Inheritance and Innovation of Traditional Ceramics in Yuan River Basin

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Yuanshui River is the third largest tributary of the Yangtze River and one of the four major water systems of Dongting Lake. It originates from Jiguanling in Yunwu Mountain in Duyun City and Pingyue Mountain in Majiang County in Guizhou Province, and flows eastward to Tuokou Town in Hongjiang City, Hunan Province, where it meets Qushui and is called Yuanshui. Ceramic is the representative of Chinese traditional culture. In the long-term development process, there are many kinds of ceramics with brilliant history and exquisite skills. At present, when the traditional national culture is seriously lost, protecting and developing the traditional national ceramic skills in Yuanshui River Basin will help us to fully understand the traditional national culture in Yuanshui River Basin, carry forward the excellent traditional national culture in Yuanshui River Basin, and enhance national self-confidence.

Based on this, this paper analyzes the inheritance and innovation of traditional ceramic crafts in Yuanshui River Basin and constructs the mechanical characteristic model of ceramic crafts with data simulation method. Combine the innovative consciousness of keeping pace with the times with the spirit and quality of the times to realize the all-round development of ceramic art.

1. Introduction

In the long history, many nationalities have created many cultures and left behind many precious historical and cultural heritages. Yuan River is the third largest tributary of the Yangtze River and one of the four major water systems of Dongting Lake. It originates from Jiguanling in Yunwu Mountain in Duyun City and Pingyue Mountain in Majiang County in Guizhou Province, and flows eastward to Tuokou Town in Hongjiang City, Hunan Province, where it meets Qushui before being called Yuan River [1]. It has a total length of 1022 kilometers, flows through 21 counties and cities, covers an area of 89,100 square kilometers, and is mostly rugged mountain [2]. In ancient China, the pottery industry had already made brilliant and unique achievements. A large number of pottery and pottery fragments have been unearthed from numerous Neolithic sites in the Yellow River and Yangtze River basins. Ceramics is the representative of traditional culture in our country. In the long-term development process, there are many kinds of ceramics, with brilliant history and exquisite skills [3]. With the deepening of reform and opening up, the planned economy has shifted to a market economy, and regulatory boundaries have been broken. Coupled with the low level of knowledge and lack of creativity of most employees, the number of people involved in the inheritance and innovation of pottery, fine ceramics, celadon, and earthenware has shrunk each year. Today, the loss of traditional ethnic culture is serious. The protection and development of traditional ethnic ceramic skills in the Yuan River basin will help us to fully understand the traditional ethnic culture in the Yuan River basin, promote the excellent traditional culture in the Yuan River basin, and enhance national self-confidence [4].

Chinese ceramic art is a relatively broad concept. The development of ceramic art has undergone a change from ceramic arts and crafts to ceramic art. Contemporary ceramic art is an important topic for scholars' research and discussion, which reflects the combination of artistic concepts and historical development concepts [5]. The rich and
diverse folk culture in the Yuan River Basin is an indispensable part of Hunan culture. Under the influence of economic globalization, ceramic art has been affected by the collision between foreign ideas and local culture. People feel that foreign cultures have brought new blood to ceramic art creation, and they have gradually lost some judgment [6]. The development of contemporary ceramic art has provided more time for the development of artistic thinking and imagination, created a good art space, and also brought more forms of art decoration for people [7]. We have to make a systematic analysis of the traditional ceramic technology in the Yuan River Basin, which has such an important historical position. While grasping the opportunities for the recovery and development of the international ceramic industry, we should properly solve the relationship between inheritance and innovation and promote the new development of the traditional ceramic technology in the Yuan River Basin.

