



## Research Paper

## Analysis of the regenerative design of Ru porcelain in hotels

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## ABSTRACT

Ru porcelain is part of China's traditional culture, and in recent years, the use of Ru porcelain as a design element of hotel space has gradually increased. The primary purpose of this study is to explore the integration of Ru porcelain and contemporary theme hotel design from the perspective of regenerative design and to create a Ru porcelain hotel space design that meets contemporary people's artistic and aesthetic characteristics. The researcher uses the dual literature research methods and case study analysis to achieve the research purpose. Literature research has meticulously combed through the concept of Ru porcelain, the redesign and innovation of Ru porcelain, and the regenerative nature of Ru porcelain in hotel design, providing reference material for scholars and practitioners. Meanwhile, the case study classifies and summarises the characteristics of Ru porcelain, the decorative elements of Ru porcelain, and the relevant examples of Ru porcelain hotels, and puts forward the regeneration design strategy of Ru porcelain hotels, emphasizing that the integration of Ru porcelain and hotels expands the development space of hotels, and will play a positive role in the improvement of the international influence of Ru porcelain culture.

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## 1. Introduction

Environmental protection and sustainability are increasingly important considerations in hotel design. However, achieving sustainability with traditional hotel décor materials and furnishings is often tricky. Against this backdrop, regenerative design has received much attention as a solution. Meanwhile, Ru porcelain, the jewel of traditional Chinese porcelain culture, is also highly respected in the design field for its unique aesthetics and durability [1–4]. Therefore, the use of Ru porcelain in hotel design for regeneration design can not only achieve the goal of sustainability but also show regional characteristics and cultural values. However, there is a lack of systematic research on the regenerative design of Ru porcelain in hotel design. Therefore, an in-depth exploration of the regenerative design of Ru porcelain in hotel design is necessary to fill the gaps in related research and provide guidance for innovation and sustainability in the field of hotel design. The research objectives are, i) to identify the regenerative design needs for integrating Ru porcelain into the hotel; ii) to figure out Ru porcelain's characteristics and classify the decorative elements; finally, iii) present the strategies for regenerative design applications of Ru porcelain in hotels.

## 2. Literature review

This section analyses the relevant literature collected during the research process, understands the concept of Ru porcelain, analyses the research related to the regenerative design of Ru porcelain in hotels, discusses the current situation and trend of Ru porcelain hotel design, and sorts out the theory of regenerative design, to make the research ideas more precise and more structured. The researcher identified a gap in Ru porcelain hotel research and a lack of research related to the regenerative design of Ru porcelain hotels, Fig. 1. Therefore, the researcher will use the hotel as a carrier in the research process through the regeneration design of Ru porcelain culture, inheriting the Ru porcelain

culture so that the Ru porcelain art will have a more significant development platform [5–7].

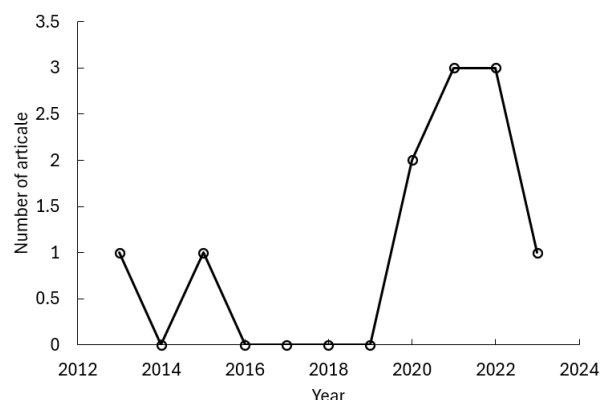


Figure 1. Literature related to Ru porcelain in the last 10 years.

## 2.1 The concept of Ru porcelain

Ru porcelain is one of the most prestigious kiln products in the history of Chinese ceramics, Fig. 2. Its glaze and shape reached the highest artistic achievement in the Song Dynasty and was listed as one of China's intangible cultural heritage in 2011. As a result, Ru porcelain has been studied in various disciplines such as design, fine art, material science, archaeology, sociology, anthropology, and economics. Different scholars have different perceptions of the concept of Ru porcelain. He (2017) mentions that Ru porcelain was one of the official kilns during the Song Dynasty period in China and was often paid

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tribute to local nobles or the emperor for use. Li Haozhong (2022) suggests that Ru porcelain was born in Ruzhou during the Northern Song Dynasty and was one of the five most famous kilns of the time and that the artistic and aesthetic connotations of its firing reached the pinnacle of porcelain culture in the Northern Song Dynasty. Wang and Chen (2015) mention that the Ru kilns were located in the hinterland of Henan province and were named after their location in Ruzhou. It shows that scholars define Ru porcelain based on its position in the ceramic world and place of production. The author, based on the former, believes that the concept of Ru porcelain should be expanded to include its external characteristics and internal culture [8–12].

