

Design Practice of Zibo Glass Art Works Based on Chinese Traditional Art and Contemporary Design

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Abstract

Background and Aim: Zibo City, Shandong Province, China, is one of the birthplaces of Chinese glass art. Zibo has a long glass history and a unique glass art production process. However, with the rapid development of contemporary glass art, the innovative ability of Zibo glass art has weakened, and the public's attention to it has gradually decreased. Therefore, this study aims to study the concept of Chinese traditional art and contemporary craft, design, and innovative Zibo contemporary glass artworks; to study the innovative design works of Zibo contemporary glass art and evaluate their role in the development of Zibo glass art.

Materials and Methods: The study adopts a mixed research method, combining qualitative research with quantitative research. First of all, through historical documents and field investigation, the image characteristics and profound cultural connotation of Zibo traditional glass art are studied. Subsequently, this study further explores the application of traditional glass technology in contemporary art creation, combining expert interviews and questionnaire surveys, using thematic analysis and descriptive analysis to deeply analyze the interaction between traditional technology and modern art, especially in exploring the integration of design innovation, technological experimentation, and visual aesthetics.

Results: Researchers actively practice in artistic forms, cultural connotations, and technological innovation, combining traditional culture with contemporary social backgrounds to showcase rich achievements in the collision of artistry and craftsmanship. Give Zibo glass art a new direction of innovation.

Conclusion: The two groups of works not only continue the cultural connotation of Zibo's traditional glass art but also make innovative breakthroughs in form, color, and technology, demonstrating the vitality and rebirth of traditional art in the contemporary social context. This provides strong theoretical support and practical reference for the innovative development of Zibo glass art in the future and helps to promote the integration and innovation of traditional art and contemporary design in the context of globalization.

Keywords: Zibo; Glass Art; Traditional Culture; Process Innovation; Contemporary Glass Sculpture Design

Introduction

Chinese traditional glass art, especially Zibo glass art, has a history of hundreds of years (Zhao, 2008), reflecting China's unique cultural and technological traditions. With time, traditional glass art is facing challenges in the context of modernization and globalization (Li & Chen, 2020). Contemporary glass artists need to innovate while inheriting traditional skills to meet constantly changing aesthetic and market demands. Zibo's contemporary glass artworks generally lack image elements and innovative expressions with contemporary significance, and their limitations in technology and design also hinder further development (Yue, 2013). Academic glass art is also constantly developing (Yi, 2022), and many artists and craftsmen are striving to promote the modernization of this art form by integrating modern design concepts and technologies.

With the rapid development of modern society, the inheritance and innovation of Zibo's traditional glass art are facing many problems (Li, 2022). How to create artworks with contemporary appeal while maintaining traditional cultural characteristics has become an urgent problem for artists and craftsmen to solve (Li, 2022). Therefore, this study has formulated the following two research questions: 1. What contemporary image elements and work significance need to be innovated are missing from Zibo's contemporary glass artworks in China's Shandong Province, what are the defects of Zibo's glass art in China, and what image and technology should be broken through and developed? 2. How to combine

contemporary art elements with contemporary social significance and try to combine different crafts to innovate contemporary glass artworks that are accepted by the public?

To address these issues, this study combines the theory of creativity transformation (Sternberg, 2006) and the theory of affective design (Yusa, Ardhana, Putra, & Pujaastawa, 2023). The theory of creativity transformation focuses on how to use innovative means to adapt traditional culture to the needs of modern society while maintaining it (Rodríguez-Labajos, 2022); The theory of emotional design emphasizes that design should be combined with the user's emotional experience to enhance the cultural identity and emotional resonance of the work (Silvia, 2005). In addition, this article also draws on the design principle of integrating traditional and modern techniques (Quan, 2021), endowing glass art with new vitality through innovative materials, shapes, and color language.

The creation of this study combines traditional Chinese art images (Zhang, Xu, Tian, Jiang, & Ma, 2021) with contemporary artistic concepts, aiming to innovate and promote the glass art culture of Zibo City, Shandong Province, China, and increase people's attention and popularity. It needs to have the characteristics of Chinese tradition (Lee, 2019), high modernity, and high artistry, to increase the attention and attraction of audiences of all ages and enhance the cultural influence of Zibo glass art. This research not only provides theoretical support for the inheritance and innovation of Zibo glass art but also provides practical exploration experiments for artists and craftsmen.

Objectives

To study the concept of Chinese traditional art and contemporary craft, design, and to innovate Zibo contemporary glass artworks. To study the innovative design works of Zibo contemporary glass art and evaluate their role in the development of Zibo glass art.