In the process of practice, anything that only inherits and does not innovate on the original things must ultimately be unsustainable for the original things. And anyone who completely abandons tradition and makes innovations will surely end in failure [8]. Ceramics is an article made by mixing clay as the main raw material and some natural minerals, including pottery and porcelain. The belief culture of the traditional ceramic industry in the Yuan River Basin is very rich. It is manifested in the worship of pottery gods and kiln gods. It differs from kiln site to kiln site and from kiln age to kiln age. It can be roughly divided into traditional gods, natural gods, industry wise men, or hero gods [9]. With the continuous development of history, ceramic art shows more new contents. When talking about the inheritance and innovation of ceramic art, we must first find out what inheritance is and how to inherit it so as to lay a good foundation for innovation [10]. The precious intangible cultural heritage of craftsmanship in the Yuan River Basin not only inherits the outstanding features of craftsmanship for thousands of years but also continues the folk culture, the belief of the industry, and the spirit of ceramic art [11]. In this case, ceramic art designers need to think about the future development direction of ceramic art [12]. Inheritance and innovation are two aspects of a problem. Inheritance is the foundation of innovation, and innovation is the development of inheritance. The two are closely linked and are both opposite and unified [13]. In order to inherit and innovate the traditional ceramic crafts in the Yuan River Basin, it is necessary to go deep into all aspects of modern life needs and develop ceramic crafts close to the life of modern people by using the profound cultural details and connotation of traditional crafts. The innovation of this paper is that the mechanical characteristic model of ceramic technology is constructed by using data simulation method, and the innovative consciousness of keeping pace with the times is combined with the spirit and quality of the times to realize the all-round development of ceramic art.

Firstly, this paper expounds the characteristics of traditional ceramic art from two aspects: aesthetic characteristics of traditional ceramic art and aesthetic characteristics of Chinese traditional ceramic art. Then, based on the data analysis method, the mechanical parameter model of ceramic products is constructed to realize the inheritance and innovation of traditional ceramics. Finally, the contribution, innovation, and future development direction of this paper are summarized.

2. Characteristics of Traditional Ceramic Art

2.1. Aesthetic Characteristics of Traditional Ceramic Art. Contemporary ceramic art generally refers to the use of ceramic materials to continuously create some visual images that can reflect the contemporary social life, and to show the inner feelings of ceramic art designers and their understanding of social life in these images. The deeper level is that modern ceramic art design focuses on exploring the inner world of people in contemporary society [14]. Inheritance and innovation are two aspects of a problem. Inheritance is the foundation of innovation, and innovation is the development of inheritance. The two are closely linked and are both opposite and unified. Inheritance is not a copy, but a reasonable choice. Innovation is not a departure from tradition but a promotion of the reasonable parts of the original things. The rustic farming culture, magical sorcery and exorcism culture, joyful festival culture, exquisite architecture culture, mysterious belief culture, peculiar song and dance culture, splendid dress culture, long-standing toast culture, prosperous trade culture, prosperous traffic culture, developed medicine culture, harmonious system culture, and outstanding peace culture have bred primitive and unspoiled folk customs, inherited excellent traditions, promoted economic development, and maintained social stability [15]. In the process of practice, if anyone only inherits and does not innovate the original things, it will be difficult for the original things to continue; and if anyone completely abandons the tradition to innovate, it will end in failure.

Ceramic art has a long history. In the long history of development, it has formed a vast and rich spiritual treasure house. This treasure house is accumulated by the creative hard work of countless ceramic artists in the past dynasties, as well as their rich experience and creative theoretical insights accumulated in practice. In today’s era of economic globalization and marketization, with the continuous advancement of China’s urbanization process, people’s life style is increasingly urbanized, and the life style and life concept of the traditional local society are increasingly weakened. With the traditional handicrafts along the way, human beings are trapped in the crisis of survival and death. As a permanent defined institution, the protection of museum is based on the principle of “permanence”, so the protection of intangible heritage in museum will also be permanent. As shown in Figure 1, it is a traditional handicraft ceramic work protected in the museum.