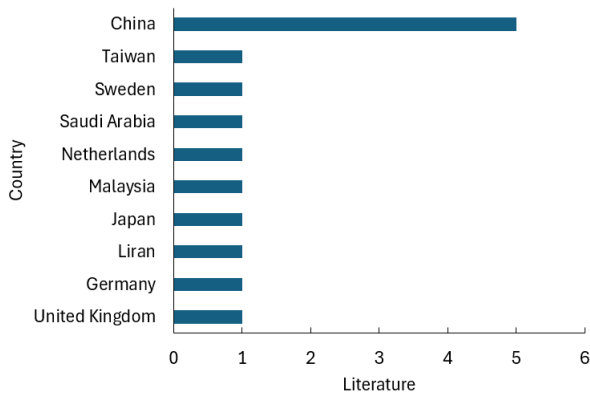


Figure 2. Ru porcelain research literature of various countries

## 2.2 Ru porcelain redesign and innovation

In terms of Ru porcelain and redesign. Huang Xiulin & Hai Lin. (2014) proposed the concept of redesigning Ru porcelain, exploring the application of Ru porcelain's colors, glazes, and motifs in several aspects of furniture, products, posters, and web design. Based on the previous literature, Hai Lin scholars (2015)[2] once again enriched the research on the redesign of Ru porcelain, proposing the Ru porcelain redesign methods of vessel redesign, functional redesign, and development of cultural connotations. Chen Yangyang. (2022) explored how the redesign of Ru porcelain can apply to styling, home design, jewelry design, and rustic design. The innovative application of Ru porcelain has been the focus of several scholars, such as Wang Zhenjie (2010) proposed the Ru porcelain glaze color and modern aesthetic fit, as well as the shape of the design of the innovation. Based on the previous literature, the method of applying the laws of ceramic modeling in the design innovation of Ru porcelain was refined (Wang Zhenjie, 2011). At the same time, several scholars proposed to innovate Ru porcelain based on inheritance (Liu Yingxu et al. 2017; Li et al., Fang, 2021; Wang Jianfeng, 2022; Hu Yanfang, 2022). In addition, other scholars have proposed that the innovation of Ru porcelain is based on cultural connotation, modern style, spiritual needs, and Ru porcelain technology (Zhang Panpan, 2021). Other scholars have summarised the innovative use of Ru porcelain in painting through the description of its vessel type, glaze color, and decoration (Wang et al., 2023). In summary, in the design of Ru porcelain, most scholars focus on innovation based on inheritance; a few scholars note the use of redesign theory for the redesign of Ru porcelain; up to now, no scholars put forward the regenerative nature of Ru porcelain in the design. Through the research in this paper to use the methods and means of regenerative design, Ru porcelain can be more effectively disseminated so that more people can come into contact with Ru porcelain and better understand Ru porcelain [13–18].

## 2.3 Regenerative design of Ru porcelain in hotels

The literature on Ru porcelain hotel design could be more complete, and there needs to be more related discussions. However, the related literature on ceramic interior design and hotel design has specific theoretical research and a practical foundation, which is very important for the regenerative research of Ru porcelain in hotel design. The following will be introduced in two parts: the application of ceramics in interior space and hotel design. Regarding the application of ceramics in interior space, some scholars believe that ceramic elements are more commonly and widely used (Xie Zhuqing, 2020) and play an essential role (Xing Zhipeng, 2019). Some scholars suggest that ceramic elements and interior design are complementary and mutually fulfilling (Xu Yuelin, 2022; Guo Meng, 2022). Some scholars have also explored the application of ceramic culture to culturality in interior design (Hu Liting, 2014). Regarding the application of ceramics in hotel space, for example, Wu Jianpeng (2016) reveals that art ceramics and hotel space need each other. Gan Jingyi (2017) concluded that ceramic decorative elements have become main-

stream in hotel interior furnishing design space. Hong Xuanjiao et al. (2018) conducted a preliminary study on the research of folklore theme hotel design from the Jingdezhen blue and white porcelain ware culture perspective. Sun Xiangyu (2018) systematically analyzed the aesthetic value and the form of use of ceramic intervention in space. Yize Zhoushui (2021) suggests that many high-luxury hotels will incorporate "porcelain elements" from China into the design and decoration of the hotel. In summary, most scholars pay more attention to the relationship between ceramics and interior design and hotel design and application strategies, and some scholars have analyzed the application of celadon in hotel spaces. However, fewer needs to be more related to Ru porcelain's regeneration in hotel design[8–10, 15–18].

