The Exploration of AIGC's Application in the Revitalization of Bronze Ware Resources
Taking the Western Zhou Bronze Ware Unearthed in Shaanxi Province as an Example

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ABSTRACT
In the context of the rapid development of digitalization of cultural relics and AIGC technology, AIGC has provided new approaches for the dissemination and revitalization utilization of bronze ware culture resources. At present, the revitalization and utilization of AIGC technology in bronze ware in many museums is still insufficient. In the creation of personal cultural relics-related videos, there is a lack of professional background and historical facts. For this purpose, the team conducts the practical exploration of AIGC enabling video production of Western Zhou Dynasty's bronze ware. The thesis takes the value and connotation analysis of bronze ware from the Western Zhou Dynasty unearthed in Shaanxi Province as the example, to conduct a discussion on the AIGC dynamic narrative process and the existing problems of the bronze ware from the Western Zhou Dynasty. Focusing on the common problems in the AIGC video production of bronze ware, this thesis provides the optimized solutions and offers reference experiences for the revitalization and utilization of bronze ware and other cultural relics.

Keywords: *AIGC, Bronze Ware, Revitalization of Cultural Relics, Video Production.*

1. INTRODUCTION

In recent years, the digital technology has significantly enhanced the development of cultural relic and museum career. The country has implemented a series of policies to continuously provide institutional support for the digitization of cultural relics. The "Official Regulations on Data Management of State-owned Cultural Relics Resources" issued in June 2026 stipulates the compliant use of digital materials of museum collections. The National Cultural Heritage Administration regularly promotes high-quality cultural relics content on new media, providing policy support for Artificial Intelligence Generated Content (AIGC) to participate in the dissemination and utilization of cultural relics.

At present, the technology of AIGC has been used in many steps of cultural heritage dissemination. In the museum's cultural dissemination, the form of short videos is widely used. In the exhibition, AI is involved in the digital immersive experience projects of museums, and at the same time, it participates in tasks such as completing the footage of cultural relic documentaries and restoring historical scenes in content production. Currently, the types of cultural relics covered by AI creation mainly include ancient murals and cave statues, etc. Although bronze ware is a major category of the collections in Shaanxi region, the systematic video creation by the AIGC system is still relatively scarce.

In the existing research, Wang Xuya and others conduct AI pattern design for the bronze ware of the Dian culture series [1]; Lei Xueyan focuses on the development of static cultural creations of bronze themes from Sanxingdui [2]; Han Xiaoyi organizes the general logic for creating short videos using AIGC [3]. Hou Xilong et al.'s research on the intelligent generation of bronze ware images indicates that AIGC can restore incomplete bronze patterns in large quantities, significantly reducing

the production cost of artistic materials of cultural relics [4]. The academy and the cultural relic and museum industry's research on AICG mostly focus on the generation of planar patterns and the development of static cultural products. There is no standardized process for AIGC video production specifically for bronze ware yet. The lack of a mature creative model that enables the objects to tell their own stories through dynamic images and allows the cultural relics to "speak" about the connotations of the inscriptions and the historical background still exist. A gap remains in the research of how does the creation of AI narrative short videos participates in the dissemination of bronze ware.

2. THE APPLICATION OF AIGC IN BRONZE WARE CULTURAL RELICS

2.1 The Current Application of AIGC in the Revitalization and Dissemination of Cultural Relics

At present, the AI revitalization and utilization of bronze ware resources mainly focus on three directions: museum exhibitions, digital experience projects, and cultural tourism promotion and public dissemination. The AIGC application in museums is less. Most of it is traditional digital displays with AI assistance; on various video platforms, individual creations of cultural relic videos are more active, but there is a lack of standardized guidance for the promotion of cultural relics and insufficient accuracy in the presentation of cultural relic knowledge.

