

Exploration of the Reform of Art and Design Education Curriculum System in Local Contexts Empowered by AIGC

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Abstract

In the global trend of integrated development between new liberal arts and new engineering disciplines, design has increasingly become a pivotal link in the transformation of new technologies into new forms of productivity, particularly in promoting the in-depth practice of the localized education concept. The technological innovation of AIGC (Artificial Intelligence Generated Content) in the field of art and design not only demonstrates its immense potential as a creative incubator and a new platform for artistic expression but also offers possibilities for the deep excavation and innovative expression of regional cultures. Against the backdrop of the rapid development of AIGC technology and its applications, how to integrate the localized education concept, promote the deep fusion and synergistic development of art and design, AI technology, and the digital economy, in order to cultivate compound talents who possess both innovative spirit and a profound understanding of regional culture, lead the trend of innovation, and accelerate industrial transformation and upgrading, has become a core issue that urgently needs to be addressed in the current field of art and design education.

Keywords

AIGC, Localization, Design Education, Educational Reform.

1. Introduction

In 2022, generative AI technology made breakthrough progress, with the rise of ChatGPT chatbots, the refinement of image generation tools like Stable-Diffusion and Midjourney, and the introduction of OpenAI's text-to-video model Sora, not only causing a massive upheaval in the art world but also pushing artistic creation from the exclusive domain of artists to a broad stage for universal participation, giving rise to the emerging field of AI Art. This technological wave has not only greatly enriched the pathways for visual artistic creation but has also profoundly altered the internal logic and working methods of art, thereby infinitely expanding the boundaries of art and design. In the context of ever-accelerating global technological innovation, AIGC (Artificial Intelligence Generated Content) technology, as a shining star in the field of AI, is penetrating various industries at an unprecedented rate, exerting a revolutionary impact on art and design education.

AIGC technology, with its exceptional content generation capabilities, high-level intelligent processing, and personalized customization services, has injected new vitality and resources into art and design education, driving profound changes in educational models. As local universities serve as crucial links in the inheritance and innovation of regional cultures, in the face of the tide of the times, the reform of their curriculum systems holds immeasurable value in cultivating high-quality design talents who not only meet market demands but also deeply understand the essence of regional culture. However, traditional art and design education curriculums often confine themselves to the indoctrination of theoretical knowledge and

mechanical skill training, neglecting the deep integration of regional cultural elements and the stimulation of students' innovative potential, thus limiting the diversified development of design education and the comprehensive growth of talents. How to effectively harness AIGC technology to empower the reform of the local art and design education curriculum system has become an important topic that urgently needs to be tackled in the current educational field. This paper aims to deeply analyze the crucial role of AIGC technology in promoting the optimization and upgrading of the local art and design education curriculum system, exploring how it can open up a new path for art and design education that not only meets market demands and highlights regional characteristics but also fully stimulates students' innovative abilities through the introduction of intelligent teaching tools, innovation in teaching modes, and the enhancement of regional cultural features. It aims to provide inspiring references for educators in related fields, jointly exploring the vast prospects of local art and design education reform empowered by AIGC technology.

2. In-depth Exploration and Practice of Curriculum System Reform in Local Education Empowered by AIGC

In the macro context where higher art and design education systems increasingly emphasize practical and innovative ability cultivation, and with the rapid advancement of Generative Artificial Intelligence (GAI) technology, curriculum system reform has become a crucial path for cultivating high-quality art and design talents. This reform not only focuses on enhancing students' professional skills but also emphasizes the cultivation of their comprehensive qualities to adapt to the rapidly changing social demands of the GAI era. Among them, integrating regional cultural elements, strengthening practical links, and incorporating interdisciplinary courses, empowered by AIGC technology, constitute the three core strategies for curriculum system reform. The implementation of these strategies holds profound significance for promoting the innovation and development of art and design education.