Literature Review

The form of Zibo glass art originates from the profound Chinese cultural tradition, and its cultural connotation is deeply rooted in the essence of Chinese traditional crafts and is closely related to the local history and customs. The creative theme of Zibo glass art is mostly centered on traditional cultural symbols and natural images, which echoes the discussions in Material, Crafts, and Model: Boshan Glass as a Carrier of Culture and Emotion (Li, 2020) and Zibo Folk Arts and Crafts Culture and Contemporary Industrialization Research (Yang, 2012), reflecting respect for cultural heritage and the essence of skills. The modeling and decoration of Zibo's glass artworks pursue delicacy and realism, which shows the artistic spirit of "both form and spirit" in Chinese traditional aesthetics (Hou, 2024). In terms of color application, Zibo glass art focuses on red, yellow, blue, green, and other bright colors, which not only enriches the visual effect but also continues the Chinese traditional sculpture and color painting as a whole work concept (Zeng, 2016). Zibo glass art is not only the embodiment of artisans' personal feelings and aesthetic pursuits, but also the inheritance and innovation of traditional cultural values, carrying profound thinking and response to the spirit of the times.

Contemporary glass art has rapidly developed in the 20th century, especially with the rise of the studio glass movement. Artists have paid more attention to the innovation and expressiveness of glass as an artistic medium (Li, 2022). International glass art styles are diverse, ranging from abstract art (Moszynska, 2020) and geometric design (Edgerton, 2020) to figurative sculpture (Jung, 2020). Artists worldwide constantly break through the traditional limitations of glass as a decorative or functional material, transforming it into a medium for expressing ideas and emotions.

In this context, contemporary Chinese glass art is gradually integrating into the world trend, exploring the integration of innovation and tradition. Many artists, while inheriting traditional techniques, have absorbed contemporary international art styles such as New Traditionalism (Sun, 2019), Minimalism (Chomsky, 2021), and Expressionism (Carroll, 2021), combining traditional cultural symbols with contemporary design language to form a unique Chinese contemporary glass art style. The perspective of innovative integration is particularly important in this process, not only reflected in the innovation of skills and materials but also in finding a new balance between cultural heritage and modern design.

Conceptual Framework

The conceptual framework of this study is shown in Figure 1.

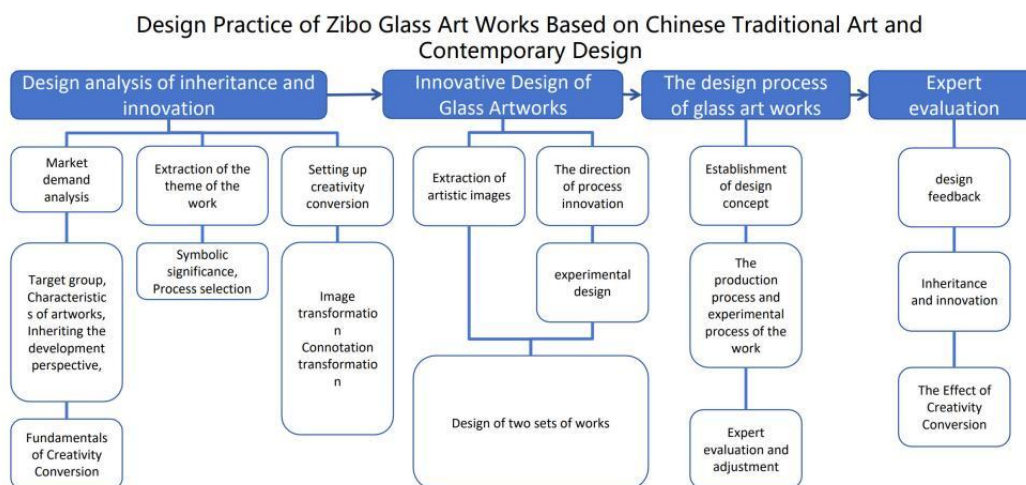


Figure 1 Conceptual Framework of Zibo Glass Art Design

Note: Constructed by the researcher

Methodology

This study adopted a combination of qualitative and quantitative research methods. Firstly, through historical documents and field investigations, the traditional glass art of Zibo City, Shandong Province, China was analyzed, with a focus on its image development, craftsmanship techniques, and cultural connotations. Secondly, by combining expert interviews and field research, the interaction between traditional skills and modern art was explored, particularly in the areas of design innovation, technological experimentation, and visual aesthetics.