First, in terms of museum exhibitions, AIGC is mainly used in the digital exhibition presentation, cultural relic display, craft reconstruction, and immersive scene experience in permanent exhibition halls. For example, in the permanent exhibition "Bronze Makes Civilization" at the Baoji Bronze Ware Museum, traditional digital reconstruction techniques are still predominantly used, while the application of AIGC technology is limited. The exhibition content mainly focuses on popularizing knowledge about bronze ware, and the presentation methods are relatively onefold. Second, in terms of digital experience projects, the immersive theaters and the creation of cultural and historical content are mainly involved, such as the AI sensory theater "What makes the Zun? What makes China?" in Baoji Bronze Ware Museum, and the individual cultural heritage creator on different platforms. In the field of cultural heritage, AIGC has already achieved initial commercial applications in narrative images. The AIGC creations based on personal and commercial platforms are relatively mature. Besides, in terms of cultural tourism promotion and public dissemination, AIGC is mainly used in cultural relic education, tourism promotion, short video promotion and IP integration dissemination. The field of cultural heritage often uses AIGC to generate science popularization illustrations, posters, derivative designs and videos, such as the official new media matrix of Shaanxi History Museum and Baoji Bronze Ware Museum; while the individual and platform creators create exhibition guides, creative check-in pictures, and cultural tourism integration short videos, etc.

In sum, the AI revitalization of bronze ware resource already has some practice. But the cultural heritage field lacks replicable usage procedures and in-depth applications. The quality of individual creations varies greatly, the content is overly dramatic, the stories are fictional, and a stable, standardized, and sustainable AIGC application model has not yet been formed.

2.2 The Value and Connotation of Bronze Ware from the Western Zhou Dynasty Unearthed in Shaanxi Province

The Guanzhong region of Shaanxi Province served as the capital of the Western Zhou Dynasty and a large number of bronze ware from that period have been unearthed there. The categories of bronze sacrifice vessels in Shaanxi History Museum, Baoji Bronze Ware Museum and Zhouyuan Museum are complete. The He Zun, the Lai Pan, and the Liju Zun etc. have preserved a large number of inscriptions, serving as the crucial physical evidence for exploring the multi-faceted yet unified structure of Chinese civilization. The unique value and connotation of the bronze ware from the Western Zhou Dynasty unearthed in Shaanxi Province mainly shows in the following aspects.

Firstly, it has unique geographical advantage. Shaanxi, as the cure birthplace of the Zhou and Qin civilizations, is called "the home of bronze ware". It is the core area with the most abundant remains of the domestic bronze civilization, the highest level, and the most complete system. A large number of bronze ware from the Western Zhou Dynasty are exquisitely crafted and have rich inscriptions, fully presenting the peak of the bronze

civilization of the Western Zhou Dynasty. They are the core physical evidence for studying the ritual and music system, national governance, and the integration of civilization during the Western Zhou period.

Secondly, it has unique historical research value. The bronze ware unearthed in Shaanxi Province contains a large number of inscriptions. Among them, the earliest inscription "Zhai Zi China" recorded on the He Zun is a crucial physical evidence for exploring the origin of Chinese civilization and fostering cultural identity. The important artifacts such as the Lai Pan unearthed from Zhouyuan underground cellar record the reigns of twelve Zhou kings. The Jin characters on these artifacts have high historical and cultural value and are important materials for studying the history and culture of the Western Zhou Dynasty.

Thirdly, it has outstanding art and civilization research value. The bronze ware unearthed in Shaanxi province represents the highest level of the bronze making techniques of the Western Zhou Dynasty. The designs of Fei Leng, Ru Ding, Fang Zuo from the early Zhou dynasty all come from the Baoji region. Meanwhile, the bronze relics from Shaanxi Province integrate various elements such as those from the Central Plains, the northern grasslands, and the Ba-Shu culture. They confirm the ethnic integration and cultural mutual learning in the Yellow River Basin, and are the key carriers for interpreting the multi-ethnic and integrated pattern of early Chinese civilization.

This research chooses the Bronze ware from the Western Zhou Dynasty of Shaanxi Province as the research objects, to explore the revitalization and utilization of AIGC on bronze relics.

3. THE CONSTRUCTION OF THE NARRATIVE THEME OF WESTERN ZHOU BRONZE WARE UNEARTHED IN SHAANXI

This section, in line with the practical goals of cultural relic dissemination, categorizes the narrative themes from the perspective of content into three categories: the bronze ware' popularization of science narrative, the analysis of bronze ware' patterns and manufacturing techniques, and the narrative of new media dissemination in conjunction with exhibition displays.