## 2.4 Regenerative Design Theory

The regenerative development and design concept emerged in 1985 with John Lyall's *Designing Human Ecosystems*. Widespread recognition came in 1995 with the founding of the Regeneration Group by Pamela Mang, a pioneering educator in permanent architecture and ecological design, and Bill Reed, among others. In the 1990s, most scholars were committed to natural resource restoration rather than conservation, proposed a shift towards a more holistic approach to sustainable development, and explored regenerative approaches (Capra F, 1996; Beatley T et al., 1997). Dorothy Wilder (2001) suggests that artists have returned to regeneration and restoration in art. Ferreira S. B. (2008) articulates that the concept and practice of sustainability are moving towards restorative and regenerative design. Bayulken B. et al. (2015) Regenerative approaches represent the most recent model of sustainable development and are considered the next step in the evolution of sustainable development. Greenwell et al. (2021) argue that regenerative design is essential. The concept of regenerative design has emerged as a more multifaceted process in designing landscape gardens, architecture, and urban and interior spaces under the influence of ecological thinking. The core concept of regenerative design is to encourage learners to adopt a multidisciplinary approach to explore the connections between things and to think about the relationship between human beings and nature in a holistic manner. From the macro aspect, the theory of regenerative design has gradually emerged from the development of sociology and ecology and is a product of the development of industrialization. From the micro aspect, it is a redesign, re-creation, secondary use, green design, and sustainable development. It represents not only a new way of thinking but also shapes the next stage of development with the best ideas. According to the discussion and induction on the Ru porcelain hotel and regenerative design and other issues, the characteristics of the regenerative design of the Ru porcelain hotel to do a brief overview: regenerative design to promote the regenerative development of the Ru porcelain hotel. The regenerative design of Ru porcelain is mainly embodied in the regeneration of reorganization of elements, the regeneration of material innovation, the regeneration of cultural connotations and the innovation of craftsmanship techniques, and the regeneration of the fusion of science and technology with the elements of Ru porcelain. At the same time, the regenerative design of the Ru porcelain hotel brings spiritual regeneration to the guests[19–24].

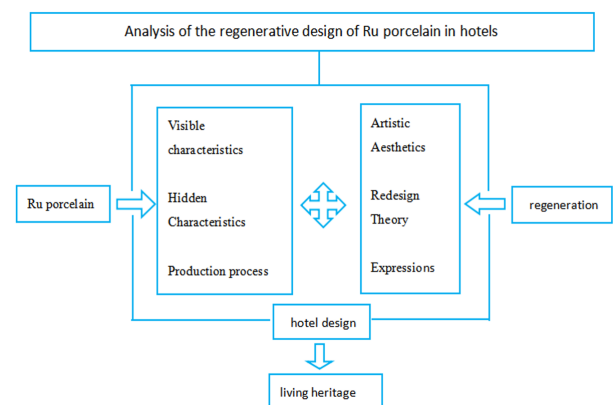


Figure 3. Conceptual framework.

## 2.5 Conceptual framework

This study analyses the regeneration design of Ru porcelain culture with the hotel as the carrier, mainly exploring the redesign ways and methods of Ru porcelain culture in hotel design. Firstly, elements of Ru porcelain culture are extracted from different research perspectives by comprehensively analyzing various aspects of Ru porcelain culture, such as its external characteristics, cul-

tural connotations, and production process. Secondly, it will be integrated and innovated with Ru porcelain culture through the regeneration design theory, art aesthetics, and expression form techniques. Finally, the regeneration results are verified in the hotel space to achieve the purpose of Ru porcelain culture living heritage. After analyzing and sorting out the conceptual framework of this study is shown below, Fig. 3.

## 2.6 The scopus

A Scopus search of the literature on "Ru porcelain" revealed that there has not been much research on Ru porcelain in the past decade. The analyses show more studies on Ru porcelain in 2020–2022 compared to previous years, Fig. ?? . However, from the literature analysis and results, it can be seen that the depth and breadth of the research on Ru porcelain in most countries are insufficient. Among this research literature, China has a relatively large amount of research on Ru porcelain, which indicates that China has had a deep concern and demand for the development of Ru porcelain in recent years. Countries such as Germany, Iran, Japan, and Malaysia have also begun to pay attention to research in this field. Furthermore, Fig. ?? shows that it can be seen that there are still many gaps in the research on the regenerative design of Ru porcelain hotels[25–28].

