities in image recognition, semantic generation, style transfer, and graphic combination, and can be widely applied in all aspects of arts and crafts design. For instance, through AI image generation tools such as Midjourney, DALL·E, and Stable Diffusion, students can generate various design sketches and style variations in a short period of time, thereby enriching their creative ideas and expression paths. AI is no longer merely a tool. And becoming a "interlocutor" and "collaborator" in the creative process helps students expand the boundaries of visual language. In addition, AI can intelligently generate images based on keywords, graphic sketches or semantic descriptions, providing students with customized visual references. This efficient transformation process from imagination to presentation effectively shortens the creative iteration time and enhances the efficiency of creative output. Meanwhile, the ability of AI in pattern recognition can also be used to quantitatively analyze the style evolution and creative path of students' works, assisting teachers in conducting dynamic teaching evaluations and personalized guidance.

2.2.2 Promote the reconstruction of course content and achieve cross-media integration

The multimodal fusion feature of AI makes it possible to reconstruct the content of the arts and crafts course. With the help of AI technology, traditional craftsmanship can be organically integrated with modern digital media, promoting the curriculum system to expand from the transmission of single skills to the expression of diverse cultures and technological innovation. For instance, introducing 3D modeling and AI intelligent firing simulation in pottery courses enables students to simulate the process of clay shaping and kiln firing through a digital environment, allowing for visual and technical verification before actual operation. In dyeing and weaving design, image style transfer algorithms are used to generate patterns, exploring the visual language differences of different cultural elements in fabric expression. By integrating with technologies such as virtual reality (VR), augmented reality (AR), and mixed reality

(MR), AI can also create immersive learning environments, allowing students to experience process flows and perceive material properties through interaction. This multi-sensory and multi-dimensional learning approach helps to stimulate students' emotional resonance and cognitive deepening towards craft culture, and enhance the cultural connotation and technical content of the course. Meanwhile, AI technology also supports the modularization and dynamic update of teaching content. Teachers can continuously introduce the latest design cases, cutting-edge artworks and industry trend reports based on the big data platform, and establish an elastic teaching system centered on students' learning trajectories. In this way, courses are no longer static imparting but become a continuous evolution and real-time feedback process of knowledge construction.

2.2.3 Reshape the teacher-student relationship and promote the transformation of teaching roles

The application of AI in education has brought about fundamental changes in the traditional teaching relationship. Teachers are no longer the sole source of knowledge but have transformed into the designers of students' learning paths, integrators of resources and stimulators of thinking. In an AI-assisted teaching environment, teachers can use data analysis tools to grasp students' learning progress, creative preferences and style evolution trends in real time, and achieve precise and personalized teaching adjustments. On the other hand, students have gained greater autonomy and choice with the support of AI technology. They can choose AI tools based on their personal interests, build creative processes, and proactively provide feedback, optimization and adjustment during the generation of their works. This human-machine collaborative learning model significantly enhances students' sense of participation and control in learning, and is conducive to forming a closed-loop learning structure. In addition, the integration of AI technology has provided a new path for teaching interaction. Through tools such as intelligent dialogue platforms and virtual teaching assistants, communication between teachers and students is no longer limited by the classroom time and space, but can achieve multi-dimensional interaction in various links such as pre-class preview, in-class discussion, and post-class guidance. This not only enhances

teaching efficiency, but also expands the teaching boundaries of teachers and the learning time and space of students, building a more flexible, efficient and equal teaching ecosystem.

3.The Conceptual Reshaping of Arts and Crafts Design Teaching by AI

With the rapid development of artificial intelligence (AI) technology, its application in the field of arts and crafts has gradually become the focus of attention in both the academic and industrial circles. AI not only provides innovative tools and brand-new media for design and creation, but also poses challenges to the traditional educational concepts of arts and crafts. Traditional arts and crafts education emphasizes the independence, individuality and cultural inheritance of artistic creation. The intervention of AI in the creative process undoubtedly requires educators to re-examine and construct the relevant core concepts. Especially in terms of creative ethics, originality of works and intellectual property protection, the introduction of AI has promoted the reshaping of these traditional concepts. This article will explore the impact of AI technology on the creative ethics, originality of works and legal protection concepts in the teaching of arts and crafts design, and propose how to effectively reshape these concepts in teaching.