The production techniques of the traditional ceramic technology in the Yuan River Basin have been deposited for
thousands of years. The purple sand molding technology has been included in the national intangible cultural heritage, which is very precious and worth more people to learn and inherit [16]. From the point of view of technological process, contemporary ceramic art is an art developed by selecting materials from nature. Under the consideration and processing of ceramic artists, some emotional concepts are injected to bring people a brand-new spiritual enjoyment and become a living art. There is nothing wrong with inheriting the traditional ceramic technology, but only when the traditional ceramic technology in the Yuan River basin really enters the life of modern people can it find a broad living soil. Due to the special geological environment and socioeconomic background, the Yuan River Basin has become the main distribution area of geological disasters such as floods and debris flows in Hunan Province. This has caused great damage to the cultural heritage elements, ecosystems, and lifestyles of the Yuan River Basin [17]. The basic content and emotions of today’s social life have injected fresh blood into the design and development of ceramic art and promoted the development of ceramic creation. The traditional ceramic technology of the Yuan River basin needs to be combined with modern technology to greatly reduce the production cost, so that the traditional ceramic technology of the Yuan River basin enters the lives of modern people more widely [18].

2.2. The Aesthetic Perfection of Chinese Traditional Ceramic Art. After a long period of accumulation, the aesthetics of traditional Chinese ceramic art has the perfect feature of perfection. Through different historical periods and regional environments, traditional ceramic art has the mainstream development direction and aesthetic concept. The perfection of traditional Chinese ceramic formal sense has been incorporated into the overall aesthetic system which is suitable for practical use and integrates with the aesthetic spirit of the times. It pays attention to the appearance of inner spiritual quality and the harmony and unity between internal and external factors in ceramic works [19]. Looking at the ceramic works of various periods, the spirit of the times is the collective spiritual style and features in the cultural structure of a specific historical period, which is always unconsciously manifested in the modeling, glaze, and other techniques. Contemporary ceramic art is a breakthrough and change that is newer and closer to real life. It is the derivation and development of traditional ceramic art. Traditional ceramic art design embodies the elegant culture of traditional Chinese culture and integrates the extensive and profound national culture of our country into ceramic art design. Its pursuit of leisure and elegance can also combine the arts and crafts with the way of keeping in good health, paying attention to the cultivation of human temperament and the spirit of self-entertainment [20]. The key to the traditional ceramic aesthetic art in Yuan river basin is to pay attention to the inner spiritual quality, and combine the inner spiritual connotation with the outer form to form the aesthetic system of ceramic art.

The research on the rheological properties of ceramic materials is mainly based on the measurement of macro-dynamic viscoelasticity of materials and the theory of low filling blending system. Figure 2 is the schematic diagram of plasma treatment of ceramic materials.

In today’s art field, ceramic art has a deeper conceptual extension, has its own unique artistic language features, and has been divorced from the meaning and scope of traditional ceramic art. In the highly competitive modern society, people are under various great pressures, so the design of modern homes generally tends to be fresh, simple, and elegant. Ceramic materials often give people a natural, soft, quiet, and even sedate feeling [21]. Contemporary ceramic art design is developed on the basis of traditional ceramic art. The main focus is to absorb and show the essence of traditional ceramic art design, and at the same time to fully integrate and embody modern life concepts and lifestyles in modern ceramic art design. With the development of the times and the progress of technology, many household practical ceramic products are constantly trying to combine with modern comprehensive materials, further breaking the dull feeling of traditional ceramic products and highlighting the flavor of the times. Due to the differences in ceramic materials caused by the differences in different regions, in order to achieve innovation, we must learn to fully understand, select, and use clay [22]. In the new era, the ceramic art is separated from the prehistoric cultural context, focusing on finding elements suitable for the contemporary aesthetic needs from the prehistoric ceramic art, and unconsciously exploring the prehistoric ceramic art with the current purpose to find those natural and simple traces. In today’s society, people’s aesthetic feeling is more inclined to the call of cultural nostalgia. People’s original aesthetic feeling has changed a lot. In order not to be eliminated by the times, the inheritance of ceramic art must break through the previously held concept.