## 3. Research design

### 3.1 Research methods

This paper used a qualitative approach to collect two types of data (visual and textual). The main modality used was observation, widely used in qualitative research. The data collected is accurate, abstract, and meets qualitative research objectives. In this study, two observation methods were used to collect two types of data: a. Visual Observation: A visual observation method used to collect data from the case study (Ru porcelain-Hotel). The observation process focussed on functionality, elements, decoration, exterior design, and interior design using an observation form. b. Textual observation: documents and literature observed to collect data to support the case study and variables used to reach the study's objectives[29–34].




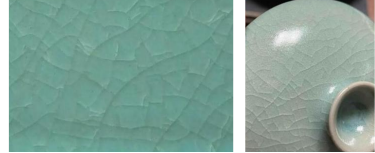
### 3.2 The characteristics of Ru porcelain

The fetal color of Ru porcelain: Any piece of porcelain comprises two main parts: the porcelain tire and the glaze. While most of our common porcelain tires are white, the Ru kiln's tires are different. Ru porcelain fetal quality is delicate; the fetal soil contains traces of copper, light, slightly red, and the fetal color is light gray, gray-white because of its tone and incense burned after the formation of incense ash similar, and thus commonly known as ("incense ash fetal") Primarily seen in Ruzhou Python River Yan and store, Dayu Donggou, Ruzhou Wenmiao, Qingliang Temple, and other kiln sites, passed on to the modern production process of Ru porcelain. The glaze of Ru porcelain: The glaze color of the Ru kiln is the most colorful among all the Song dynasty kilns, with "Cyanās the leading tone. Sky green and sky blue are the most basic shades, in addition to pinkish green, bean blue, moon white, egg green, onion green, gray green, crab green, and rice yellow. There is a color difference between the same colors; they are rich and light. Ru porcelain because of the agate into the glaze; with a magnifying glass, you can see the glaze under the sparse bubbles like morning stars, whisking its surface like jade-like silk, like jade non-jade and better than jade. Spike firing of Ru porcelain: Spike firing is a ceramic firing process that enables the entire porcelain to achieve a full glaze. The shape of the peg firing mold is pointed at one end and rounded at the other, and it is tiny, like sesame seeds. Ru porcelain firing uses pegs full of glaze branch firing method. After firing the object's foot rim, minimal white traces were left on the odd number of the majority. The Opening Pattern of Ru Porcelain: "Open slices" refers to the porcelain out of the furnace when the temperature inside and outside the furnace is different, which leads to changes in the texture of the porcelain surface. The glaze of Ru porcelain shows a delicate fragmentation pattern with a slender texture, multiple layers of open flakes, and a strong sense of layering. There are ice cracks, fish scales, cicada wings, willow stripes, network patterns, and crab claws, depending on the angle of the incident light, Table 1.

### 3.3 The type of Ru porcelain

Ru porcelain ware is simple, neat, has smooth lines, is dignified, and generous. It is divided into edible, decorative, and ceremonial vessels. Edible vessels mainly include bowls, pots, plates, cups, calendars, jars, and other porcelain utensils; decorative vessels are mainly focused on the admirability and playability of ceramics; and ceremonial vessels are Ru porcelain with through-ear vases, square pots, and trousseau stoves, 2.

**Table 1.** Characteristics of Ru porcelain.

Name of map	Map
The glaze of Ru porcelain	
The glaze of Ru porcelain	
Spike firing of Ru porcelain	
The Opening Pattern of Ru Porcelain	

### 3.4 Ru porcelain decorative elements

Analyze the application of Ru porcelain elements in space from several aspects of Ru porcelain's shape, color, material, craftsmanship, texture, and cultural connotation, Fig. 4.

