Research on Repetition and Homogenization of Cultural and Creative Products from the Perspective of AIGC

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ABSTRACT

The rapid development of Artificial Intelligence Generated Content (AIGC) has revolutionized the traditional design and creation paradigm of cultural and creative products. Featuring high efficiency, mass production capability, and a low creation threshold, AIGC image generation technology has been widely applied in various visual design fields, including cultural and tourism derivatives, intangible cultural heritage design, and digital cultural creativity, which has greatly improved the production efficiency of cultural and creative works. However, in the practical promotion and application of relevant technologies, the cultural and creative industry is plagued by prominent problems of visual repetition and stylistic homogenization, such as simplistic element stacking, convergent visual aesthetics, and superficial cultural expression. These industrial drawbacks not only weaken the artistic value and market competitiveness of cultural and creative products but also hinder the sustainable and innovative digital inheritance of traditional culture. Taking the underlying generation mechanism of AIGC images as the research starting point, this paper combines the current development status of the cultural and creative design industry, systematically sorts out the typical manifestations of homogenization in AI-generated cultural and creative products, and deeply analyzes the contributing factors from four dimensions: algorithmic logic, creation mode, market environment, and creator habits. From the perspective of human-machine collaborative creation, targeted optimization strategies are proposed accordingly, to provide theoretical support and practical references for the differentiated and high-quality development of visual design in the AI-era cultural and creative industry.

Key words: *AIGC, Cultural and creative products, Visual homogenization, Human-machine collaboration.*

1. INTRODUCTION

The rapid iteration of the digital cultural industry has ushered cultural and creative product design into a critical stage of intelligent transformation. AIGC image generation technologies, represented by Stable Diffusion and Midjourney, have significantly reduced the professional threshold and time cost of design creation, enabling ordinary creators and cultural enterprises to efficiently produce large volumes of visual materials across various design fields [2]. However, alongside the explosive growth in output scale, the cultural and creative industry has fallen into a widespread homogenization dilemma: most AI-generated products exhibit convergent design styles, repeated visual elements, and superficial cultural expression, with works often amounting to little more than mechanical splicing of cultural symbols [3]. This extensive creation mode—prioritizing quantity over quality and form over connotation—poses a significant constraint on the high-quality transformation of the industry. Therefore, investigating the homogenization problems of AIGC-based cultural and creative products and proposing feasible optimization paths holds both practical value and industrial guiding significance.

2. LITERATURE REVIEW AND RESEARCH FOUNDATION

Current domestic research on AIGC and cultural and creative design mainly focuses on positive research directions such as technical application scenarios, creative advantages, and industrial empowerment. Most studies explore the application value of AIGC technology in intangible cultural heritage activation, cultural tourism and cultural creativity development, and digital IP building, which fully verifies the empowering effect of intelligent technology on the development of the cultural and creative industry [4].

However, specific research on the repetition and homogenization of AI cultural and creative works is relatively insufficient. Existing literature mostly stays at the superficial description of phenomena, without deeply exploring the root causes based on the underlying algorithmic logic of AIGC, and lacks practical optimization schemes suitable for the cultural and creative industry [5]. In general, a complete system for problem analysis and solution has not been constructed in academic circles, which forms the core innovation entry point of this research.

Foreign relevant research mainly focuses on theoretical levels such as the algorithmic principles, visual convergence characteristics, and copyright ethics of AIGC art, discussing the visual simplification problems caused by dataset deviation and prompt templateization. Nevertheless, specific research on homogenization in the commercial field of cultural and creative products is scarce, and the existing research conclusions are difficult to adapt to the development status and industrial characteristics of China's local cultural and creative industry [6].

2.1 Research Significance and Innovation Points

2.1.1 Research Significance

Theoretically, combined with intelligent algorithm mechanisms and modern design aesthetic characteristics, this research supplements the industrial problem research of AIGC-based visual cultural and creative design, enriches the interdisciplinary research system of artificial intelligence and art design, and provides theoretical support for subsequent research on intelligent cultural and creative design [7].