3. Inheritance and Innovation of Traditional Ceramics

3.1. Realizing the Inheritance of Contemporary Ceramic Art. The design and development of traditional ceramic art can be considered as a static art form. Under the action of
specialized ceramic language, the main design goal is to fully display the artistic aesthetics of ceramic works, and to carry forward the ceramic art in coordination with the 72 procedures of ceramic handmade techniques. The ceramic art in the new era pays more attention to the art of ceramic design, but it is not fully combined with the traditional ceramic cultural context in the ceramic design of the new era. Prehistoric pottery, especially painted pottery art, has vivid and lively modeling design and artistic expression, combining the innocence of human beings with the beauty of nature. Under the influence of 72 processes of ceramic handmade craft, there is a clear division of labor between each process of ceramic making, which greatly improves the efficiency of ceramic making. The aesthetic trend of contemporary Chinese ceramic art is more advocating a kind of beauty lacking, using the antitechnology texture in traditional ceramic technology to create art [23]. The understanding and dissemination of ceramic culture require relevant personnel to have in-depth understanding of it and have certain practical experience in ceramic production, so as to better absorb the dissemination of ceramic art. Although this creation method is different from the ceramic art design method required by the traditional classical law, the ceramic art created has the artistic effect of the times. In the modern era of large-scale industrial production, faced with numerous external temptations, more and more young people choose other industries with quick results and cleanliness.

Pottery is man’s masterpiece of transforming nature. The solid-phase reaction method realizes the solid-phase reaction through high-temperature calcination so as to obtain material powder. The solid-phase reaction method has many advantages such as simple process and equipment and convenient industrial production. The process flow of sample preparation is shown in Figure 3.

Painting in ceramic art creation is different from other arts in that it has strong technicality, such as the integration of oil and the use of lines and colors. Without the training and reserve of talents, we cannot talk about the innovation of modeling, technology, and materials. Enterprises need to pay attention to the cultivation of innovation awareness of designers. They can improve the design concept of designers and give full play to the inspiration brought by the knowledge intersection between different fields by sending out training and learning, academic exchange, continuous introduction of some design professionals, or more knowledge of other fields. In different places, clay has different texture and plasticity. Ceramic artists can take advantage of the progress of modern transportation. When creating, we need to fully grasp the artistic expression methods, select and innovate various kinds of clay, find more special materials, and make ceramics more attractive. Under the influence of contemporary diversified cultural information, the development of ceramic design also presents its own confusion, which is reflected in the extension and development direction of traditional ceramic technology. Ceramic design presents a confused state. In order to achieve the best effect required by artists, modern ceramic art shaping is to use advanced technology that can assist in shaping now, and to carry out brand-new creation based on the improvement of traditional ceramic art shaping technology [24]. The use of advanced technology can make ceramic art more delicate and improve the efficiency of ceramic art production, but in order to reach a mature stage, more ceramic art forming technologies need to be studied.

3.2. Realizing the Innovation of Contemporary Ceramic Art. The creation of contemporary ceramic art is closely related to the continuous infiltration of current realistic cultural consciousness into ceramic art creation. It aims at artistic innovation, reflects the current realistic society, and is designed for
practicality. The development of contemporary ceramic art needs to keep up with the main theme of the times and has the ideological connotation and characteristics of contemporary culture and art in ceramic art and value expression. On the one hand, it is necessary to embody the public value of social development; on the other hand, it is necessary to display the unique ideological connotation and thinking of ceramic art creators in a multicultural background, endow ceramic art with profound connotation, and realize the liberalization and standardized development of ceramic design. Ceramic culture around the world presents a colorful situation, but the excessive pursuit of technological skills has resulted in a complicated, trivial and pretentious style. The composition, microstructure, and sintering process of ceramic materials are designed and determined according to the requirements of their service properties or mechanical properties. After removing the abnormal value, the mass fraction of dopant is taken as the input parameter of the network. A competitive neural network model is established with the performance constant of the composite material as the output parameter. Using the experimental data of doping scheme that did not participate in the training to predict and evaluate the network completed by the training, and comparing the learning values of flexural strength and traditional techniques.

