
Original Research Article

Research on the application of rural publicity design from the perspective of artificial intelligence: A case study of Panjin

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Abstract: This paper focuses on the current booming AIGC technology, aiming at the current situation of Panjin visual publicity, and discusses the application strategy and practical path of artificial intelligence technology in rural publicity design. Explore the activation and promotion of rural publicity design under the background of the era of digital intelligence. It aims to provide emerging productivity for the design field through the application of AIGC technology, improve the efficiency and quality of rural publicity design, and promote the deep integration of digital technology and rural revitalization with artificial intelligence technology.

Keywords: Artificial intelligence; Rural revitalization; Design

1. Introduction

Since the rural revitalization strategy was proposed in 2017, it has become a crucial aspect of China's social development. This includes boosting the rural economy, enhancing infrastructure, safeguarding the ecological environment, and driving cultural revitalization. Now, a new research topic has emerged: how to leverage the new - era policies to make the "AIGC + Design" model for rural revitalization more appealing, competitive, and innovative.

The government actively promotes the technological improvement of rural construction from the policy level. The no. 1 document of the Central Government released in 2016, 2018 and 2022 all emphasized "the solution of the problems concerning agriculture, rural areas and farmers" and "rural revitalization work —— the promotion of digital rural construction". In December 2021, The State Council issued the 14th Five-Year Plan for the Development of the Digital Economy. The 2024 Government work report proposes to "deepen the research and development and application of big data and artificial intelligence, carry out the 'ARTIFICIAL intelligence +' action, and build internationally competitive digital industrial clusters". Combined with the current political background and "artificial intelligence + design" technology, implementation with the traditional mode of agricultural production, auxiliary rural revitalization of artificial intelligence become the current rural design intelligent, convenient and efficient, and for rural development propaganda from the fields into the homes, laid a "new path" "new form" and "new model". In this process, we should make full use of the deep integration of AIGC technology and traditional local culture to help build the grand blueprint of rural revitalization.^[1]

2. The demand for digital technology in rural revitalization

2.1. Overview of the AI technology

AIGC (full name Artificial Intelligence Generated Content) means artificial intelligence-generated content, which is an innovative model that produces all kinds of content with the help of artificial intelligence technology. It has a wide range of applications, covering text, image, audio and video and other forms of content. AIGC

technology kernel including deep learning and large model training cutting-edge technology, through the integration of existing data, play a strong the ability to identify, AIGC let the machine to understand the complex content requirements, generate high quality results, and intelligent optimization of content, the content generation process to the new height of automation and intelligence^[1].

2.2. Application status and development trends of AIGC technology in rural areas

With the promotion of the construction of beautiful countryside, many traditional rural areas have gradually transformed into tourism villages, among which propaganda visual design plays an important role in the emotional link and cultural expression. AI technology is increasingly widely used in publicity design, mainly focusing on two dimensions: visual and experiential. Zhao Xu et al. studied and designed the visual system of Lucheng Village, Shanhu Town through AI technology, Improve the landscape style of the village^[2]; Zheng Jiaming et al. developed rural handicraft design auxiliary tool^[3] based on artificial intelligence technology; The “Digital Village” AI in Ji ‘an, Zhejiang province, analyzes tourists’ preferences to generate marketing content, Improve the effect of local cultural communication; The EU’s digital rural strategy advances the digital transformation, Using digital technology to boost rural and agricultural development, Give top priority to rural digital service platforms, innovative ecosystems, and smart rural development, Ensure that the agricultural sector and rural areas are closely linked to the digital economy^[4]; The smart Country Design project in Tennessee has raised local awareness, And has brought new opportunities for the local tourism industry^[5]; Although the research and application of combining AIGC and rural revitalization are still in the preliminary stage, But some villages at home and abroad have begun to explore this field, And has achieved certain results. AIGC is gradually enabling rural revitalization strategies, from architectural design, landscape planning, agricultural innovation to rural tourism. With the continuous development of technology, AIGC is expected to play an important role in more rural revitalization projects in the future, helping rural areas achieve sustainable development.

3. Panjin’s cultural resources and propaganda dilemma

3.1. Regional characteristics of Panjin

Panjin is an eco - cultural city in Northeast China. Blessed with unique wetlands and Liaohe culture, it has reed marshes, red beaches, and is the home of Chinese mitten crabs, red - crowned cranes, and black - headed gulls. Additionally, resources such as the educated youth headquarters, Liaohe Oilfield, and geothermal hot springs offer great value and development potential.

3.2. Practical publicity challenges of Panjin

Panjin TV station uses its media platform to study urban brand building and the integration of urban and regional cultures. It strengthens the civic spirit, promotes local brands, and helps local culture spread and rural areas develop^[6]. It’s been ages since Panjin’s last big publicity push. Now, it has problems like bad resource integration, unclear brand positioning, slow new - media growth, scattered resources, shallow cultural - symbol changes, and a weak cultural and creative industry. These stop Panjin from showing its unique ecological and industrial - cultural charm fully. Improving communication and the cultural - tourism conversion rate is a big publicity challenge.