Practically, this paper proposes implementable optimization strategies for the homogenization pain points in the cultural and creative industry, which can effectively help creators avoid the inherent shortcomings of AI visual design, improve the uniqueness and cultural value of cultural and creative products, and promote the differentiated and high-quality innovative communication of traditional culture in the digital era.

2.1.2 Research Innovation Points

This research has two core innovations. First, an innovative research perspective. Different from traditional homogenization research based on a manual design perspective, this paper explores the fundamental causes of visual repetition of cultural and creative products from the technical essence of AIGC algorithm generation logic and dataset characteristics. Second, practical research content. Abandoning empty pure theoretical elaboration, this paper proposes practical optimization schemes suitable for individual creators and cultural and creative enterprises based on the real development pain points of the industry, balancing academic rigor and industrial practicability [8].

3. APPLICATION ADVANTAGES OF AIGC TECHNOLOGY IN CULTURAL AND CREATIVE DESIGN

3.1 High-efficiency Creation

The traditional cultural and creative design process is cumbersome, including material collection, sketch drawing, color debugging, detail modification, and multiple other procedures. A mature visual cultural and creative work often requires designers to spend several days or even weeks on polishing. In contrast, AIGC image generation technology can complete the whole process of picture composition, element matching, and color rendering through prompt instructions in a short time and output multiple design styles in batches. This greatly shortens the R&D cycle of cultural and creative products and accurately adapts to the rapid iteration and diversified updating needs of the cultural tourism market [2].

3.2 Popularized Creation Threshold

Traditional cultural and creative design has extremely high requirements for creators' artistic foundation, professional design ability, and

aesthetic literacy, forming high industrial professional barriers. AIGC technology has built a new "text-to-image" creation mode, enabling industry practitioners without professional design foundations to complete cultural and creative creation by sorting out design demands and editing exclusive prompts. This completely breaks the professional barriers of art design and transforms cultural and creative creation from the exclusive work of professional designers to a public cultural innovation accessible to all [4].

3.3 Diversified Cultural Activation

AIGC has core functions such as style transfer, element reorganization, and creative integration, providing a new path for the modern innovation of traditional culture. For classic traditional cultural elements such as intangible cultural heritage patterns, ancient architectural symbols, and traditional folk customs, artificial intelligence can quickly complete a youthful and modern visual transformation. It combines traditional retro cultural symbols with contemporary mainstream aesthetics and trendy design styles to create cultural and creative visual works suitable for young consumer groups and promote the digital activation and innovative inheritance of traditional culture [7].

4. SPECIFIC MANIFESTATIONS OF REPETITION AND HOMOGENIZATION OF CULTURAL AND CREATIVE PRODUCTS FROM THE PERSPECTIVE OF AIGC

4.1 Convergence of Visual Styles

Currently, AI-generated cultural and creative products in the market generally suffer from a high degree of visual style convergence. Most creators directly apply universal network prompt templates, and their creation styles are limited to mainstream fixed styles such as minimalism, a flat national trend style, and the INS style [5]. Whether for intangible cultural heritage products, urban cultural tourism derivatives, or folk custom peripherals, the light and shadow texture, perspective logic, and color matching of pictures are highly similar. It is impossible to create differentiated visual styles according to exclusive cultural themes, resulting in a homogenization phenomenon of visual homogeneity in the cultural and creative market.

4.2 Repetition of Visual Elements

The core creation logic of AIGC is big data material matching and fitting. Traditional cultural elements and decorative patterns that appear frequently in model training datasets will be repeatedly called and applied by artificial intelligence [6]. In the practice of cultural and creative design, universal traditional elements such as auspicious clouds, landscapes, flowers and birds, and ancient decorative patterns are frequently stacked and used with mechanized and templated layout and combination forms. Most works are only a simple superposition and splicing of elements, without personalized innovative design combined with regional cultural characteristics and the core connotation of intangible cultural heritage, leading to a lack of uniqueness and creativity in visual expression.