3.1 Reshaping of Creative ethics

The introduction of AI technology has brought profound changes to the creative process of arts and crafts. AI is not merely an extension of design tools; it has become an active participant in the creative process, capable of automatically generating design plans, optimizing aesthetic elements, and conducting style transfers based on preset algorithms. This generative design approach has played a significant role in enhancing creative efficiency and diversity. However, this change poses new challenges to traditional creative ethics.

Traditional artistic creation often emphasizes the independence and subjectivity of human artists in the creative process, and the creative behavior is regarded as the expression of the artist's emotions and the embodiment of social responsibility. With the introduction of AI technology, the subjectivity of creation has changed. AI can automatically generate designs through machine learning and deep learning algorithms,

and artistic creation no longer completely relies on the subjective intentions of human designers. This transformation has sparked a new discussion on creative ethics: Who should bear the social responsibility and cultural value of AI-generated works? How can designers ensure that they do not infringe upon others' intellectual property rights during the creative process when using AI? Can AI tools assume the ethical responsibilities that were traditionally held by human artists?

Therefore, in the teaching of arts and crafts design in the AI era, it is necessary to guide students to understand and explore the ethical boundaries of AI-generated design works. Teachers should emphasize in the teaching process that although AI tools can provide technical support in creation, the ultimate social responsibility still lies with human designers. To achieve this goal, the teaching content should guide students to reflect on the social impact and value orientation behind the design through methods such as case analysis, ethical debate, and situational simulation, and encourage them to actively put forward ethical judgments and cultural responses in technical practice. In addition, a special module on "AI Creation Ethics" should be set up in the course to guide students to identify and avoid potential issues such as algorithmic bias, data discrimination, and cultural appropriation. By establishing a three-stage teaching model of creation, reflection and evaluation, it not only helps students master the usage methods of AI tools, but also emphasizes their ethical choices and social responsibility awareness in creation, thereby achieving an educational transformation from skill imparting to value guidance.

3.2 Reshaping the concept of originality in Works

Originality is the core value in traditional artistic creation. It not only represents the novelty of the work but also reflects the independence and creativity of the creator. However, with the wide application of AI technology, the concept of originality in the field of arts and crafts is undergoing profound changes. Through data analysis and pattern learning of a large number of existing works, AI can quickly generate innovative design works. Although these works are creative, their originality has sparked new discussions.

In traditional artistic creation, originality usually means that the work is

completely dependent on the creator's personal conception and independent artistic expression. Ai-generated design works, however, are typically "recreated" based on existing data. The source of their creativity does not entirely come from the designer's independent thinking, but rather from the abstraction and transformation of historical data through algorithms. This creative approach that relies on datasets and algorithms complicates the issue of originality in works. Should design works generated by AI be recognized as original? If an AI work is modified based on a previous artistic creation, how is the originality of the work defined?

In response to this issue, the education of arts and crafts needs to redefine "originality". Against the backdrop of AI-assisted design, originality no longer merely refers to the independent creation of human designers, but emphasizes how designers use AI tools to guide creative thinking. Educators should help students recognize that AI is not only a creative tool but also a driving force for stimulating innovative thinking and expanding the boundaries of design. To this end, courses such as "human-machine co-creation" or "AI-driven concept generation" should be introduced into teaching practice, enabling students to master in practice how to conduct secondary creation and semantic reconstruction based on AI generation. Teachers should encourage students to conduct in-depth processing around aspects such as personal narratives, cultural symbols and visual styles, so as to establish their own design language on the basis of AI-assisted creativity. Meanwhile, a multi-stage feedback mechanism for works should be established. Through the process of "first draft - feedback - re-creation", students' re-creation ability with the participation of AI should be enhanced, enabling them to understand that originality lies not only in formal innovation but also in the construction and reconstruction of ideological depth, cultural connotation and individual expression.