**Table 2.** Characteristics of Ru porcelain.

The type of Ru porcelain	Legend
Edible vessels	
Decorative vessels	
Ceremonial vessels	

### 3.5 Ru porcelain hotel design case

Ru porcelain is one of China's traditional cultures, and in recent years, there has been a gradual increase in the number of hotel spaces that use Ru porcelain as a design element. For example, the Jubilee Moon Hotel in Shanghai and Hangzhou focuses on applying traditional Chinese culture in its design, with the theme of Yaji, using Ru porcelain tiles and the minimalist aesthetics of the Song Dynasty people to create a spatial atmosphere. Another example is the Yi She Select Hotel in Zhengzhou, which applies Ru porcelain elements and Song lyrics underpinnings to every space in the hotel, whether it is the guest rooms, the study, the lift room, or even the walls can be seen everywhere. There is also Jianye's Only Theatre Hotel, which has a Ru porcelain-themed Tianqing restaurant. Besides, Ru porcelain is also used by many hotels to make tea sets, tableware, decorative ornaments, and so on Table 3.



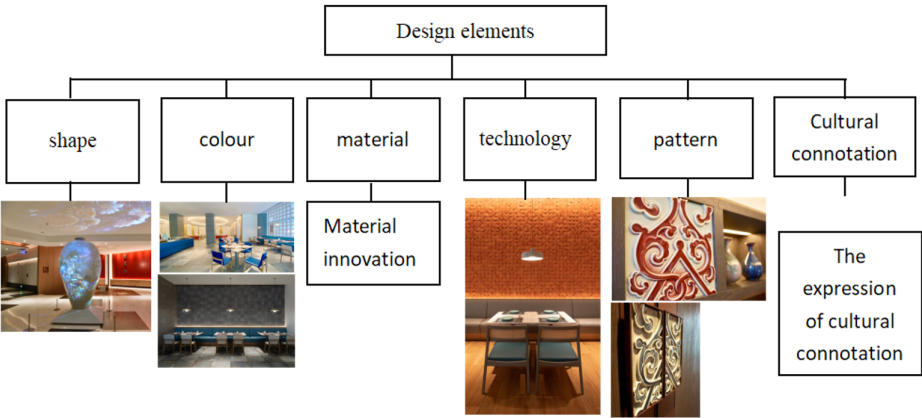


Figure 4. Schismatic of the classification of Ru porcelain decorative elements.

Table 3. Ru porcelain hotel design case.

Name and Brief description	Legend		
Xiyue Hotel: In the design, emphasis is placed on the application of traditional Chinese culture, with elegant meeting as the theme, using Ru porcelain pieces and Song Dynasty minimalism to create a space atmosphere			
Zhengzhou Yishe Selected Hotel: The application of Ru porcelain in the guest room.			
Only theater hotel: Only the “Tianqing” restaurant in the theater hotel with the theme of Ru porcelain.			
Lijiang Gumo Qinglu Snow Mountain Palace Hotel: Applying Ru porcelain tea sets and vases to hotels			
Cloud Castle Wonderland Hotel in Pingdingshan: Added a programmed to experience the craft of making Ru porcelain			

4. Ru porcelain in the hotel in the regeneration of design application strategy

It has a specific development from the relevant cases of applying Ru porcelain in the hotel. However, most of the designs for applying the elements of Ru porcelain are from his prominent characteristics and invisible culture to start with, and very few from the production process of Ru porcelain design. The researcher believes that one of the intangible cultural heritages of Henan Province, "Ru porcelain" as a design element, from the perspective of the artisan to understand the internal space of the Ru porcelain, the firing process, the color changes, the sound of the open piece,"to create a Ru porcelain metamorphosis process of the spatial atmosphere. So, people in such a space unconsciously produce the idea of understanding Ru porcelain and unconsciously recognize the magic of Ru porcelain. Therefore, for the Ru porcelain in the hotel regeneration design strategy, the researcher, according to the relevant literature and cases, categorized the following: Ru porcelain explicit features as regeneration

design elements, Ru porcelain implicit cultural connotations to create the hotel spatial atmosphere, Ru porcelain production process of regeneration design strategy.

5. Conclusion

Based on previous research, this paper deepens the research on the integration and application of Ru porcelain culture in hotel space design. It is breaking through the traditional mode of thinking from the regenerative design of Ru porcelain culture and hotel design combined with the perspective of the study so that the study of Ru porcelain hotel from a new perspective, in favor of the cultural theme of the hotel in-depth expansion of the interior design also has a particular revelation. This study enriches the research content of regenerative theory, contributes to the development of horizontal construction of design discipline, and provides theoretical guidance and basis for scholars and designers. Collecting and analyzing the information on the Ru porcelain hotel case



fills the gap of related research.

### Authors' contribution

All authors contributed equally to the preparation of this article.

### Declaration of competing interest

The authors declare no conflicts of interest.

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This study didn't receive any specific funds.

### Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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