3.1 The Bronze Ware' Popularization of Science Narrative

Centering on the historical systems, social functions and cultural values embodied in the Western Zhou Dynasty bronze ware of Shaanxi Province, this kind of creation conducts the popularization of science education for public. The narrative can be presented at five levels: the discovery of artifacts, the interpretation of inscriptions, the historical background, the cultural system, and the contemporary value. First, attract the audience with the shapes and detailed inscriptions of the bronze ware. Then, use the events to link the key figures and systems. Finally, connect cultural confidence, cultural identity, and the multi-unity pattern. AI-produced science popularization short videos are suitable for museum explanations, primary and secondary school study tours, online public lectures, and WeChat public account posts etc.

In the production of science popularization education videos, a traditional Chinese realistic animation style is generally adopted. Simple shots are used to recreate the construction of the Western Zhou Luoyi and the sacrificial ceremonies in the ancestral temples. The costumes and accessories of the characters follow the relevant archaeological materials. The overall color scheme is low-saturation and traditional in style. The narrative is rigorous and objective, without any fictionalized plot. The frames transitions are gentle. The content is suitable for primary and secondary school study tours. Issues such as confusion in the styles of Tang and Song costumes, ancient architectural designs, modern buildings, and fabricated stories about the Western Zhou Dynasty should be avoided.

3.2 The Analysis of Bronze Ware' Patterns and Manufacturing Techniques

This kind of creation focuses on the relic's physical entity, and can be divided into interpretation of patterns and casting techniques to conduct content exploration. The interpretation of patterns can organize the patterns' origin, evolution, connotation and shifts of style etc. with the help of AI system; the research of casting techniques focuses on the exclusive mold casting technique of bronze ware, and chooses the on the precious artifacts in the collection to restore the entire process of mold casting in the Western Zhou Dynasty. By using AI technology, the patterns can be disassembled, and the complex casting process

can be transformed into direct cartoon content, which can enhance the public's understanding depth of the knowledge related to bronze ware. The science popularization video of bronze ware mainly focuses on the patterns and shapes of bronze ritual vessels. It systematically disassembles the structural and layout rules of the patterns, and simultaneously demonstrates the style evolution of the patterns from the Shang Dynasty to the Zhou Dynasty. The description of the overall color scheme is generally simple and elegant, focusing on providing visual explanations for the symbolic meanings of the patterns and the aesthetic characteristics of the era. Issues such as reversing the shielding of modern cartoon patterns, arbitrarily modifying the pattern shapes, fabricating the meanings of the patterns at will, and randomly adding decorative patterns should be avoided.

3.3 The Narrative of New Media Dissemination in Conjunction with Exhibition Displays

This kind of narrative centers on the museum special exhibitions and temporary exhibitions, keeps the online dissemination and offline exhibitions in synchronization. Utilizing AIGC can establish exhibition outline, communication script, scene-specific prompt words, historical fact verification, collaborative release mechanism between the exhibition and the official account, to ensure that the online content is consistent with the lecture notes and the study guide, and create some extended videos around traditional festivals to enhance the continuous exposure and public participation of the exhibition. In the context of the Year of the Horse of the Chinese zodiac, this team chooses the shape of the bronze ware Liju Zun from the Western Zhou Dynasty in Shaanxi Province to create a New Year short film based on the Liju Zun. In the video production, the Chinese cartoon animation style to preserve the ware's overall outline and the pattern arrangements. The overall color scheme is soft and warm. The camera moves horizontally smoothly. The overall atmosphere is festive and simple. The painting lines are smooth and clean. The elements of Western Zhou artifacts and clothing in the picture are in line with archaeological facts. The overall rhythm of the short video is lively. It is forbidden to change the core appearance characters of the relics. Details such as avoiding modern online celebrity-style decoration and exaggerated and distorted shapes of the artifacts should be noticed.

