Article

Artificial Intelligence – Driven Design of Aesthetic Education Curricula in Higher Education

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Abstract: With the rapid advancement of artificial intelligence (AI) technologies, traditional university aesthetic education courses face challenges such as limited teaching modalities, inefficient resource utilization, and outdated assessment methods. Building on a comprehensive review of AI applications in education and classic theories of aesthetic education curricula, this paper proposes an "AI–Empowered Framework for University Aesthetic Education Curriculum Design", clarifying the central role of AI in course positioning, instructional objectives, and evaluation systems. Within this framework, we explore strategies for intelligent instructional content and resource design, AI–driven pedagogical innovations, and the development of intelligent platforms and creative evaluation tools for instructors and students. Through case studies in leading universities and empirical data analysis, we demonstrate that integrating AI into aesthetic education enhances students' artistic creativity, increases course engagement, and optimizes teaching management. Finally, we address challenges related to technology ethics, data security, and faculty development, and offer corresponding countermeasures and future research directions. This study enriches the theoretical system of aesthetic education Curriculum Design and provides actionable guidance for constructing an intelligent, aesthetic–centered learning ecosystem in the AI era.

Keywords: artificial intelligence; university aesthetic education; Curriculum Design; intelligent teaching

Published: 28 June 2025

1. Introduction

In recent years, AI technologies such as deep learning, natural language processing, and computer vision have developed at breakneck speed, fundamentally transforming industries across the board. In education, AI not only drives personalized learning and intelligent tutoring applications but also offers new approaches to curriculum development and teaching assessment. At the same time, university aesthetic education is uniquely valuable for broadening students' aesthetic perspectives, cultivating artistic literacy, and fostering well-rounded humanities competencies. However, traditional classroom models often suffer from dispersed resources, one-way teacher-student interactions, and single-dimensional evaluation methods. Against this backdrop, deeply integrating AI into aesthetic education — by building intelligent Curriculum Design, implementation, and evaluation systems — has become an urgent research imperative. By introducing AI, educators can intelligently integrate massive art resources, precisely diagnose students' creative abilities, and monitor and optimize the teaching process in real time, thereby fully unleashing students' aesthetic potential and elevating instructional quality. Consequently, this study holds significant theoretical value as both a constructive extension of curriculum design principles and a deep exploration of education–technology integration pathways. Practically, it provides practical strategies for universities to innovate their aesthetic education curricula and advance digital transformation in teaching. This paper aims to construct a systematic, operational "AI–Empowered Framework for University Aesthetic

Education Curriculum Design" and to propose practical implementation strategies and evaluation methods. First, by reviewing frontier AI applications in education and the arts, we clarify the positioning and functions of AI in aesthetic education. Second, centered on course objectives and pedagogical principles, we design mechanisms for intelligent instructional content and resource generation as well as AI-driven teaching methods and model innovations. Third, we develop an AI-based teaching platform and creative evaluation tools, and conduct empirical research through case studies at exemplary universities to analyze and validate teaching outcomes. Finally, we address challenges concerning technology, ethics, and faculty training, offering solutions and future research directions. This study covers both the construction of a theoretical framework and the development of concrete implementation paths, supported by empirical evaluation, to provide comprehensive theoretical and practical guidance for the sustainable development of university aesthetic education courses in the AI era [1].

2. Theoretical Foundations and Literature Review

2.1. Current Applications of AI Technologies in Education

In recent years, the integration of AI technologies into the education sector has deepened continuously. Intelligent algorithms centered on machine learning, natural language processing, and knowledge graphs provide technical support for personalized and precise instruction. Adaptive learning systems dynamically adjust lesson difficulty and sequence by collecting and analyzing students' behavioral and performance data in real time, thereby achieving individualized learning. Intelligent tutoring and question-answering robots leverage deep learning models to respond to students' queries promptly, supplementing instructional capacity and boosting learner engagement. Moreover, computer-vision–based proctoring, natural-language-generation–driven automated essay scoring, and virtual STEM laboratories are being deployed at scale, significantly improving assessment efficiency and instructional management [2]. At the university level, online education models such as MOOCs and flipped classrooms increasingly incorporate AI to deliver intelligent content recommendations and optimize learning pathways. Combined with big data analytics, these technologies provide instructors with multidimensional progress reports and early-warning insights, aiding timely intervention for learning difficulties. Simultaneously, the integration of VR/AR and immersive technologies offers art, engineering, and medical students richer, more engaging practical environments, expanding on traditional classroom formats. Although initial outcomes are promising, challenges remain in data privacy protection, algorithmic transparency, and system interpretability — issues that must be addressed to build a trustworthy, sustainable AI-driven educational ecosystem [3].