1. Research Methods

1.1 Qualitative Research Methods

Literature review: a systematic review of relevant literature and creativity transformation theory of Zibo glass art, laying a theoretical foundation for this study and providing background support for subsequent field research.

Field survey: collected the original data of Zibo glass art production and sales, and conducted in-depth observation of consumers' behavior in the purchase process. This helps to understand market demand and consumer behavior patterns.

In-depth interviews: semi-structured interviews were conducted with Zibo glass art inheritors, artists, and industry practitioners to collect professional insights and explore innovative ways of combining traditional craft with modern design.

Data analysis: This study adopts methods such as framework analysis, content analysis, and thematic analysis. By using qualitative analysis software to encode and classify on-site records and interview content, key themes and patterns that affect glass art design and market performance are summarized.

1.2 Quantitative Research Methods

Quantitative data was collected through a survey of tourists visiting the Zibo Glass Museum and Zibo Ceramic Glass National Art Museum and analyzed using statistical software such as PSPP. Quantified the key elements of consumer demand, market potential, and creative transformation design. Collect the data of inheritors, design experts, and tourists, and scientifically evaluate innovative Zibo glass art design based on creative transformation design.

2. Population and Sampling

2.1 Scope of the Area

Zhangdian District and Boshan District, Zibo City, Shandong Province, China

2.2 Population Scope

To deeply study the current situation of Zibo glass art and tourists' attitudes towards the inheritance and innovative development of Zibo glass art, this sample collection includes 15 glass art practitioners and 360 tourists from the Zibo Glass Museum.

3. Data Collection and Analysis

3.1 In-depth interviews: data and analysis

This study conducted in-depth interviews with 15 glass art experts to discuss their views on the inheritance, innovation, and development of Zibo glass art, as well as the challenges faced by Zibo glass art. The collected data is analyzed using descriptive analysis and content analysis methods. The interview results are summarized as follows (Table 2):

Table 1 Data from interviews with glass art experts

Category	Theme	Main content
1. The current situation and challenges of the glass art industry	industry status	1. The glass art industry is facing a downturn, with reduced market demand, especially due to the pandemic and foreign trade restrictions, leading to fewer orders. 2. Traditional glass artworks are losing competitiveness, with large factories dominating the market and small factories and traditional crafts struggling to survive.
	Challenges Faced	1. The industry faces risks of transformation and closure, with traditional crafts under pressure from both technology and the market. 2. A gap between education and industry adaptability hampers technological innovation and market development for some, causing income fluctuations. 3. Practitioners note a lack of interest in traditional glass art among the younger generation, threatening the inheritance of craftsmanship.
2. Innovation and Development Direction	Innovation demand	1. Respondents believe glass art must increase innovation in materials, processes, and design concepts to adapt to market changes. 2. Innovation should also extend to marketing and sales channels, with the use of the Internet and new media becoming a trend for promotion and sales.
	Key development directions	1. Practitioners suggest combining modern design with traditional craftsmanship to create works with cultural connotations and modern aesthetics, to attract a wider range of consumers. 2. Developing customized products and experiential consumption models can better meet market demand and enhance the added value of work.
3. Inheritance direction	Protection and Inheritance of Traditional Skills	1. The interviewees generally agreed that traditional craft is the foundation of glass art, and emphasized that the protection and inheritance of traditional craft cannot be ignored in the process of innovation. 2. It is suggested to strengthen the establishment of glass art majors through the education system, enhance the importance and teaching of traditional skills, and cultivate a new generation of glass art talents.
	Innovation in inheritance methods	1. The combination of cross-disciplinary cooperation and art forms, such as painting, sculpture, and other art forms, can bring new vitality to traditional crafts. 2. Promote community participation and public experience activities to enhance public awareness and interest in glass art.
4. Challenges and opportunities in the	Market challenges	1. Respondents generally believe that intensified market competition and the rise of emerging art forms and products have posed challenges to traditional glass art in the market. 2. For the younger generation, traditional glass art lacks appeal, leading to a decrease in potential consumers and affecting the overall vitality of the market.

Category	Theme	Main content
glass art market	Market opportunities	<ol style="list-style-type: none"> 1. With the increasing demand for personalized and customized products, glass art has great potential to meet the special needs of consumers. 2. The government's supportive policies and market support measures provide opportunities for the development of glass art. Especially in the context of strengthening the emphasis on the inheritance of intangible cultural heritage, traditional glass art will receive more attention and resources.