3.3 Reshaping the Concept of Legal Protection

With the increasingly widespread application of AI technology in the design of arts and crafts, the issue of intellectual property protection has become a key problem that needs to be urgently addressed. In traditional artistic creation, the ownership of intellectual property rights is relatively clear, and the copyright of the work usually belongs to the creator. However, when AI becomes an important part of the creative

process, the copyright ownership of the works becomes complicated. Should the design works generated by AI belong to the company that developed the AI system, the designer who used the AI tool, or the AI itself? These issues require further clarification of the legal framework.

At present, China's Intellectual Property Law does not clearly stipulate the copyright ownership of AI-generated works. Traditional copyright laws usually require that the creators of works must have the "subject qualification of creation", that is, the creative behavior should be carried out by individuals with creativity and human consciousness. However, as an unconscious "creative tool", whether the works generated by AI can be regarded as "original works" and the issue of copyright ownership remain undetermined. Against this backdrop, how to define the intellectual property rights of AI-generated works and how to protect the creative achievements of designers during the use of AI tools have become urgent problems to be solved in the legal field.

Therefore, when introducing AI technology into the education of arts and crafts design, it is necessary to strengthen the cultivation of students' intellectual property rights awareness. The teaching content should not only cover traditional theories of intellectual property protection, but also combine the development trends of AI technology to help students understand the copyright ownership issues of AI-created works. Specifically, activities such as AI art and law special lectures can be incorporated into the curriculum, with the joint participation of legal experts and art design teachers. Case analysis and legal interpretation can be carried out to enable students to understand and deal with legal challenges in real situations. At the same time, students should be encouraged to conduct training on ownership declaration and citation annotation during the creative process, and develop the practical habit of using AI tools legally and in compliance with regulations. In teaching assessment, "Copyright risk analysis" can also be set up as part of the creative assignment, requiring students to conduct self-examination of the copyright of their works. This will enhance their ability to judge the boundaries of intellectual property rights and gradually build up their legal awareness and rights protection capabilities for the AI era.

4.The Path of AI Reshaping the Teaching Model of Arts and Crafts Design

With the rapid development of artificial intelligence (AI) technology, its application in the field of arts and crafts design has gradually permeated all aspects of the teaching process. From teaching content and methods to the interaction between teachers and students, the intervention of AI technology has brought profound changes to the teaching of arts and crafts design. The traditional teaching model of arts and crafts centers on manual skills, creative inspiration and personalized expression. However, the introduction of AI technology not only provides efficient tools but also promotes the reshaping of the teaching model. The core of this process lies in how to organically integrate AI technology with traditional teaching methods to achieve a comprehensive reshaping of the teaching process, learning paradigms, creative innovation and the role of teachers. This article will deeply explore the reshaping path of the teaching mode of arts and crafts design by AI from four aspects.

4.1 Teaching Process Reshaping: The Integration of AI Tools and Traditional Teaching Methods

The traditional process of teaching arts and crafts usually unfolds along the path of "observation - imitation - re-creation", emphasizing the perception and control of materials, techniques and forms. Its teaching logic focuses on the step-by-step advancement from sensibility to rationality and from imitation to innovation. However, when confronted with the complex and ever-changing visual cultural environment, this model has become difficult to meet students' demands for creative efficiency, diversity and cross-media expression. The introduction of AI technology, especially the new intelligent tools represented by image generation, style transfer and automatic auxiliary modeling, has enabled the teaching process to transform from a linear model to a circular structure that emphasizes interaction, feedback and rethinking.

AI technology, through learning and analyzing massive image databases, can quickly generate diverse design plans and visual elements for students, providing rich visual stimulation at the early stage of teaching. This feature has changed the common problems in teaching such as "difficulty in capturing inspiration and slow progress in composition", enabling students to quickly enter the creative state and expand the

breadth of design thinking. Meanwhile, AI has also brought the possibility of modular and visual operations to classroom practice. Teachers can incorporate the AI-generated results into teaching cases, inspiring students to analyze formal language and the logic of image composition from multiple perspectives and form a more structured learning path.