2.2. Classic Theories and Practices in University Aesthetic Education Curriculum Design

The theoretical basis for aesthetic education Curriculum Design in higher education traces back to the intersection of educational theory and aesthetics. Dewey's experiential learning theory emphasizes active learner engagement and reflection in real contexts, viewing artistic creation and aesthetic practice as a blend of perception, emotion, and reason. Gardner's multiple intelligences framework incorporates aesthetic-creative intelligence as a core dimension, advocating diverse artistic activities to stimulate students' creative potential. Bloom's taxonomy provides a structured framework for setting cognitive, affective, and psychomotor objectives, guiding educators in balancing knowledge transmission, skill development, and value guidance within aesthetic courses [4]. Additionally, constructivist learning theory promotes the co-construction of knowledge through collaborative creation, discussion, and critique, deepening students' understanding of art forms and meanings. Collectively, these theories establish fundamental principles for course objectives, content organization, and pedagogical strategies: emphasizing learner agency, practical experience, and the cultivation of both aesthetic sensitivity and critical thinking.

Practically, many universities have pioneered representative aesthetic education models. "Artworks Interpretation" courses, centered on case-based teaching, develop students' art appreciation and cultural understanding through multidisciplinary analyses of classic works in painting, music, and film [5]. Elective cross-media creation courses integrate painting, video, and digital media to engage students in interactive, material-based experimentation. Campus-based aesthetic labs combine public art projects with collaborative design and exhibition, creating a cycle of practice, reflection, and re-creation. These initiatives enrich course offerings and continuously improve teaching management, assessment mechanisms, and resource allocation, providing valuable experience for future AI-empowered, intelligent Curriculum Design. By synthesizing classic theories and exemplary practices, a solid scholarly and practical foundation is established for building a novel, AI-supported framework for aesthetic education curriculum design [6].

3. AI–Empowered Framework for University Aesthetic Education Curriculum Design

3.1. AI's Positioning and Functions in Aesthetic Education Courses

In the overall design of university aesthetic education courses, AI serves three core roles: resource integrator, learning accelerator, and teaching evaluator (see Figure 1). First, as a resource integrator, AI employs image recognition and natural language processing to automatically classify and tag vast collections of artworks — spanning Eastern and Western painting, music, and dance — into a multidimensional, intelligent repository that offers precise, personalized content discovery and recommendations. Based on this foundation, the learning accelerator function comes into play: the intelligent tutoring system analyzes behavioral data and learning styles to dynamically generate personalized learning paths, offering real-time guidance on composition, color harmonies, and rhythmic patterns during creative work, as well as multi-perspective, cross-cultural interpretations during art appreciation, thereby enhancing student initiative and creativity [7].

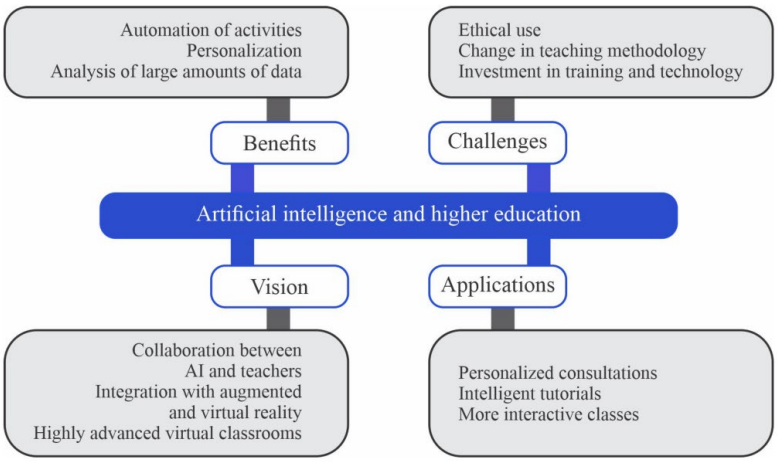

Figure 1. AI–Empowered Positioning and Functional Diagram for University Aesthetic Education Courses.