4.3 Superficial Cultural Expression

The core root of cultural and creative product homogenization lies in the lack of a cultural core [1]. Most AI cultural and creative creations only stay in the stacking and copying of superficial visual symbols. Creators lack an in-depth understanding of the historical background, folk implication, and core connotation of traditional culture, and generate visual pictures merely through simple keywords. Taking characteristic regional cultural elements such as Manchu patterns, Northeast shadow puppetry, and Shenyang Palace ancient architecture as examples, they only exist as decorative symbols in AI cultural and creative works, while the regional heritage, folk connotation, and historical value behind them cannot be reflected, making cultural and creative products possess only a traditional appearance without a cultural soul.

4.4 Simplified Aesthetics of Market Products

With a large number of homogenized AI cultural and creative products pouring into the consumer market, the overall aesthetics of the cultural tourism and cultural creative industry has gradually fallen into solidification [3]. To control R&D trial and error costs, cultural tourism enterprises tend to select popular and undifferentiated AI design templates and are reluctant to try niche and characteristic innovative design schemes. In the long run, the proportion of high-quality original cultural and creative products

in the market continues to decrease, and the overall industrial aesthetics become single and solidified, failing to meet consumers' diversified, personalized, and high-quality cultural consumption demands.

5. ANALYSIS ON THE CAUSES OF HOMOGENIZATION AND REPETITION OF AIGC CULTURAL AND CREATIVE PRODUCTS

5.1 High Overlap of Algorithm Training Datasets

The generation effect of AIGC images is highly dependent on public network training datasets. The training materials of current mainstream AI painting models are all derived from publicly available illustrations, design works, and photography materials on the Internet, resulting in significant overlap and convergence in major model material libraries [6]. The essence of artificial intelligence creation is the splicing, fitting, and fine-tuning optimization of existing materials, rather than original design in the true sense. When industrial creators adopt homogenized datasets for creation, the visual elements, composition logic, and style textures of works are bound to be similar, which constitutes the core technical root of the homogenization of AI cultural and creative products.

5.2 Homogenization of Prompt Words

Most current cultural and creative creators lack systematic professional capabilities in prompt design. To save creation time and reduce creation difficulty, they directly copy universal network prompt templates for cultural and creative design, only replacing core theme keywords simply, without refined and customized optimization combined with cultural characteristics and design demands [8]. Homogenized universal instructions cannot guide AI to carry out personalized innovative creation, but only generate standardized and templated visual works, eventually leading to the emergence of a large number of repeated cultural and creative images in the market.

5.3 Conservative Characteristics of Probabilistic Generation

AIGC is a typical probabilistic generation model. In the operation process, the algorithm preferentially matches picture schemes with high frequency, low error rate, and strong stability in the dataset and actively avoids niche, innovative, and breakthrough visual expression forms [5]. This inherent algorithm characteristic endows AI creation with strong conservatism, making it difficult to produce original and groundbreaking design works. In the traditional cultural and creative creation scenario, artificial intelligence cannot independently innovate cultural elements but only repeatedly fits existing traditional visual materials, which further aggravates the homogenization of cultural and creative works.

5.4 Market Utilitarian Orientation and Neglect of Original Value

From the perspective of the industrial market, the cultural and creative industry currently has an obvious utilitarian creation trend [3]. Most cultural tourism enterprises and we-media creators take rapid monetization and mass shipment as the core goal, focusing excessively on creation efficiency while ignoring work quality and original value. Compared with original designs polished manually, AI batch-generated works have the advantages of low cost and high efficiency, which are more in line with the rapid market demands. This has gradually formed a negative industrial ecology of prioritizing speed over originality and output over quality, greatly squeezing the living and development space for differentiated and high-quality cultural and creative works.

6. OPTIMIZATION STRATEGIES FOR HOMOGENIZATION OF CULTURAL AND CREATIVE PRODUCTS FROM THE PERSPECTIVE OF AIGC

6.1 Construction of Exclusive and Niche Cultural Material Libraries

To effectively solve the problem of visual style convergence caused by universal datasets, creators can build customized niche material libraries for regional characteristic culture and intangible cultural heritage [6]. Taking Liaoning local cultural and creative design as an example, targeted collection of niche characteristic visual materials such as Shenyang Palace architectural elements, Manchu embroidery patterns, and Northeast shadow puppetry art can be carried out and imported into large AI models for fine-tuning

training. Customized exclusive datasets enable artificial intelligence to get rid of the constraints of universal network templates and generate visual works with distinct regional characteristics and exclusive cultural attributes, avoiding homogenization problems from the technical source.