Correct selection of learning rate is very important for the convergence of competitive neural networks. Calculate the output layer unit error:

\[
K_c = K_p \left( \frac{RT}{pB} \right)^{\sum B \cdot \sum B} = K_p \left( \frac{RT}{pB} \right)^{\sum B \cdot \sum B}. \tag{1}
\]

The sample is sent to the hidden layer unit through the connection weight, which generates a new activation value of the hidden layer unit:

\[
\frac{d \ln K^B}{d \sum} = \frac{\Delta \alpha}{RT^2}. \tag{2}
\]

The crystal structure data can be obtained by the crystal structure refinement method, and the phase content can also be quantitatively analyzed. The formula for the quantitative analysis of the phase by the crystal structure refinement method is as follows:

\[
S = S_{as} = \frac{4P}{\pi dE_a \alpha} \text{ch} \left( \frac{L^2}{d} \right). \tag{4}
\]

The aesthetic function of ceramic products is the aesthetic feeling aroused by their internal and external forms. Meeting people’s aesthetic needs is a high-level mental function factor of the relationship between ceramic products and people. Ceramic is originally a folk art, because of its own characteristics and experience, it has been passed down and carried forward from generation to generation, making it very influential. Chinese traditional decorative arts originate from traditional culture, just like a miniature of Chinese history, and are an important part of Chinese traditional culture. As shown in Figure 4, the relationship between the dimensionality of mechanical model features and the discrimination results is obtained from two groups of experiments on the same batch of samples.

Inheritance is a necessary means for us to learn ceramic art and an important method for learning. While inheriting the traditional essence, the contemporary ceramic art has changed the single traditional ceramic art mode, piecing together glaze and pigment through different means, and adopting innovative techniques beyond the traditional to stimulate and break through the shackles of the traditional ceramic framework [25]. Contemporary ceramic artists use the blend of mud and fire to show the contemporary spirit of the times and aesthetic emotions with brand-new ideas, to express the independence and individuation of their works, to break through the inherent expression methods of unified and standardized traditional raw materials, and to break the restriction of traditional techniques.

The communication and display of folk art culture and the blending of ceramic art play a role through the medium of folk art symbols. As an art and a culture, folk art cannot directly leap over ceramics. The high-voltage pulse charging and discharging device based on ceramic materials can be used to solve the design problems and quality problems that may occur in the project in advance through collision detection and other forms. Topology reliability optimization simulation comparison is shown in Figure 5.

If it is desired that the output is less than the given error value, the training of the network is ended; otherwise, the reverse propagation process is entered. The adjustment of weights in this article is determined by the following formula:

\[
r = k_2 pB A = \frac{k_2 A A pB}{1 + A A pA + A B pB}. \tag{5}
\]

Output an event to the time sensor. The time sensor then routes these times to other nodes according to the changes in time, causing these nodes to change accordingly:

\[
I = \frac{24\pi^2 \chi^2 \gamma \gamma}{\lambda^3} \left( \frac{n_2^2 - n_1^2}{n_2^2 + n_1^2} \right)^2. \tag{6}
\]

The change of ceramic kiln is mainly realized through interpolation points:

\[
\frac{\Pi}{c} = \frac{RT}{M_n} + A_2 c. \tag{7}
\]

The following is the routing process for this simulation:

\[
u = \frac{\xi E}{k \pi \eta^2}. \tag{8}
\]
Table 1: Comparison of experimental and predicted values of resistivity.