3.2 Analysis of Tourist Survey Data

Through a questionnaire survey of 360 visitors to the Glass Museum, we have gained insight into their true perspectives. This study randomly sampled tourists from the Zibo Glass Museum and Zibo Ceramic Glass National Art Museum and collected data through a questionnaire survey.

Table 2 Data from a tourist questionnaire survey

Three dimensions	Interview Questions	Interview results
Sales, modeling types, and design contents of Zibo glass art products	If the price is reasonable, would you purchase Liuli art pieces as gifts or souvenirs?	77.22% of respondents are willing to purchase Liuli artworks as gifts or souvenirs at a reasonable price, highlighting their high gift and commemorative value. However, 22.78% are hesitant, indicating a portion of the market remains reserved toward such purchases.
	If you purchase Liuli, what are your main selection factors? (Multiple Choice Question)	Exquisite design and craftsmanship are the top priorities for 29.09% of respondents, showing the importance of design and skill when purchasing Liuli. Close behind, 25.17% value distinct traditional cultural elements, indicating that cultural representation is also a key factor. This data suggests buyers prioritize Liuli's artistic and cultural value over price and practicality.
People's aesthetic preferences and value orientations towards glass artworks	Which art form element do you prefer for glass artworks?	Tourists' preferences for glass artwork show that modern creative design is the most popular, favored by 33.33% of respondents, highlighting its strong appeal. Traditional Chinese cultural symbolism follows at 28.89%, reflecting its significant role in glass art. Traditional themes like flowers, insects, and birds still attract 12.50%, though more conservative forms have decreased in popularity. Abstract and niche designs are preferred by 11.11%, indicating interest in personalized styles. Animal imagery is less popular, with only 8.33%, while other categories account for 5.83%, appealing to a small group with different tastes.
	Which one do you prefer to express the connotation of glass artwork?	In glass artworks, traditional Chinese customs and blessing themes are the most popular content expressions, comprising 35.00% of preferences, reflecting the strong appeal of traditional cultural themes. Content related to contemporary social phenomena ranks second at 30.00%, indicating growing interest in works that incorporate modern characteristics. Personal emotional expression accounts for 16.67%, showing some people's desire to connect with their emotions through art. Abstract connotations without clear meanings attract 11.67%, suggesting a niche interest in abstract forms. Other categories make up 6.67%, indicating a small segment expressing different connotations.
	Liuli is a very important artistic craft with distinct Chinese cultural characteristics.	Desktop ornaments are the most favored Liuli product type, comprising 35.68%, highlighting consumer preference for smaller, easily displayable works. Large and medium-sized decorative artworks follow at 31.16%, indicating interest in pieces with greater visual impact. Jewelry and accessories account for 16.08%, reflecting



Three dimensions	Interview Questions	Interview results
Evaluate the inheritance and development of Zibo glass art.	Among different types of products, which one (or several) do you prefer? (Multiple Choice Question)	some consumers' interest in personalized items. Practical products with functionality make up 13.23%, suggesting a preference for items that blend practicality with aesthetics. Other options account for 3.85%, indicating a small minority that favors unique Liuli products outside these categories.
	Which direction do you think Chinese glass art should further innovate in?	Tourists favor appearance innovation as the primary direction for innovation in Chinese glass art, accounting for 36.67%, reflecting high expectations for visual enhancements. Innovation in production processes or the integration of multiple glass techniques ranks second at 25.00%, underscoring the importance of process technology. Connotation and meaning innovation account for 23.33%, indicating a desire to deepen the value of glass artworks. Cross-border creation using different materials makes up 13.89%, showing some interest in interdisciplinary innovation, though it receives relatively less attention. Other categories represent only 1.11%, indicating a small number of unique innovative ideas.
	What do you think are the factors that hinder the inheritance and development of Zibo glass art? (Multiple Choice Questions)	The inability of traditional crafts to evolve is the primary obstacle, accounting for 32.21%. Limitations of traditional folk inheritance methods make up 28.83%, highlighting their inadequacy in a modern context. Insufficient government policy support represents 16.88%, indicating a significant barrier. A lack of public interest in the current design, decoration, and practicality of glass crafts accounts for 12.34%. Finally, 9.87% of respondents feel that most glass artworks no longer meet modern aesthetic needs, reflecting the impact of changing tastes on the art form.
	Do you think it is necessary to conduct more innovative attempts at glass art products and cultural and creative products on the market now?	Regarding the innovation of Zibo glass art products, 64.72% of tourists believe it is essential, reflecting a strong market demand for novel design and creativity. In contrast, 26.39% hold a neutral view, feeling that innovation has minimal impact on their purchasing decisions. Only 8.89% believe that further innovation is unnecessary, indicating that a small portion of respondents are satisfied with the existing products.