6.2 Construction of Hierarchical and Refined Prompt Creation System

Abandoning the traditional templated keyword stacking creation mode, this paper constructs a structured, hierarchical, and refined exclusive prompt creation system [8]. The prompt system is divided into four dimensions: cultural core, visual style, picture details, and defect avoidance. In the creation process, customized instructions such as cultural background, element implication, exclusive design style, composition, and color are accurately input, and homogenization avoidance keywords are added to constrain AI to break away from universal creation templates and realize personalized and refined innovative creation of cultural and creative works.

6.3 Strengthening the Secondary Creation Mode of Human-machine Collaboration

Cultural and creative creation adheres to the core logic of "human-oriented and AI-assisted," and extensive creation relying entirely on the automatic generation of artificial intelligence is eliminated [7]. Artificial intelligence is only responsible for basic work such as preliminary material generation, element integration, and background rendering. Core creative links including picture screening, element reconstruction, detail optimization, cultural calibration, and style innovation are all led by professional creators. Through manual aesthetic intervention, in-depth cultural interpretation, and creative secondary transformation, it makes up for the algorithm defects of artificial intelligence such as a lack of thinking, innovation, and cultural cognition, and converts standardized AI materials into differentiated and original cultural and creative works.

6.4 Deepening Cultural Core and Avoiding Superficial Element Stacking

The core essence of cultural and creative design lies in the inheritance and communication of culture, and visual presentation is only the content carrier [1]. In the early design stage, creators need to deeply explore the folk implication, historical background, and regional characteristics of the creation theme, and sort out the core cultural symbols and spiritual connotation. In the AI creation process, element reorganization and style innovation are carried out around the cultural core to highly fit the visual picture with the cultural theme, realizing the creation goal of "empowering formal innovation and inheriting cultural core," getting rid of the drawbacks of superficial element stacking, and comprehensively improving the cultural value and artistic quality of cultural and creative works.

6.5 Establishment of Differentiated Cultural and Creative Aesthetics and Evaluation System

Industry practitioners and creators need to completely change the utilitarian creation thinking and abandon the single evaluation standard of efficiency and traffic priority [3]. A new cultural and creative evaluation system centered on cultural uniqueness, visual innovation, and aesthetic particularity is constructed to encourage niche, regional, and characteristic innovative exploration of AI cultural and creativity. Meanwhile, the core value of original design is emphasized to balance creation efficiency and work quality, promoting the transformation of the cultural and creative industry from extensive mass production to refined and high-quality innovation.

7. CONCLUSION

AIGC technology has brought new efficiency innovation and creative ideas to the cultural and creative design industry, provided a new path for the digital activation of traditional culture and the diversified development of the cultural and creative industry, and represents an important development trend of interdisciplinary integration of art design and artificial intelligence [2]. However, the inherent limitations of algorithms, combined with multiple factors such as the templated creation of creators and market utilitarian orientation, have led the current AI cultural and creative industry into a development dilemma of visual repetition and style homogenization, which seriously restricts the high-quality development of the industry.

In essence, AIGC is only an auxiliary tool for cultural and creative design and cannot replace human aesthetic thinking, cultural interpretation, and original innovation capabilities [4]. The future

development of the cultural and creative design industry must adhere to the core development concepts of human-machine collaboration, culture-oriented, and innovation-driven. Through multiple paths such as customized material training, refined instruction creation, manual secondary innovation, and in-depth cultural empowerment, the homogenization shortcomings of AI creation can be avoided, and the efficiency advantages of intelligent technology can be fully released. This enables artificial intelligence to truly serve the innovative inheritance of traditional culture, create differentiated cultural and creative works with artistic beauty, cultural connotation, and market value, and boost the sustainable and high-quality development of the digital cultural and creative industry.

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