(1) Deep Integration of Regional Cultural Elements with AIGC Technology: Building an Intelligent Bridge for Cultural Identity and Innovation

Regional culture, as a treasure of national culture, carries profound historical accumulation and unique regional characteristics. It is an important source of inspiration for art and design and a valuable resource for art and design education in local universities. Empowered by AIGC technology, deeply integrating regional cultural elements with AIGC technology into course content and teaching methods not only helps to inherit and promote traditional culture but also stimulates students' design inspiration, cultivates their sense of regional cultural identity, and enhances their innovative capabilities. In the course teaching process, an AIGC-based regional cultural database can be constructed to provide students with abundant regional cultural materials. At the same time, specialized courses on regional culture, such as "Regional Culture and Design Aesthetics," "AI-Assisted Design of Regional Characteristic Crafts," etc., can be offered to enable students to gain a systematic understanding of the connotation and extension of regional culture. These courses should cover the historical background, artistic features, aesthetic value, and other aspects of regional culture, and guide students to use AIGC technology for creative design, incorporating regional cultural elements into their design works to enhance the cultural connotation and aesthetic value of the works. AIGC technology can be utilized to organize virtual regional cultural exploration activities, such as allowing students to immerse themselves in experiencing regional cultural sites and visiting exhibitions of regional characteristic crafts through VR technology, enabling them to feel the charm of regional culture through immersive experiences. At the same time, students are encouraged to use AIGC technology to extract and reconstruct regional cultural elements, creating design works with regional characteristics and further cultivating their innovative abilities.

(2) Strengthening and Expanding Practical Links with the Help of AIGC Technology: Constructing a "Theory + Practice + Intelligence" Teaching Mode

Practice is an effective way to enhance students' practical abilities and problem-solving skills. Empowered by AIGC technology, strengthening the establishment and implementation of practical links and constructing a "Theory + Practice + Intelligence" teaching mode are of great significance for cultivating students' practical abilities and innovative spirit.

On the one hand, by offering AIGC-assisted practical courses, such as "Basic Training in AI-Assisted Design" and "Practical Training in Design Software and AI Algorithm Applications," students can acquire design skills and AI algorithm application techniques through simulated practice. These practical courses should cover aspects such as design fundamentals, design software application, and AI algorithm principles. Through practical operations, students can become familiar with the design process, grasp the application methods of AI algorithms in design, and lay a solid foundation for subsequent professional design courses.

On the other hand, organizing social practices and industry-academia-research cooperation activities with the help of AIGC technology, such as design competitions, corporate internships, and AI-assisted project collaborations, allows students to exercise their design thinking and improve their team collaboration abilities in real-world environments. At the same time, AIGC technology can provide students with personalized learning paths and feedback, helping them better understand market demands and industry development trends, thereby cultivating their practical abilities and innovative capabilities.

Encouraging students to participate in social service projects empowered by AIGC, such as community transformation and public interest advertisement design using AI technology, is also an important direction for expanding practical links. By participating in these projects, students can transform their design achievements into social services, realizing the value of design while also enhancing their sense of social responsibility and mission.

(3) Fusion and Innovation of Interdisciplinary Courses with AIGC Technology: Broadening Knowledge Horizons and Cultivating Interdisciplinary Intelligent Thinking

Interdisciplinary courses are important means of broadening students' knowledge horizons and cultivating interdisciplinary thinking. Empowered by AIGC technology, breaking down disciplinary barriers and introducing interdisciplinary courses, such as "Intelligent Integration of Art and Technology" and "Design Psychology and AI Applications," allow students to understand the knowledge systems and research methods of different disciplines through interdisciplinary learning and cultivate their interdisciplinary intelligent thinking and innovative capabilities.

The introduction of interdisciplinary courses can help students broaden their knowledge horizons and understand the knowledge systems and research methods of different disciplines. For example, the "Intelligent Integration of Art and Technology" course can enable students to understand the interrelationship between art and technology and grasp the application methods of AI technology in design, thereby stimulating their innovative thinking. The "Design Psychology and AI Applications" course can help students understand the relationship between design and human psychology and grasp the application principles and methods of AI technology in design psychology, providing a scientific basis for design works.