4. THE GENERATION PROCESS OF CULTURAL RELIC VIDEO SHORT FILMS BASED ON AIGC

4.1 The AI Topic Planning and Script Creation for Bronze Ware

In the process of making AIGC videos of bronze ware, the artifact and theme should be firstly determined. Then select representative Western Zhou Dynasty bronze ware with complete materials, such as the "He Zun", "Lai Pan", and "Liju Zun", and determine the content based on three directions: science popularize education, interpretation of the artifacts decorations, and node-based new media dissemination. Collect the artifact diagrams, facsimiles, archaeological line drawings, inscription interpretations and authoritative research materials simultaneously, and archive them uniformly as the evidence for subsequent script and image generation.

The story script first determines the main narrative line, the target audience and the duration. The story script generation adopts the collaboration creation of Doubao and DeepSeek. Doubao needs no conditions. It is free and responds quickly, which is suitable for quickly producing the first draft of the story script; DeepSeek helps to clarify the narrative logic, and integrate the historical background and object information into a coherent storyline. After the story script is finalized, the creation of the shooting script continues. Each shot lasts for about 3 to 5 seconds. The screen content, camera movement technique and duration should be strictly restricted and generate the prompts. The prompts should emphasize the expression of keep the artifacts' shape, iconic patterns and inscription location, uniform style of painting. Then, for each scenario, add positive descriptive words and negative blocked words respectively.

4.2 The Process of Generating Video

In practical creation, after multiple rounds of debugging and comparison, the team chooses many AIGC tools of Doubao, DeepSeek, Pippit AI, Dreamina AI etc. to collaboratively complete content production. Based on the creation logic of the bronze ware science popularization video, the complete process mainly consists of six steps: topic planning, story script, storyboard script, generation of key frame images, image generation video, and optimization of editing (figure 1).

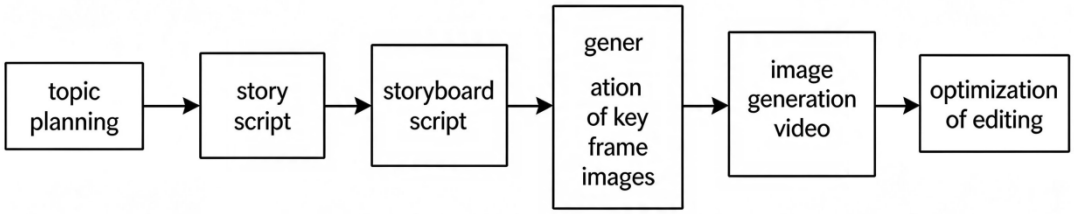


Figure 1 General flowchart of AIGC-assisted video generation.

- Create key frame images by using Doubao for each shot. Input the shot script prompts for AI for each shot, and save the resulting images according to the shot numbers for convenient replacement and adjustment in the future. If the stability of the images in some shots is insufficient, they can be further optimized during the video generation stage by leveraging the multimodal capabilities of Dreamina AI.
- The stage of generating videos from images. Use Dreamina AI and Pippit AI to convert the key frame images into dynamic shots. In generated videos, start from the key frames, set the frame rate to 24fps, with each segment lasting 4 to 6 seconds. Also, enable the anti-shake function to prevent the bronze ware from drifting and the patterns from becoming disordered. The camera movements vary according to the different scripts: for science popularization scripts, the movements are slow, including push, pull and pan; for craftsmanship-related scripts, they can be circular; for festival-related scripts, they are smooth and horizontal; always adhering to the principle of "one frame, one shot".
- Optimization and editing of the video. During the optimization stage, we first verify the historical facts. For instance, the shapes, decorations, and inscriptions must remain accurate. The costumes and craftsmanship of the figures should be consistent with the historical records of the Western Zhou Dynasty; then check the visual effects, correct issues such as inconsistent style and stiff movements. Finally, the editing and dubbing are completed. Short videos disseminated through new media are exported in a 9:16 vertical format; the AI videos used in the study tours and exhibition halls can be exported in 16:9 widescreen format. The pure background sound effects are added to the sections of the bronze ware patterns and artistic display to ensure synchronization between audio and video.