Results

1. Design Innovation Zibo Contemporary Glass Art Works

1.1 Innovative Design of Zibo Glass ArtWorks

When designing glass art pieces, attention should be paid to young consumers who pursue personalized, unique, and contemporary art related to social hotspots. The work needs to combine modern elements with traditional glass art, create visual impact and emotional resonance, attract young audiences, and expand influence through social networks.

1.2 Design style and element extraction of works

(1) The first group of works, "Integration of Traditional Chinese Art and Contemporary Design Elements"

The inspiration for the first set of works comes from traditional Chinese zodiac animals, combining traditional imagery with modern aesthetics through innovation. The selected zodiac animals - tiger, dog, chicken, sheep, and monkey - retain important cultural symbolic meanings and adapt to contemporary art. The work draws inspiration from the "Twelve Beast Head Bronze Statue of

Yuanmingyuan", reinterprets the characteristics of animal heads, incorporates personal artistic style, and highlights the unique texture and cultural depth of the glass.

(2) The second group of works, "Combination of Casting Technology and Lighting Technology"

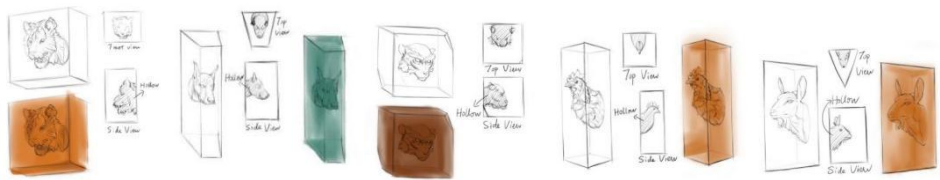


The second group of works focuses on innovating the combination of different glass art production techniques, particularly integrating glass casting and lampworking. These techniques are rarely combined in contemporary works, yet their distinct characteristics align with the creative goals of this project, presenting both challenges and opportunities for innovation. Additionally, traditional Chinese art elements, such as waves and water droplets, will be incorporated, reflecting profound cultural meanings and artistic expression, symbolizing the harmony between life's fluctuations and the natural world.



1.3 The process of designing and producing works

(1) The first work, "Zodiac Language in Time and Space"

After in-depth research and analysis, the researchers have developed a practical process for the works as shown in the table below. This process includes steps such as manuscript drawing, experimental setup, model creation, and work revision.

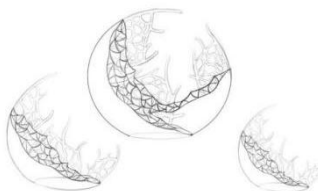

Table 3 The production process of the first set of works





Production steps	Picture and Explain
Manuscript drawing	 <p>This work utilizes the geometric processing of the outer contour of animal head sculptures, integrating the language of three-dimensional geometric art, while preserving the symbolic features of traditional culture, showcasing the rational beauty of modern art.</p>
Mud draft model production	 <p>The researchers chose purple clay sculpture clay as the material to shape the images of tigers, monkeys, sheep, dogs, and chickens in the twelve zodiac animals. In the process of shaping, the researchers not only used traditional sculpture techniques but also redesigned the animal images, incorporating their unique understanding and artistic expression of these animal forms.</p>
Mold making	 <p>The purpose of remaking silicone molds is to produce molds for the shaping of refractory gypsum. The researchers' work requires obtaining the negative form of the zodiac image, so it is necessary to first make a silicone mold and then produce a gypsum-positive mold. This step ensures that the details of the zodiac image can be accurately preserved in the subsequent process and lays a solid foundation for the final formation of the glasswork.</p>

Production steps	Picture and Explain
Making and firing molds	 <p>Wrap the zodiac image with sculptural clay and then create a refractory gypsum glass mold for firing. The purpose of this step is to integrate the zodiac image with the glass-fired mold, and the sculptural clay part will become the final glass sculpture.</p>
Kiln firing	 <p>The volume of this group of works belongs to the common small-scale works in glass casting technology. Therefore, researchers used commonly used temperature curves in casting processes to set the firing time and temperature.</p>
Modification and adjustment	<p>After the work is fired, the negative space inside needs to be sandblasted and cleaned. This is because the negative part has a complex structure and it is difficult to completely remove gypsum residue by manual means. After sandblasting cleaning, the outer contour of the glass sculpture needs to be finely polished and polished to ensure a smooth and even surface, displaying exquisite texture and luster.</p>
Note: Photographed by researcher	

(2) The second group of works, "The Existence of Flow"
After in-depth research and analysis, the researchers have developed a practical process for the work as shown in the table below. This process includes manuscript drawing, experimental setup, model creation, work revision, and work presentation.