Organizing interdisciplinary seminars, design workshops, and other activities with the help of AIGC technology is also an important way to integrate interdisciplinary courses. These activities can invite experts, scholars, and students from different disciplines to jointly explore design issues and use AIGC technology for creative ideation and scheme design. Through interdisciplinary communication and cooperation, as well as the empowerment of AIGC technology, students can learn about the research methods and thinking modes of different disciplines, thereby cultivating their interdisciplinary intelligent thinking and innovative

capabilities. These abilities are of great significance for future career development and can help students cope with various challenges in a complex and ever-changing social environment.

3. Exploration and Diversified Practice of Localized Teaching Method Innovation Driven by AIGC Technology

Driven by the powerful force of AIGC (Artificial Intelligence Generated Content) technology, the innovation of teaching methods has become the core engine for enhancing education quality and learning effectiveness in the field of art and design education. The deep integration of AIGC technology has not only injected new vitality into classic teaching methods such as case-based teaching, project-based learning, and flipped classrooms, but also promoted the in-depth development of students' innovative thinking and practical abilities. It has driven the practice and deepening of localized educational concepts, bringing unprecedented changes to art and design education.

(1) Enhancing the Enlightening Effect of Case-Based Teaching with AIGC: Stimulating Innovative Thinking and Design Insight

Case-based teaching, as a teaching strategy that uses classic cases as carriers to inspire students' thinking and cultivate their innovative thinking and design insight, demonstrates even broader application potential when empowered by AIGC technology. Traditional case-based teaching often relies on teachers' subjective selection and interpretation, while the introduction of AIGC technology makes case selection and presentation more precise, comprehensive, and forward-looking.

In the field of art and design education, teachers can easily access top-notch design cases from both domestic and international sources through an intelligent case library built using AIGC technology, and precisely screen and present them according to teaching needs. These cases are not only representative and typical but also incorporate intelligent analysis and prediction functions of AIGC technology, providing students with deeper and more comprehensive design insights. For example, AIGC technology can intelligently analyze design elements, color matching, composition methods, etc., in cases to help students understand the logic and creative strategies behind the designs. At the same time, AIGC technology can also intelligently predict case outcomes based on market trends and user needs, providing students with references and inspiration for future design directions.

In case-based teaching enhanced by AIGC, students immerse themselves in a deep learning environment composed of intelligent cases. They can use the interactive analysis tools provided by AIGC technology to deeply analyze the design logic, creative strategies, and market feedback in the cases. This interactive learning approach not only increases student engagement and interest but also cultivates their critical thinking and problem-solving skills. Furthermore, AIGC technology can intelligently recommend relevant cases and design resources based on students' individualized learning needs and interests. This personalized recommendation of learning resources can further stimulate students' innovative thinking and design inspiration, enabling them to continuously discover new design possibilities in their learning.

In the case reconstruction and innovation phase, AIGC technology acts as a creative partner, providing students with intelligent design suggestions and creative expansions. For example, AIGC technology can generate innovative design suggestions by learning and analyzing a large number of design cases, helping students break through design bottlenecks. At the same time, AIGC technology can also integrate local cultural elements into designs, providing students with design inspiration featuring regional characteristics. This intelligent design suggestion and creative expansion not only enhance students' design practice abilities and innovation capabilities but also strengthen their cultural identity and pride.

(2) Practical Deepening of AIGC-Driven Project-Based Learning: Cultivating Practical and Interdisciplinary Integration Abilities

Project-based learning, a student-centered teaching mode that cultivates students' practical and innovative abilities through project practice, has achieved more efficient and diversified practical deepening with the promotion of AIGC technology. Traditional project-based learning often relies on teachers' experience and guidance, while the introduction of AIGC technology makes the process of project planning, implementation, and evaluation more intelligent and efficient.