<table>
<thead>
<tr>
<th>Group number</th>
<th>Experimental value</th>
<th>Predicted value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.5</td>
<td>45.5</td>
</tr>
<tr>
<td>2</td>
<td>46.2</td>
<td>46.3</td>
</tr>
</tbody>
</table>

Table 2: Comparison of experimental value and predicted value of resistivity.

<table>
<thead>
<tr>
<th>Group number</th>
<th>Experimental value</th>
<th>Predicted value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.51</td>
<td>43.15</td>
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<tr>
<td>2</td>
<td>46.63</td>
<td>42.32</td>
</tr>
<tr>
<td>3</td>
<td>32.54</td>
<td>31.87</td>
</tr>
</tbody>
</table>

Figure 4: Data changes based on the construction pattern of the mechanical model informatization.

Figure 5: Simulation comparison of optimized topology reliability of pulse charge and discharge device.

Under the condition of the same phase change driving force, the critical crystal nucleus radius of the spherical crystal nucleus generated in the free space, and the crystal nucleus generated in the plane of the foreign substrate should be the same. The formation success of critical nuclei should be

$$\frac{p}{V} = \frac{1}{V_m a} + \frac{p}{V_m}.$$  (9)

The effect of stirring solution on the growth rate of ceramic materials can be expressed by the following formula:

$$\frac{RT \ln \left( \frac{p}{p_0} \right)}{\frac{2yV_m(l)}{R}} = \frac{2yM}{\rho R}.$$  (10)

In order to make ceramic art have the spirit of the times, in the traditional ceramic attitude, we should take some appropriate ways to innovate. In an era of rapid economic development, China’s ceramic art has changed from a single art form to a commercial art form. Ceramics, as a combination of realistic and artistic goals, traditional culture, and contemporary culture, requires its creators not to blindly pursue the economic benefits brought by ceramic creation in the process of specific creation. There are still many potential folk cultural projects in the Yuan River Basin, which are not listed in the list of nonheritage protection at all levels. If we do not hurry to dig and restore them now, we will have no way to start digging in a few years [26]. The scale of some enterprises is limited to small workshops, thus it is difficult to realize industrialization, scale, and branding. The relevant personnel’s understanding of contemporary ceramic art design cannot stay at a certain level, but should understand the development of contemporary ceramic art in a comprehensive sense. The lack of foresight in brand maintenance management often restricts the lasting development of brands and the shaping of culture. Most of the early Hongjiang porcelain was used for export, and a small part was in China, but it was valuable. The unique technological characteristics of ceramics continue to this day, and still have unique charm, becoming a beautiful scenery in the long river of ceramic art.

4. Conclusion
The inheritance and innovation of culture is an eternal problem. Strengthening the research on the inheritance and innovation of culture can further promote the development of ceramic art. Inheritance and innovation are the two important wheels of a nation’s culture. This paper analyzes the inheritance and innovation of traditional ceramic technology in Yuanshui Valley, constructs the mechanical characteristic model of ceramic technology by using data simulation method, which combines the innovative consciousness of keeping pace with the times with the spirit and quality of the times, and realizes the all-round development of ceramic art. In order to adapt to the development of traditional ceramic art in the Yuan River Basin, we should integrate some essence of the spirit of the times, absorb traditional culture, make ceramic art more spirit of the times, and reproduce the brilliance of China’s ceramic art. Ceramic works of art are
produced in the unique cultural atmosphere of our country. They embody profound cultural atmosphere and connotation in ceramic works of art and have enduring characteristics. We should strengthen the construction of public cultural undertakings in the river basin, implement the project of benefiting the people through culture, and improve the public cultural service system. At the same time of inheriting and developing, it is necessary for the creators of ceramic art to realize the innovation of ceramic art creation, combine the innovation consciousness of keeping pace with the times with the spirit and quality of the times, so as to realize the full development of ceramic art.

Data Availability
The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest
The authors declare that they have no conflicts of interest.

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