Moreover, AI acts as an objective evaluator in teaching assessment by providing independent monitoring and feedback. An automated evaluation system — leveraging computer vision and affective computing — analyzes students' creative processes and stylistic features at multiple levels, enabling comprehensive assessment from technical proficiency to emotional engagement. Integrated with a learning analytics platform, it correlates evaluation results with classroom interaction data and forum participation to help instructors accurately identify each student's strengths and weaknesses in aesthetic cognition, artistic expression, and innovative thinking. Thus, the AI-empowered framework

depicted in Figure 1 transcends the traditional teacher-centered, single-dimension evaluation model and lays a solid foundation for a student-centered, full-cycle feedback–driven intelligent teaching ecosystem [8].

3.2. AI-Driven Curriculum Design Principles and Objective System

AI-empowered aesthetic education design should adhere to the core principles of student-centeredness, data-driven decision making, and human–machine collaboration. Specifically, course content must integrate classical aesthetic theories and contemporary art practices while fully leveraging AI's visualization and predictive capabilities to accurately capture and dynamically respond to individual learning needs. For example, before each module, the system can recommend relevant artworks or creation examples based on learners' history and preference tags; during the module, AI-assisted tools monitor progress and emotional states in real time, pushing targeted demonstration videos, interactive exercises, or expert feedback; after completion, the system compiles process data, online assessment results, and peer-review feedback into multidimensional learning reports that support collaborative planning of next steps [9]. This approach preserves aesthetic education's openness and exploratory spirit by offering learners personalized pathways for exploration, reflection, and creative risk-taking, while enabling highly adaptive and granular instructional management. Based on these design principles, a four-dimensional objective system covering cognition, skills, emotion, and innovation can be established. Cognitive objectives target the cultivation of aesthetic literacy, requiring mastery of art history, formal languages, and critical theory; skill objectives emphasize creative practice — proficiency in composition, color theory, and performance techniques; emotional objectives aim to deepen aesthetic experience and cross-cultural understanding via immersive AI scenarios or virtual exhibitions; innovation objectives highlight personal expression and interdisciplinary fusion, encouraging the use of AI creation tools for digital art, interactive installations, or multimodal experiments. Each objective is decomposed across course outlines, modules, and individual lessons, with corresponding AI-based metrics and feedback mechanisms to ensure implementation through a cycle of intelligent sensing, targeted intervention, and continuous optimization. This objective system not only makes instructional goals quantifiable and traceable but also provides a robust foundation for building a data-driven, dynamic, and sustainable aesthetic education ecosystem in higher education [10].

4. Implementation Strategies for Integrating AI into University Aesthetic Education Courses

4.1. Intelligent Design of Instructional Content and Resources

In university aesthetic education courses, the design of intelligent instructional content should be grounded in a deep integration of AI-generated and traditional art resources. First, by leveraging large pre-trained models and generative AI technologies, instructors can provide students with diverse creative materials and stimulating examples. By inputting keywords, emotional themes, or thematic prompts, the AI can automatically generate corresponding images, audio clips, or short videos, quickly establishing creative starting points for learners of different levels and styles. On this basis, instructors can compare the AI-generated content with classic artworks, guiding students to conduct aesthetic critiques and re-creation exercises in terms of composition, color, and rhythm. This approach both preserves the artistic depth of aesthetic education and enhances the course's interactivity and engagement. At the same time, building an intelligent resource repository is essential for efficient teaching. By employing knowledge graphs and semantic-search technologies, multi-source data — such as campus art-gallery collections, museum digital archives, and MOOC course materials — can be automatically annotated and hierarchically classified, forming a structured, visualized network of art knowledge. In class, students may explore and retrieve high-quality resources using natural language or

image-based search, filtering by style, historical context, or thematic imagery. The system can also combine learner profiles with sentiment analysis to dynamically recommend resources that align with each student's creative preferences and progress, helping them focus on key creative elements within limited class time. Through this intelligent design, instructional content and resources evolve from static to dynamic and from scattered to interconnected, providing robust support for personalized learning and collaborative innovation.