In art and design education, AIGC technology provides powerful intelligent support for project-based learning. It can help teachers design more challenging, innovative, and practical design projects, such as regional cultural brand planning and design, and localized product design. These projects not only incorporate the latest achievements of AIGC technology, such as intelligent recognition, data analysis, and virtual reality, but also encourage students to engage in interdisciplinary cooperation and explore new boundaries in the field of design together. For example, in regional cultural brand planning and design, students can combine knowledge from multiple disciplines such as marketing, cultural communication, and digital media technology to conduct market research, brand planning, and visual design through AIGC technology, thereby cultivating interdisciplinary integration abilities and team collaboration abilities. During project implementation, AIGC technology serves as an intelligent guide, providing students with real-time design feedback and optimization suggestions. For instance, in product design projects, AIGC technology can provide students with optimization suggestions on product functions, forms, and materials through intelligent analysis of user needs. At the same time, AIGC technology can also intelligently evaluate and predict design schemes, helping students identify potential issues early and make improvements. This intelligent design feedback and optimization suggestions not only enhance students' design efficiency and quality but also cultivate their critical thinking and problem-solving abilities.

AIGC technology also facilitates communication and collaboration among interdisciplinary teams. Through intelligent project management tools, AIGC technology can enable the sharing and optimal allocation of design resources, allowing team members to communicate and collaborate anytime and anywhere. This intelligent project management approach not only improves team efficiency and collaboration abilities but also cultivates students' team spirit and leadership. At the same time, AIGC technology can incorporate local cultural elements into project management, enhancing the cultural connotation and regional characteristics of the projects.

(3) AIGC-Supported Flipped Classroom Hybrid Learning: Enhancing Autonomous Learning Ability and Innovative Potential

The flipped classroom, a teaching mode that reverses the traditional classroom instruction and after-school practice, achieves more flexible and efficient hybrid learning with the support of AIGC technology. Traditional flipped classrooms often rely on teachers' video explanations and online resources, while the introduction of AIGC technology makes the learning resources and learning paths of the flipped classroom more personalized and intelligent.

In art and design education, AIGC technology provides abundant online learning resources and intelligent learning tools for the implementation of the flipped classroom. Students can autonomously learn design theory and basic skills through an intelligent online learning platform before class. These learning resources not only cover traditional content such as design software operation tutorials and design theory books but also incorporate intelligent tutorials and interactive learning modules generated by AIGC technology. For example, AIGC technology can generate targeted design tutorials and practice question banks by learning from and analyzing a large number of design cases, helping students consolidate their knowledge

and improve their practical abilities. At the same time, AIGC technology can intelligently adjust learning resources and learning paths based on students' learning progress and feedback. This personalized recommendation of learning resources and planning of learning paths enable students to master their knowledge more efficiently and enhance their autonomous learning abilities.

In the classroom, AIGC technology serves as an intelligent coach, guiding students in in-depth discussions and practical operations. Through intelligent analysis and evaluation tools, AIGC technology can provide students with targeted learning feedback and improvement suggestions. For instance, in design work evaluations, AIGC technology can provide students with suggestions on the highlights of their work and areas for improvement through analysis and evaluation of their work. This intelligent learning feedback and improvement suggestions not only help students promptly identify and improve their deficiencies but also cultivate their critical thinking and innovative abilities.

AIGC technology can also provide intelligent learning tools such as virtual laboratories and online collaboration platforms for the flipped classroom. These tools enable students to engage in more in-depth and comprehensive practical operations and team collaboration in the classroom. For example, in virtual laboratories, students can perform operations such as virtual reality design and 3D printing through AIGC technology; online collaboration platforms allow students to communicate and collaborate with their teams anytime and anywhere. These intelligent learning tools and platforms not only enhance students' learning efficiency and collaboration abilities but also cultivate their innovative thinking and practical abilities.

The deep integration and application of AIGC technology in art and design education have brought unprecedented opportunities and challenges for innovation in teaching methods. By strengthening case-based teaching, deepening project-based learning, and supporting the flipped classroom through diversified practical approaches, AIGC technology can not only enhance students' innovative thinking and practical abilities but also promote the practice and deepening of localized educational concepts. In the future, with the continuous development and improvement of AIGC technology, it is believed that it will play an even more significant role in the field of art and design education.