4. The application of artificial intelligence technology in rural publicity design

4.1. Intelligent extraction and reconstruction of regional elements by AIGC

Regional culture is crucial for rural publicity. With unique traits such as Jiangnan water scenery or Shaanxi cave - dwellings, it acts as a distinct identifier, quickly catching attention. It contains rural residents' memories and emotions, cultivating a sense of belonging and identity, spurring their cultural - construction participation, and strengthening cohesion. Rich in history, folklore, and skills, promoting it helps more people understand and value local culture, advancing rural revitalization.

4.2. Scenario-based translation of cultural symbols

In the digital age, AI technology offers new ideas and methods for the scene translation of rural cultural symbols, facilitating the creative transformation and innovative development of traditional local culture. For instance, Zhang Qingshuang et al. explored AI application in Shandong's cultural - creative packaging. By integrating cultural symbols like those from Qingdao and Confucius Temple, they created immersive cultural experiences via QR - code interaction, personalized illustrations, and exclusive functions^[7]. Ji Xianghong et al. utilized the SD model to redesign Hunan's local - product packaging. Combining intangible - cultural - heritage training and testing with the Lora model, they crafted a delicate and sophisticated appearance, enabling the innovative translation and reproduction of intangible - cultural - heritage local culture^[8]. In the educational context, AI - animation and VR technologies allow students to “personally” engage in the traditional Hani farming ceremony, stimulating their interest in and love for rural culture.

To sum up, through the deep excavation and innovative application of rural cultural symbols, AI technology has realized the effective translation of multiple scenes such as tourism, cultural creation, education and so on, and opened up a new path for the inheritance and development of rural culture.

4.3. Technological path innovation

Focus on the new model of “AIGC + design” and explore a new path of rural revitalization

This research focuses on the digital rural construction, aiming to truly show the traditional rural life and local culture through digital means, and explore the replicable, popularizing and low-cost methods, so as to promote the innovative development of rural publicity. Through the design of images, illustrations or creative patterns generated by AIGC, strong local emotion and cultural connotation can be conveyed, so that local culture can be further promoted and spread, and play a role of emotional publicity and emotional resonance. It can also further promote the development of rural cultural and creative industries and the process of rural revitalization, enhance the market value and brand image of agricultural products, promote the interaction and integration of urban and rural economy, and promote the modernization development of rural economy.

5. Panjin rural publicity and design practice.

5.1. Design pathway analysis

5.1.1. Pre-stage framework

In the early stage of creation, this research expanded the creative ideas with the help of AIGC technology, used AI to analyze the ecological and humanistic advantages of Panjin, and determined the subsequent design direction. After in-depth investigation and analysis of Panjin's regional characteristics and cultural advantages, with the help of AIGC tools such as Midjourney, ChatGPT, Dream, Keling, the publicity design strategy was

analyzed, mainly covering seven links: background analysis, clear theme, key division, keyword extraction, picture generation, detail adjustment and typesetting.

5.1.2. Design strategy

After determining the basic framework, in order to ensure the better promotion of Panjin publicity visual design, we should grasp the focus and strategy of the design.

Panjin fusion in the design of the main local elements (such as red beach, green reed, paddy fields, etc.), cultural scenery (such as fish, liaoh culture, oilfield, geothermal hot spring, educated youth headquarters, etc.), specialty gift (such as Panjin rice, crab, etc.) and modern design concept (such as fashion, deep), to ensure that the design results achieve expected propaganda effect, promote the spread of culture, and conform to the modern aesthetic concept.

Considering the younger generation as the main force of the digital age, design to both user aesthetic preference and group characteristics, pay attention to the integration of traditional and modern, to promote agricultural and cultural creative industry creative transformation and creative development, let more people appreciate the beauty of Panjin, help the rural revitalization of the grand blueprint.

5.2. Generation and screening and in-depth design of visual elements

Panjin distinctive, with a vast reed, the autumn wind, reed waves surging. This is the famous river crab origin, the fat river crab is a delicacy on the table. Panjin village also retains a unique fishing goose culture, the traditional fishing, breeding skills passed down from generation to generation, with a strong regional customs, but also has a unique symbol of rural culture. According to the regional characteristics and preliminary framework of Panjin, we divided the publicity design into three parts: “Panjin Daily- -Humanities”, “Panjin Daily- -Nature” and “Panjin surrounding stores”.

Based on the natural scenery and cultural characteristics, this study selected “cut on stilts, liao oilfield, workers, hot springs, fish, wild goose culture, food, crab, red beach, red-crowned cranes, black-billed gulls” such as keywords, the weight analysis and arrangement, in Midjourney AI application input keywords and adjust, generate conform to the requirements of the publicity pictures. On this basis, continuous debugging and optimization, and according to the natural and humanistic generated pictures of Panjin store design, at the same time, combined with Panjin rice, surrounding cultural creation and other characteristic products arrangement design, and strive to integrate the local culture of Panjin to meet the modern aesthetic needs.

6. Summary

For national rejuvenation, the countryside will be revitalized. This paper focuses on the design of Panjin publicity poster based on AI technology, and discusses the feasible path of artificial intelligence technology and rural revitalization. By 2035, China will realize “three to four modernizations”, three of which are closely related to agriculture and rural areas. Modern rural design is an important driving force to realize the rural supply-side reform and rural revitalization. The application of AI technology has broadened the vision of contemporary designers and significantly improved the design efficiency. Designers should innovate their thinking and make rational use of this technology to provide support for rural revitalization and help the implementation of the national rural revitalization strategy.

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