4.2. AI-Driven Innovations in Teaching Methods and Models

At the level of teaching methods, AI introduces a "smart preview — real-time intervention — precise feedback" cycle into the aesthetic classroom. First, by collecting and analyzing learning-behavior data in real time, the intelligent system can perform a pre-class diagnosis of students' artistic foundations, interests, and learning gaps. This enables instructors to design differentiated warm-up activities and task scenarios for the whole class or individual learners. During class, an AI teaching assistant — powered by natural-language processing and semantic-recognition — can interpret students' creative questions, discussion contributions, and written feedback in real time, while helping the instructor deploy multimodal tools such as digital whiteboards, virtual galleries, and electronic instruments. This "instructor–AI–student" collaboration creates a dynamic classroom environment characterized by fluid role-switching, real-time responsiveness, and heightened student engagement. By leveraging affective computing and eye-tracking technologies, the system can monitor students' attention and emotional states, adjusting the lesson pace or delivering motivational prompts to ensure that learning remains exploratory in nature while maintaining task focus. At the level of instructional models, a hybrid "blended + flipped + project-based" innovation model is gradually taking shape under AI's influence. In the flipped-classroom segment, the AI platform generates and distributes finely tuned pre-class materials and micro-lectures, continuously optimizing content difficulty and presentation based on student feedback. Online self-study and offline discussion seamlessly integrate, achieving continuous learning experiences across both in-class and out-of-class contexts. In project-based learning, AI-enhanced cross-campus collaboration spaces and virtual creative labs allow students and instructors from multiple institutions to share resources and co-create. Intelligent progress-tracking and quality-assessment tools provide real-time insights into project status and outcomes. This model not only overcomes the time-and-space limitations of traditional classrooms but also cultivates students' teamwork and cross-cultural communication skills. Through these AI-driven teaching methods and model innovations, university aesthetic education courses can establish a data-backed, experience-centered, and collaboration-oriented intelligent teaching ecosystem, laying a solid foundation for training future-ready art professionals.

5. AI-Assisted Platforms and Tools for Aesthetic Education

5.1. Functional Architecture and Key Technologies of the AI Teaching Platform

An AI teaching platform should feature a multi-layered, modular architecture to meet the diverse demands of resource management, intelligent interaction, and teaching assessment in aesthetic education. The bottom data layer collects and stores diverse art resources from multiple sources, along with student learning data — including digitized collections, students' creative-process logs, and classroom interaction records — and employs distributed storage and big-data frameworks to manage and retrieve vast multimedia content and structured metadata. The middle services layer integrates various AI engines and microservices — such as knowledge-graph construction and query services, recommendation engines, natural-language processing and generation modules, computer-vision recognition and style-transfer modules, and affective-computing and learn-

ing-analytics engines. These services are exposed through a unified API gateway, allowing instructional platforms to dynamically invoke specific functions. At the top application layer, user-friendly web and mobile interfaces provide instructors and students with core modules for course management, resource search, intelligent tutoring, online creation and evaluation, peer review, and data visualization — ensuring transparent monitoring and human-AI collaboration throughout the teaching process. Regarding key technologies, knowledge graphs and semantic search create cross-modal linkages between art resources and instructional content, underpinning intelligent recommendations and teaching diagnostics. Generative AI (e.g., GANs, Transformers) automatically produces art materials and examples to inspire student creativity. Computer vision tracks and recognizes creative styles, while affective-computing models assess attention and emotional engagement in real time. Natural-language processing and generation offer contextualized commentary and guidance in discussion forums and AI teaching assistants. Finally, learning analytics and visualization integrate multidimensional learning metrics, enabling instructors to view student profiles and class-wide progress in real time, facilitating precise interventions and outcome evaluations. By combining these functional layers and technologies, the AI teaching platform delivers end-to-end intelligent support — from content creation and resource curation to assessment and feedback — for university aesthetic education, fostering an efficient, open, and sustainable smart-aesthetics ecosystem.