4. Exploring Innovative Practical Paths for University-Enterprise Cooperation Models Integrating AIGC and Localization Concepts

In the era of rapid development of Artificial Intelligence Generated Content (AIGC) technology, university-enterprise cooperation, as a crucial bridge connecting art and design education with social demands, is facing unprecedented opportunities for innovation. The deep integration of AIGC technology and localization concepts to build AIGC-empowered cooperation bases with rich regional characteristics, promote AIGC and localization-driven industry-academia-research cooperation projects, and improve the university-enterprise cooperation mechanism infused with AIGC and localization concepts constitutes the three core practical paths for innovating the university-enterprise cooperation model. The implementation of these paths not only deepens industry-academia-research cooperation and achievement transformations but also provides solid academic and practical support for art and design education to precisely meet social demands.

(1) Construction and Operation of University-Enterprise Cooperation Bases Integrating AIGC and Localization Concepts: Building Industry-Academia-Research Cooperation Platforms with Both Intelligence and Regional Characteristics

AIGC technology has injected new vitality into university-enterprise cooperation bases, making them important platforms for industry-academia-research cooperation with both intelligence and regional characteristics when combined with localization concepts. Universities and

enterprises should join hands to establish AIGC-empowered training bases, research and development centers, and other institutions rich in regional characteristics, such as intelligent regional design laboratories and regional cultural creativity incubation centers, allowing students to conduct practical operations and project research on these advanced and distinctive platforms. Through these, students can personally experience the design changes and innovations brought about by the integration of AIGC technology and localization concepts. When constructing such bases, both parties need to engage in in-depth communication and meticulous planning to clarify the base's positioning, development direction, and regional characteristics. At the same time, combining the characteristics of AIGC technology and localization concepts, they should jointly formulate construction plans, management systems, and operation strategies for the training bases and research and development centers to ensure efficient operation, intelligent management, and full display of regional characteristics of the bases. Through these bases, students can deeply explore the application of AIGC technology in regional art and design, enhancing their innovation and technological practice abilities. Enterprises can leverage the platform advantages of the bases to attract more outstanding talents, drive technological innovation and industrial upgrading, and promote the inheritance and development of regional culture.

(2) Advancement of Industry-Academia-Research Cooperation Projects Driven by AIGC and Localization Concepts: Accelerating Achievement Transformation and Cultivating High-Quality Talents

The integration of AIGC technology and localization concepts provides new impetus for industry-academia-research cooperation projects, driving in-depth project development and achievement transformations. Universities and enterprises should deeply cooperate to jointly carry out project research, technical consultation, and other activities driven by AIGC and localization concepts, such as AIGC regional design competitions and intelligent regional product development. This allows students to exercise their design thinking, improve team collaboration abilities, and gain insights into the market application prospects and industry demands of the integration of AIGC technology and localization concepts through project practices.

Throughout the project implementation, both parties need to collaborate closely, jointly formulate research and development plans, technical routes, and strategies for integrating regional culture, and clarify responsibilities and divisions of labor. At the same time, leveraging the advantages of AIGC technology and the characteristics of the localization concept, they should jointly invest funds, resources, and intellectual support to ensure the smooth and efficient implementation of the project. Through these projects, students can gain a deeper understanding of the market applications, industry demands, and regional cultural characteristics of the fusion of AIGC technology and the localization concept, thereby targetedly enhancing their design and innovation capabilities.

Through such projects, universities can more accurately grasp market demands, industry development trends, and regional cultural characteristics, adjusting their curricula, teaching methods, and teaching content to cultivate high-quality talents who meet market demands and possess regional characteristics. Enterprises, on the other hand, can leverage the talent advantages of universities, the innovation power of AIGC technology, and the cultural heritage of the localization concept to enhance the market competitiveness, innovation capability, and regional cultural influence of their products. These achievements not only bring economic and social benefits to enterprises but also provide strong support for the sustainable development of art and design education.