Table 4 The production process of the second group of works

Production steps	Picture and Explain
Manuscript drawing	 <p>After multiple adjustments, the design concept in the manuscript has been fully validated and improved. The work showcases the deep connotations of elements such as waves, eggshells, life embryos, and "beginnings", symbolizing the concept and growth of life.</p>
Experimental design	 <p>The researchers first conducted casting and combustion experiments using high borosilicate glass. By adjusting the temperature (850 °C) and casting parameters.</p>

Production steps	Picture and Explain
	<p>Secondly, the researchers carried out satisfactory polishing treatment on the cast glass engineering to ensure no cracks or damage, and to have good stability and toughness. In the third step of the experiment, the researchers effectively combined the casting process with the lighting process to determine the optimal bonding temperature.</p>
Production of clay manuscripts	 <p>Due to the small size of this group of works, the researchers chose to use clay that can be shaped more delicately for the production of clay molds. The flexibility and plasticity of oil sludge enable researchers to accurately present complex details and textures on molds.</p>
Mold making	 <p>Researchers used silicone molds to accurately replicate the details and textures of clay manuscripts. Through this process, researchers obtained wax molds. Next, researchers use dewaxing technology to make refractory gypsum molds, heat the wax mold at high temperatures, melt the wax, and leave a precise cavity to form the final contour of the work.</p>
Kiln firing	 <p>Due to its high melting and annealing temperatures, precise temperature control is required to ensure quality and stability. High borosilicate glass has excellent thermal stability and a low thermal expansion coefficient, which can effectively resist the thermal stress caused by rapid heating and cooling. Therefore, the time interval of the temperature curve is relatively short.</p>
Lamp worker firing	 <p>The lantern section adopts the technique of coiling to vividly shape the shape of the waves. This technique simulates the dynamic and layered feeling of rolling waves by winding slender glass fibers together.</p>

Note: Photographed by researcher

1.4 Aesthetic and cultural presentation of works (1) Zodiac language in time and space

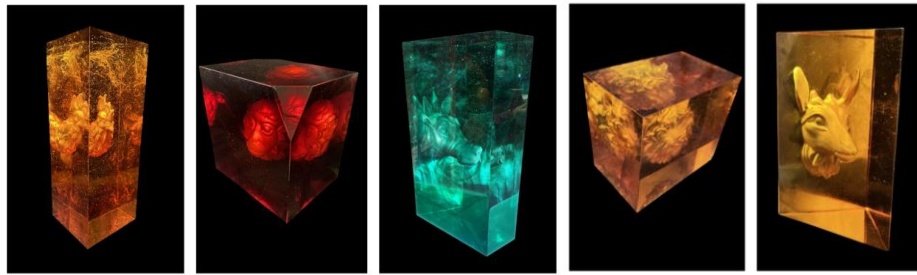


Figure 2 Zodiac language in time and space

Note: By the researcher

This work combines traditional Chinese zodiac images with contemporary geometric design, creating a dialogue between tradition and modernity. Researchers have redesigned the zodiac symbols of monkeys, chickens, dogs, sheep, and tigers to inject new vitality. The use of negative space promotes the interaction between reality and abstraction, inviting the audience to experience the transition between form and intangibility. Bold geometric shapes contrast with soft zodiac images, enhancing spatial tension. Amber and peacock green add depth, with the former evoking warmth and history, while the latter introduces a modern vibe. This artwork reflects the interaction between time and space, with the external cubic structure representing the geometric order of modern design, symbolizing ancient Chinese culture and its heritage, and highlighting reverence for nature and life. The work showcases cultural diversity and inclusivity, inviting the audience to explore the intersection of history and modernity.