5.2. Applications of AI-Assisted Art Creation and Evaluation Tools

Built upon the AI teaching platform, AI-assisted art creation and evaluation tools serve dual roles as "creativity engines" and "intelligent assessors", simultaneously sparking students' artistic imagination and delivering objective, precise feedback. First, generative AI creation tools enable one-click production of art drafts across multiple media — such as digital paintings, musical motifs, poetic passages, and interactive installation designs — based on students' input of thematic keywords, style preferences, or emotional tones. For example, a Generative Adversarial Network (GAN) model can quickly generate multiple versions of a painting draft for students to refine, while a Transformer-based music generator can produce short audio tracks that adhere to specific harmonic structures and rhythmic patterns, supporting instrumental composition. These tools lower the barrier to creative entry and, through "human–AI co-creation", cultivate interdisciplinary thinking — integrating visual arts with computer science, music theory, and interactive media — and foster experimental mindsets. Second, AI-driven automatic evaluation tools conduct comprehensive assessments from technical and aesthetic perspectives by extracting and analyzing multiple feature dimensions. Technically, the system quantifies metrics such as compositional balance, color contrast, and, where applicable, rhythmic or spatial coherence. Aesthetically, it compares student works against a large art-database and style tags to score consistency of style, innovation, and emotional expressiveness. Leveraging natural-language generation, the tool produces targeted evaluation reports — highlighting strengths, offering improvement suggestions, and linking to reference resources — to guide students' next creative iterations. In practice, these creation and evaluation tools can be embedded into course projects — such as AI-Painting workshops, AI-Enhanced Composition studios, or Mixed-Media Innovation contests — allowing students to experience the tools' advantages in authentic creative scenarios and receive immediate feedback. Instructors can use the data-driven reports to structure midpoint critiques and thematic seminars, fostering a continuous "instant feedback — reflective refinement — recreation" cycle that advances both technical skills and aesthetic depth. This AI-assisted creation and assessment mechanism not only streamlines teaching management but also provides robust support for personalized student growth and innovation potential.

6. Experimental Study and Case Analysis

6.1. A Representative University Case of AI-Empowered Aesthetic Education

In the Spring 2024 semester, the Academy of Arts & Design at Tsinghua University launched the "AI-Assisted New Media Art Creation" course, one of the first domestic explorations to deeply integrate generative AI into aesthetic education. Jointly offered by the Art Academy and the Computer Science Department, the course enrolled over 80 undergraduate, master's, and doctoral students. Firstly, in terms of instructional design, the teaching team adopted a "human–AI co-creation" approach by introducing Generative Adversarial Networks (GANs) and Style Transfer techniques into the classroom. At the start of the semester, students submitted their creative themes and style preferences via the in-house AiArt platform. The system instantly produced three distinct initial drafts — each emphasizing color experimentation, formal deconstruction, or emotional expression. In class, instructors guided students to critique these AI-generated drafts in light of classic aesthetic theories (for example, Bauhaus principles of form) and then led them to refine the drafts by hand-painting, digital sculpting, and video compositing. The result was innovative artwork bearing both human and machine signatures. Secondly, the course implemented a closed loop of AI-assisted creation and evaluation. After each round of work, students uploaded their source files and project descriptions to the platform. The AI evaluation module scored each submission on composition balance, color contrast, and stylistic consistency, and then generated a report containing an "Emotion Index" and "Innovation Analysis". Instructors used these data-driven reports for group critiques, focusing on the creative tension between "AI suggestions" and "manual reinterpretation". For example, one undergraduate student refined a mixed "ink-painting + cyberpunk" style draft — initially generated by AI — by hand-brushwork and digital detailing, producing a final piece that retained the neon sheen of cyberpunk while infusing the poetic wash of ink painting. The quantitative evaluation data directly informed the student's creative adjustments. Finally, the course's effectiveness was validated through both surveys and interviews. Ninety percent of students reported that the AI-generated drafts greatly inspired their creativity, and sixty percent continued to use the platform for independent after-class creation. Instructors observed more than a 30% increase in compositional complexity and stylistic diversity compared to traditional courses. This case not only confirms the feasibility of AI-empowered aesthetic education but also provides practical evidence for developing a more robust "intelligent creation–human–AI co-evaluation" teaching ecosystem.

6.2. Empirical Evaluation of Teaching Outcomes and Data Analysis

To comprehensively assess the "AI-Assisted New Media Art Creation" course, we conducted an empirical analysis across three dimensions — creative quality, learning engagement, and innovation ability — using both survey responses and platform data. First, we evaluated creative quality by inviting three external experts to independently score final projects from both the traditional and AI-empowered courses on a 100-point scale, as shown in Table 1.

Table 1. Comparison of Expert Scores on Student Creative Quality.

Metric	Traditional Course Mean	AI-Empowered Course Mean	Improvement (%)
Composition Balance	75.4	82.7	9.71%
Color Expressiveness	78.2	85.9	9.86%
Thematic Depth	70.9	79.3	11.81%

These results suggest that the integration of AI-generated drafts and automated evaluation tools not only improved students' visual composition but also deepened their ability to convey complex artistic themes. Next, we examined learning engagement, an important indicator of course appeal and student investment, by comparing classroom attendance, post-class resource usage, and online interaction (comments and Q&A sessions).