(3) Establishment and Improvement of a University-Enterprise Cooperation Mechanism Integrating AIGC and Localization Concept: Ensuring Efficient Operation and Deep Integration of Industry-Academia-Research Collaboration

The integration of AIGC technology and the localization concept brings new changes and opportunities to the university-enterprise cooperation mechanism, playing a more significant role in ensuring the efficient operation and deep integration of industry-academia-research collaboration. To achieve this goal, universities and enterprises need to establish long-term, stable cooperative relationships and construct a communication mechanism, collaboration platform, and evaluation system based on AIGC technology and the localization concept. This mechanism should not only clarify the responsibilities, rights, and divisions of labor of both parties in the cooperation but also strengthen communication and coordination between them to ensure smooth information flow during the cooperation process, timely resolution of issues, and full respect and inheritance of regional culture.

When establishing such a mechanism, both parties should jointly formulate a cooperation framework agreement, specific implementation plans, and strategies for integrating regional culture. These documents will detail the responsibilities, divisions of labor, and cooperation goals of both parties, incorporating the characteristics, advantages of AIGC technology, and the cultural heritage of the localization concept, laying a solid foundation for the smooth progress of the cooperation. Meanwhile, to maintain the vitality, efficiency, and regional characteristics of the cooperation, both parties should also establish a regular communication, exchange, and feedback mechanism based on AIGC technology and the localization concept. This can include regular online meetings, AIGC technology seminars, regional culture workshops, etc., to ensure that both teams can promptly understand the cooperation progress, jointly solve problems encountered in the cooperation, and deeply explore the integration and innovation of regional culture.

In addition to the aforementioned basic mechanisms, university-enterprise cooperation integrating AIGC and the localization concept should also establish an intelligent evaluation and feedback mechanism. This mechanism will leverage the data analysis capabilities of AIGC technology to conduct intelligent evaluations and feedback on cooperation projects, outcomes, and the effectiveness of regional culture integration. By collecting feedback, data, and analysis results from both parties and adjusting cooperation strategies, directions, and regional culture integration strategies in a timely manner based on the evaluation results, both parties can continuously optimize the cooperation model, improve cooperation efficiency and quality, and promote the inheritance and innovation of regional culture.

The establishment and improvement of a university-enterprise cooperation mechanism integrating AIGC and the concept of localization can also promote deep integration and collaborative development between universities and social needs. By collaborating with enterprises and combining the characteristics, advantages of AIGC technology, and the cultural heritage of the localization concept, universities can more accurately grasp market demands, industry development trends, and regional cultural characteristics. At the same time, by aligning with regional educational philosophies and curriculum development principles, universities can adjust teaching content, methods, and curriculum design to cultivate high-quality talents that not only meet market demands but also embody regional characteristics. Enterprises, on the other hand, can leverage the research capabilities of universities, the innovation power of AIGC technology, and the cultural heritage of the localization concept to drive technological innovation, industrial upgrading, and the inheritance and development of regional culture. This deep integration and collaborative development not only help enhance the universities' educational quality, social influence, and regional cultural heritage capabilities but also contribute to the sustained growth, innovation capacity enhancement, and expansion of regional cultural influence for enterprises.

The innovation practice path of the university-enterprise cooperation model under the integration of AIGC and the localization concept holds significant importance for deepening industry-academia-research cooperation and promoting the deep integration and collaborative development between universities and social needs. In the future, universities and enterprises should continue to deepen cooperation, improve mechanisms, innovate models, and strengthen regional cultural characteristics, jointly promoting the integrated development of art and design education with AIGC technology, as well as the inheritance and innovation of regional culture.

5. Conclusion

How to effectively utilize AIGC technology to drive the reform of the local art and design education curriculum system is a critical issue that needs to be addressed urgently in the current educational field. This paper explores how AIGC technology can empower the creation of a new path for art and design education that not only meets market demands and highlights regional characteristics but also fully stimulates students' innovative potential. It aims to provide beneficial insights and references for educators in related fields, jointly exploring the limitless possibilities of local art and design education reform empowered by AIGC technology and painting a hopeful blueprint for the future development of art and design education.

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