It is worth emphasizing that AI is not a replacement for traditional teaching processes but should act as a facilitator to achieve the integration of "human-machine co-teaching". At the practical level, teaching should establish a three-stage process system of "AI assistance - human intervention - manual deepening" : Firstly, use AI tools to generate preliminary design sketches to enhance efficiency and break through creative bottlenecks; Secondly, guide students to make artificial aesthetic judgments and re-creations based on AI generation. Finally, the intervention of manual skills is emphasized. Through meticulous refinement of materials, techniques and details, the complete transformation of the work is achieved. The newly constructed teaching process in this way not only retains the core of "technical cultivation" in the education of arts and crafts, but also integrates the efficiency advantages and form innovation capabilities brought by intelligent technology.

4.2 Reshaping Learning Paradigms: Big Data Decision-making Facilitates Precise Teaching

Traditional arts and crafts teaching emphasizes experience accumulation and master-apprentice guidance in learning strategies. However, its limitations lie in the long teaching feedback path, subjective assessment methods, and the lack of mechanism guarantees for individual development. The big data analysis capabilities supported by AI bring about a systematic reconstruction of the learning process, promoting the transition of the learning paradigm from "experience-driven" to "data-driven", and enhancing the accuracy and adaptability of teaching.

AI systems can collect a large amount of behavioral data during students' learning process, including practice frequency, types of tools used, style preferences, color choices, and distribution of creation time, etc. These data, after processing, can form personalized learning profiles of students and thereby dynamically adjust teaching

strategies and resource allocation. For instance, in response to some students' repeated mistakes in color composition, the system can automatically push color matching cases, psychological perception exercises or analysis materials of famous works, achieving the timeliness and pertinence of teaching intervention.Furthermore, at the class level, AI can identify weak links in the overall teaching through the aggregation and analysis of learning data, such as cognitive biases among students in terms of composition logic or material application. Teachers can adjust the course focus and optimize teaching content based on this. This feedback mechanism no longer relies on traditional phased tests but forms a teaching closed loop of "real-time feedback - dynamic adjustment", effectively enhancing the responsiveness of the course.

In addition, big data has also restructured the personalized design of learning paths. AI can generate diverse learning paths based on students' different learning stages and development directions. For instance, for students who wish to focus on the expression of traditional craftsmanship, they can be guided to combine AI for style simulation and cultural pattern reconstruction. For students who are inclined towards digital creative design, it provides creative resources and project challenges that integrate AI with augmented reality (AR) and virtual reality (VR). Through the integrated management of "data - cognition - content", the learning paradigm has shifted from standardization to personalization, which is more in line with the essential pursuit of "teaching students in accordance with their aptitudes" in arts and crafts education.

4.3 Innovation and Creativity Reshaping: System simulation supports the transfer of creative styles

Creative generation, as the core task of teaching arts and crafts design, is complex in that it must integrate aesthetic experience, cultural understanding, material perception and expression ability. In traditional teaching, creativity often relies on the stimulation of teachers' experience and students' own accumulation, resulting in creative outcomes being accidental and uncertain. AI technology, through learning and simulating multi-dimensional data such as style, images, and semantics, provides systematic support for creative generation, promoting the evolution of creative thinking

from "sudden inspiration" to "structure-driven".

The style transfer technology of AI can integrate existing visual language models with students' original compositions to generate diverse style variations, thereby enabling students to build a deep understanding of artistic styles through comparison and screening. This technology-based style exploration is no longer merely a single imitation, but a process of generative experimentation, cross-style grafting and cultural integration. For instance, students can attempt to integrate the decorative language of Qing Dynasty lacquerware patterns with modern graphic design, and use AI to simulate various combination results, achieving a deep blend of styles while enhancing efficiency.Meanwhile, system simulation also enhances the structural understanding of the creative process. By visualizing and modeling the AI creation process, teachers can guide students to understand the logical structure of creative formation, such as the source of inspiration, the evolution path of form, and the interaction mechanism between emotional imagery and material media, thereby getting rid of the misunderstanding that "creativity cannot be taught" and moving towards a teaching paradigm where "creativity can be guided and trained".

In course design, teachers can construct the "Creative Style Evolution Path Map" project, guiding students to complete the entire process from traditional images - style reconstruction - semantic superposition - personal expression with the assistance of AI, so that the generation of creativity is not only supported by cultural logic but also presented in an independent language. The systematic nature, breadth and speed advantages of AI systems make them an important engine driving the transformation of creative generation models.