Compared with the traditional format, the AI-empowered course significantly increased students' self-directed use of learning resources and online discussion activity. This indicates that intelligent recommendations and instant feedback effectively boosted learning engagement, as shown in Figure 2. Finally, in Table 2, we assessed students perceived innovation ability via a self-assessment questionnaire (1–5 scale) focusing on idea generation, interdisciplinary integration, technical application, and reflective practice.

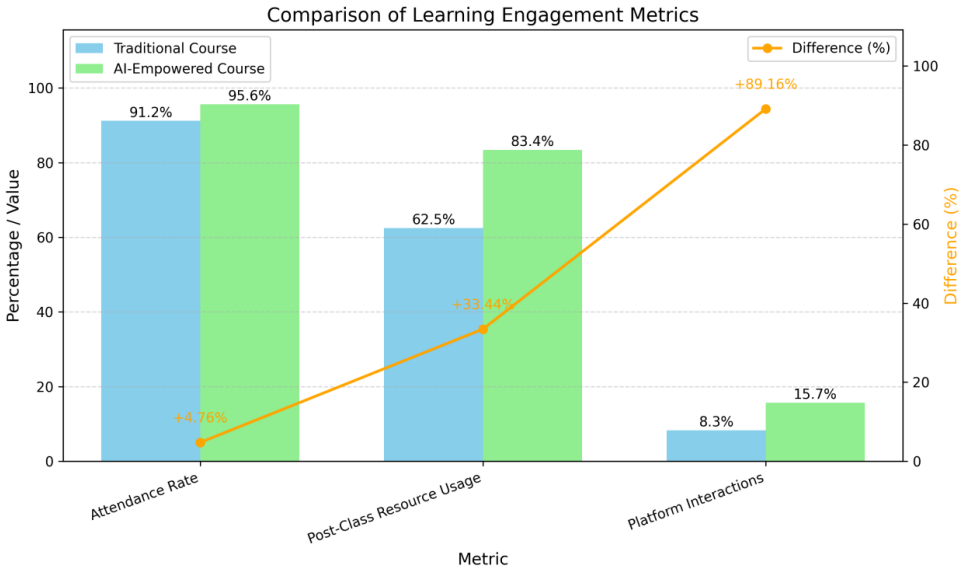

Figure 2. Comparison of Learning Engagement Metrics.

Table 2. Pre-and Post-Course Comparison of Self-Assessed Innovation Ability.

Dimension	Pre-Course Mean	Post-Course Mean	Gain (Points)
Idea Generation	2.8	4.1	+1.3
Interdisciplinary Integration	2.5	3.9	+1.4
Technical Application	2.3	4.0	+1.7
Reflective Practice	3.0	4.2	+1.2

The self-assessment results show that, with AI assistance, students not only diversified their creative thinking but also became more adept at integrating various media and technologies but also became more adept at combining different media and technologies, and exhibited stronger reflective skills. Overall, the data across these three dimensions confirm that the "AI-Assisted New Media Art Creation" course significantly improved creative quality, increased learning engagement, and fostered innovation ability. These empirical findings provide robust quantitative support for the broader implementation of AI-empowered aesthetic education. They also offer a practical foundation for refining instructional design, optimizing evaluation mechanisms, and informing future pedagogical policy development.

7. Challenges and Issues

7.1. Technical, Ethical and Data Security Challenges

In the process of deeply integrating artificial intelligence into aesthetic education courses in colleges and universities, the first problem faced is the complexity of technology integration and maintenance. The system interfaces, data formats and permission management among different departments and teaching platforms vary, resulting in significant barriers to the interconnection and interoperability between the AI teaching platform and existing campus information systems. At the same time, generative AI and large model services have a high demand for computing resources. Educational institutions

need to balance the cost of hardware deployment with performance guarantees to avoid teaching interruptions or experience declines due to insufficient resources. Secondly, the issues of algorithmic bias and interpretability cannot be ignored. Although AI-recommended materials and automatic evaluation systems can improve efficiency, they are prone to biases related to style, cultural orientation, or gender expression due to limitations in training data, which may inadvertently hinder the development of students' aesthetic diversity. Meanwhile, the opacity of the model decision-making process will also raise doubts about the fairness of the evaluation between teachers and students.