(2) The existence of flow



Figure 3 The existence of flow

Note: By the researcher

This artwork revolves around water droplets and waves, combined with elements such as eggshells, embryos, and crescent moons, highlighting the connection between nature and life. Using glass casting technology, the wave shape is round and full, with delicate surface texture, showcasing the agility and warmth of the water. The lantern craftsmanship meticulously depicts water droplets, enhancing their vitality. Internal reflection and refraction increase the layering of waves, creating stunning visual experiences. The penetration and reflection of light tell the story of water and convey the depth of the ocean. The work deeply reflects the integration of natural elements and life emotions. Water droplets and waves symbolize the source of life and natural forces, while the eggshells and crescent moon incorporated enhance the fragility of life. The reflection of internal textures symbolizes the passage of time and the accumulation of memories, conveying the overall rhythm of life and infinite vitality.

2. Expert Evaluation of Innovative Zibo Glass Art Works






The researchers invited four experts in the field of glass art to evaluate the works.

Following the principles of the analytical hierarchy process (AHP), the first step is to break down a complex practical problem into its factors. And divided into various levels. According to the nature of the second factor, it must be compared according to the specified standards. Determine the importance of various factors. And rated using a 5-point Likert scale (Likert Scale is a commonly used method of measuring a person's attitude towards a certain point of view or statement).

According to the formula for calculating the overall standard deviation, N is the total number of groups, the 4 experts interviewed in this interview are the average, and S and D are the overall standard

deviations. Through expert interviews, the evaluation of the first group of works by the researcher, "Works that inherit traditional Chinese art and integrate contemporary design elements," is as follows:

Table 5 Expert evaluation result of the first set of works, N=2

No.	List			
				
				
	1. Inheritance and innovative design of traditional glass art	\bar{x}	S.D.	Level
	The work successfully retains the traditional artistic essence of Zibo glass art.	4.75	0.43	Very good
	The work demonstrates strong innovation and uniqueness in design.	4.50	0.50	Good
	Total	4.63	0.47	Very good
	2. Visual aesthetics and expression of cultural connotations	\bar{x}	S.D.	Level
	Beauty of works	4.00	0.70	Good
	The visual impact of the work	3.75	0.83	Good
	Works can make people feel cultural connotations	3.50	0.50	Average
	The symbolic significance of the work	4.75	0.43	Very good
	Total	4.00	0.62	Good
	3. Market adaptability and audience acceptance	\bar{x}	S.D.	Level
	The work has high market value and consumption potential.	4.00	0.71	Good
	The innovation and design of the work can be accepted and understood by the public.	4.25	0.83	Good
	Total	4.13	0.77	Good
	Total	4.25	0.62	Good

Note: Photographed by researcher

From Table 6, it can be seen that the design evaluation result is N=2 (art expert). Design works that integrate traditional Chinese art with contemporary design elements. The total sum of design evaluation is at the highest level $\bar{x}=4.25$, S.D.=0.62, the highest level of inheritance of traditional culture and design innovation $\bar{x}=4.63$, S.D.=0.47, the highest level of visual aesthetics and cultural connotation expression $\bar{x}=4.00$, S.D.=0.62, market adaptability and audience acceptance $\bar{x}=4.25$, S.D.=0.62.

Experts praise this set of works for effectively inheriting and innovating traditional glass art, especially through the representation of the Chinese zodiac animals. The zodiac images of tigers, dogs, chickens, sheep, and monkeys preserve their symbolic meanings and inject new vitality through contemporary geometric design. The innovative geometric structure and glass negative space enhance the delicacy of the image, achieving a balance between aesthetics and cultural expression. The seamless integration of traditional and modern design resonates with the audience and demonstrates strong market adaptability.

Through expert interviews, the evaluation of the researcher's second group of works, "Design of Works Combining Casting Technology and Lighting Technology," is as follows:

Table 6 The evaluation result of the design experts for the second group of works is N=2

No. List



	1. Inheritance and innovative design of traditional glass art	\bar{x}	S.D.	Level
	The work successfully retains the traditional artistic essence of Zibo glass art.	4.50	0.50	Very good
	The work demonstrates strong innovation and uniqueness in design.	4.75	0.43	Good
	Total	4.63	0.47	Very good
	2. Technical and experimental aspects	\bar{x}	S.D.	Level
	The work blends traditional craftsmanship with modern technology very well.	5.00	0.00	Very good
	The work has made effective experimental attempts in craftsmanship or design.	4.50	0.50	Good
	Total	4.75	0.25	Very good
	3. Visual aesthetics and expression of cultural connotations	\bar{x}	S.D.	Level
	Beauty of works	4.00	0.70	Good
	The visual impact of the work	3.25	0.43	Average
	Works can make people feel cultural connotations	3.25	0.83	Average
	The symbolic significance of the work	4.00	0.70	Good
	Total	3.63	0.67	Good
	4. Market adaptability and audience acceptance	\bar{x}	S.D.	Level
	The work has high market value and consumption potential.	4.25	0.83	Good
	The innovation and design of the work can be accepted and understood by the public.	4.25	0.43	Good
	Total	4.25	0.63	Good
	Total	4.32	0.51	Good