4.4 Teacher Role Transformation: AI-assisted Collaboration of "Human Teacher + Machine Teacher"

The deep integration of AI technology not only transforms teaching methods but also poses a redefinition requirement for the role of teachers. In traditional arts and crafts education, teachers are often regarded as "authorities of experience" and "inheritors of skills", and their functions are mostly concentrated on demonstration, guidance and evaluation. However, as AI increasingly dominates the generation, push

and analysis tasks in teaching, the functional boundaries of the teacher's role have significantly expanded, shifting from a single knowledge provider to a human-machine collaborative system builder, ethical guide and creative facilitator.

First of all, teachers need to have the ability to use AI tools and data literacy. They should not only be able to operate software tools and interpret system feedback, but also be capable of transforming and bridging between algorithm output and teaching objectives. In this process, the role of teachers as "pilots" is reflected in the integration and redesign of AI capabilities, such as customizing generation algorithms, selecting appropriate style models, and setting evaluation metrics, thereby embedding educational intentions into the technical system.Secondly, teachers need to strengthen their ethical and cultural responsibilities. In the context where AI can automatically generate a large amount of visual content, issues such as the originality of works, cultural respect, and algorithmic bias are particularly prominent. Teachers should guide students to develop copyright awareness, critical thinking and cultural discrimination in the use of technology, prevent the utilitarian abuse of technology, and ensure that design creation is still based on the expression of humanistic values.Finally, teachers should act as organizers and stimulators of students' creative abilities. Although AI can offer a variety of solutions, truly in-depth creation still requires human judgment and cultural narrative. Teachers should inspire students to integrate their personal experiences and social contexts into the AI-assisted design process through project-based approaches, cross-media practices, cultural studies and other means, thus forming a truly "human-machine integration" creative paradigm.

Therefore, future teachers of arts and crafts will be a combination of "human teachers and machine teachers", capable of both mastering intelligent systems and maintaining the essence of art. It can not only generate teaching technology paths but also lead the value direction. The reshaping of the role of teachers is a key fulcrum for AI to empower teaching transformation.

5.conclusion

Artificial intelligence technology is integrating into every aspect of the teaching

of arts and crafts design at an unprecedented speed and depth. It not only reconfigures the teaching process and learning paradigm but also profoundly influences the way creativity is generated and the role positioning of teachers. Through the organic integration of AI tools and traditional methods, the teaching process has undergone a transformation from "skill training" to "intelligent empowerment". Personalized learning decisions based on big data have promoted the implementation of precise teaching. Style transfer and intelligent simulation technology provide students with a broader experimental space for creative expression. The role of teachers has gradually evolved from knowledge transmitters to collaborative guides assisted by AI. This series of reshaping of teaching models not only reflects the trend of educational technology transformation, but also marks the profound evolution of design education concepts. In the future, the education of arts and crafts urgently needs to achieve an effective balance between technological leadership and humanistic values, build a comprehensive educational ecosystem that conforms to the characteristics of the intelligent era, and cultivate compound design talents with creativity, technical literacy and ethical awareness.

Reference

[1] West R, Burbano A. AI, arts & design: Questioning learning machines[J]. Artnodes: revista de arte, ciencia y tecnología, 2020 (26): 1.

[2] Ploennigs J, Berger M. AI art in architecture[J]. AI in Civil Engineering, 2023, 2(1): 8.

[3] Jiang H H, Brown L, Cheng J. AI Art and its Impact on Artists[C]//Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society. 2023: 363-374.

[4] Cetinic E, She J. Understanding and creating art with AI: Review and outlook[J]. ACM transactions on multimedia computing, communications, and applications (TOMM), 2022, 18(2): 1-22.

[5] Mikalonytė E S, Kneer M. Can Artificial Intelligence make art?: Folk intuitions as to whether AI-driven robots can be viewed as artists and produce art[J]. ACM transactions on human-robot interaction (thri), 2022, 11(4): 1-19.

[6] Hong J W, Curran N M. Artificial intelligence, artists, and art: attitudes toward artwork produced by humans vs. artificial intelligence[J]. ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM), 2019, 15(2): 1-16.

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