At the ethical level, the issues of AI work generation and copyright ownership are particularly prominent. There is no unified standard for the copyright definition of the initial drafts of artistic creations generated by students using the platform. If such works are later submitted to public exhibitions or competitions, it may trigger disputes over intellectual property rights or authorship attribution. Furthermore, the extent to which AI-assisted creation may diminish students' originality or the perceived value of artistic labor remains an ongoing and contested issue within the educational community that the education sector must examine. Finally, data security and privacy protection are the keys to the trust between teachers and students. In aesthetic education courses, it is necessary to collect process videos of students' works, facial expressions and learning behavior data. If this highly sensitive information is not strictly encrypted and subjected to rigorous access control, they may be abused during storage, transmission or third-party operation and maintenance. To this end, institutions of higher learning must establish a security management system that complies with the "Cybersecurity Law" and the "Regulations on the Protection of Student Information in Higher Education Institutions", and adopt technical means such as differential privacy and federated learning to ensure the minimum utilization and de-identification processing of personal data in the model training and analysis stages, thereby fostering a secure, legally compliant, and pedagogically sustainable environment for AI-integrated aesthetic education.

7.2. Difficulties in the Cultivation of Teachers' Capabilities and Curriculum Management

In the process of AI-empowered aesthetic education teaching, teachers need to not only possess profound professional artistic qualities but also master the basic principles and application methods of artificial intelligence technology. This places high demands on the traditional teaching staff for the cultivation of compound abilities. Firstly, some art and music teachers' understanding of AI technology is limited to superficial applications. They lack in-depth knowledge of generative models, machine learning algorithms, and data analysis processes, making it difficult to fully tap their teaching potential in curriculum design and classroom instruction. Meanwhile, computer science teachers are usually not familiar with the core values and teaching strategies of art education. There are differences in communication costs and teaching concepts between the two when they collaborate across disciplines. To this end, universities need to establish a systematic teacher training mechanism, including setting up AI foundation and tool practice workshops for art teachers, aesthetic theory and teaching method training courses for technical teachers, as well as regularly organizing interdisciplinary team teaching and research activities integrating "teaching-learning-research", as well as regularly organizing interdisciplinary team teaching and research activities integrating "teaching-learning-research", facilitating joint lesson preparation and case studies, and helping to break down disciplinary barriers. On the other hand, AI-empowered courses pose new challenges to teaching management. The operation of the intelligent platform relies on a large amount of learning and evaluation data. How to plan the processes of data collection, storage, update and permission approval in order to balance teaching efficiency and compliance requirements is an urgent difficulty for the educational administration department to solve. Furthermore, the teaching content and assessment results generated by AI tools are highly dynamic and personalized. The traditional curriculum management system, which relies on a unified syllabus

and fixed assessment methods, is difficult to adapt to the flexible and personalized nature of AI-empowered courses. It is necessary to make innovative adjustments in curriculum setting, assessment standards, and teaching evaluation mechanisms, such as introducing phased project reports, usage norms for AI-generated content, and comprehensive assessment by multiple subjects. Only by upgrading both the teaching staff's capabilities and curriculum management simultaneously can the deep integration of AI and aesthetic education be ensured, allowing it to develop continuously and sustainably in practice.

8. Conclusion

This paper has developed an "AI-Empowered Framework for University Aesthetic Education Curriculum Design" and validated its feasibility across four dimensions: instructional content, teaching methods and models, platform tools, and empirical case studies. Our empirical findings show that AI-generated drafts and automated evaluations significantly enhance students' creative quality (with composition balance, color expression, and thematic depth each improving by nearly 10%), learning engagement (post-class resource usage rising by 33% and online interaction nearly doubling), and innovation capacity (average gains of 1.4 points in technical application and reflective practice). Theoretically, this study extends course-design theory into the realm of intelligent education; practically, it offers universities actionable guidance on faculty training, platform development, and management mechanisms. Future research should focus on culturally adaptive and explainable AI models to address algorithmic bias and transparency in assessment; explore privacy-preserving techniques like federated learning for handling art-education data; and investigate dynamic, cross-disciplinary collaboration models and evaluation systems to promote the sustainable innovation of AI-integrated aesthetic education.

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