In the creation of cultural relic video, from the research and analysis, the duration of short videos disseminated on new media platforms is generally controlled within 1 to 3 minutes. The camera shots shift from static cultural relics to dynamic images, focusing on presenting interesting points and the shapes of the artifacts; for the science popularize education films for museum exhibitions and school-based study tours, the duration can last for 3 to 5 minutes. It slows down the transition speed, and provides more explanations on casting techniques and the connotations of Jin language, suitable for offline immersive viewing experiences.

5. PROBLEMS AND SOLUTIONS OF AIGC VIDEOS FOR THE BRONZE WARE CATEGORY

It is an important way for cultural relic's digital revitalization to rely on the AIGC tools to conduct the creation of a science popularization video on bronze ware. But influenced by the misplacement of the industry standards in cultural heritage and general characteristics of AI technology, the creation side still faces multi-dimension problems. It is necessary to adhere to a problem-oriented approach, match and optimize strategies for each core problem one by one, then implement them in a refined manner based on different scenarios, and ultimately form a reusable and standardized creative model. At present, the AIGC creation for Shaanxi bronze ware mainly faces two major problems.

5.1 Low Level of Professional Accuracy

In the perspective of professional content, because the general model lacks a comprehensive knowledge base of cultural heritage expertise, the ability to distinguish the authenticity of historical materials is insufficient; general tools like Doubao, Kling, Dreamina AI etc. lack the knowledge reserves about the Western Zhou Dynasty's ritual system, the interpretation of Jin language, and the detailed craftsmanship of casting and forging. Relying solely on the prompts for shielding cannot completely avoid problems such as the mixing of different dynasties, disordered inscriptions, reversed casting processes, and distorted proportions of patterns. Although the video visual effect meets the standards, it is difficult to meet the academic rigor requirements for educational research and professional exhibition displays.

The corresponding solution strategy could enhance AI's historical fact constraint training and establish a hierarchical creation system to ensure the rigor of the content. Rely on the images, cultural relic line drawings, standard pattern data authorized by the museum authority, and conduct lightweight specialized adaptation training for AIGC tools. The content generation step should strictly adheres to the ritual standards of the Western Zhou dynasty, the classical pattern characteristic of bronze ware, and the core principles of mold-casting techniques, thereby prevent the issues such as incorrect forms, distorted patterns, and reversed procedures from the source. At the same time, a hierarchical creation model should be established to distinguish between public science popularization and professional application occasions, ensure that the AIGC content of cultural heritage is in line with academic rigor standards.

5.2 Multi-tool Collaborative Fragmentation

There is fragmentation in the aspect of multi-tool collaboration, and there is a lack of an integrated creation platform. The text, illustrations, video, dubbing are generated by different AI. The process of parameter calibration during the import and export of materials consumes a significant amount of manpower. In the early stage, there was no standardized process for the actual operation, the production cycle is long, and camera shots tend to have the problems of distortions such as pattern drift and shape deformation.

To solve this issue, the creation process can be integrated and, and a standardized and unified creation regulation should be established. The entire process of creating the AIGC science popularization videos for bronze ware should be collated. The production standards and parameter specifications for the text, illustrations, videos, and dubbing should be unified to reduce the manual waste caused by the repeated circulation and recalibration of materials. The process of coordinating and integrating various tools should be optimized, standardized production steps should be established, the content production cycle should be shortened, to effectively enhance the stability and quality of AIGC cultural and historical content.

6. CONCLUSION

This thesis explores the AIGC dynamic narrative process of bronze ware, summarizes the value and common AI narrative content of bronze ware from the Western Zhou Dynasty in Shaanxi Province, and proposes specific production plans for bronze ware videos based on three application occasions: science popularization education, interpretation of artifact patterns, and node-based new media dissemination. AIGC under the background of digital age provides new ways for revitalize the bronze cultural relics. The research bases on the actual application occasions of cultural heritage, takes the historical facts as the important basis for topic planning, script writing, image generation, and editing in AIGC video creation, considers both the content dissemination expressiveness and the rigor and objectivity of cultural relic knowledge. Besides, the two major problems, the low accuracy of the professional content and the fragmented nature of the multi-tool collaboration, existing in the AIGC video of the bronze ware both have corresponding solutions. These solutions provide certain reference significance for the revitalization of the bronze ware relics unearthed in Shaanxi region and other types of relics.

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