Note: Photographed by researcher

From Table 7, it can be seen that the design evaluation result is N=4 (art expert). Design works that integrate traditional Chinese art with contemporary design elements. The total sum of design evaluation is at the highest level $\bar{x}=4.32$, S.D.=0.51, the highest level of inheritance of traditional culture and design innovation $\bar{x}=4.63$, S.D.=0.47, the highest level of technical and experimental $\bar{x}=4.75$, S.D.=0.25, the maximum level of visual aesthetics and cultural connotation expression $\bar{x}=3.63$, S.D.=0.67, market adaptability and audience acceptance $\bar{x}=4.25$, S.D.=0.63.

Experts praised the work for inheriting traditional glass art while effectively combining design elements of water droplets and waves, which embody the softness and power of "water" in traditional Chinese culture and create a unique artistic language. The work innovates in the abstract expression of water, adding a sense of modernity while maintaining fluidity. Some experts suggest exploring deeper connections between water and traditional culture to enhance the cultural depth of future works. Technically, the work combines casting and lighting techniques, balancing stability and fluidity, showcasing a dynamic visual aesthetic. Experts believe that these designs meet the modern market's demand for unique artworks, especially in the high-end market. It is recommended to emphasize cultural connotations and technological innovation in future promotions to enhance market appeal.

Discussion



This study further expands the research perspective of existing literature on the inheritance and innovation of glass art in Zibo City, Shandong Province, China. Even if innovation is proposed, there is no definite direction for its development, as emphasized by Zhao Yiping (2020) in his research, the importance of inheriting and protecting traditional blowing and lighting techniques. However, this study not only focuses on the protection of traditional crafts but also further explores how contemporary art elements can effectively combine with traditional cultural connotations to create glass works (Wohl, 2021), filling the research gap in the combination of contemporary innovative design and traditional crafts. For example, compared to Zhao Han's (2023) research on traditional Chinese cultural elements and contemporary sculpture, this study provides more practical and innovative methods through field research and practical works.

In addition, domestic research on Zibo glass art focuses on historical review and cultural value analysis. This study further introduces contemporary design concepts, combines tradition with modernity, and provides a practical basis for the innovation of glass art. Similar to Wang Yundian's (2018) research, this study also emphasizes the combination of technology and art. However, in terms of market adaptability and audience acceptance, this study focuses more on practical research and proposes specific innovative methods that combine market demand (Boorsma, 2024). Similar to Han Xi's (2018) viewpoint, the development process of modern glass art is essentially a process of integration and enhancement of art, culture, and industry. Therefore, this study not only enriches the theoretical research on the inheritance and innovation of glass art but also provides new insights for practical operation.

Conclusion

To study the integration and innovation of Chinese traditional art and contemporary craft concepts, this paper studies the integration and innovation of Chinese traditional art and contemporary craft through the design and production of Zibo contemporary glass artworks. By analyzing the inheritance value and technical characteristics of traditional glass art, and combining modern geometric art language and design elements, two sets of works have been created that not only protect traditional cultural heritage but also possess modern aesthetics.

To evaluate the innovative design of contemporary glass art in Zibo, this paper systematically evaluates and analyzes the works by using four categories of indicators of Likert scale (traditional culture inheritance and design innovation, technology and experimentation, visual aesthetics and cultural expression, market adaptability and audience acceptance) through expert evaluation. Research has shown that innovative design not only enhances the artistic expression of works but also strengthens their market competitiveness, and has been highly recognized by experts and the public.

Recommendation

Glass art practitioners need to continuously investigate consumers to identify artistic value and accurately position the market, promoting sustainable development. Traditional glass art should meet modern needs through the exploration of technology and display, achieving the integration of tradition and innovation, while interdisciplinary collaboration can create diverse works. In education, curriculum design should combine traditional techniques with modern concepts, emphasize theory and practice, and enhance students' understanding of the history of glass art. The government should promote traditional art through financial support, create professional industrial parks, enhance technical exchanges and economic growth, and at the same time, enhance public awareness of Zibo glass art and protect traditional skills.

References

- Boorsma, M. (2024). A strategic logic for arts marketing. In *A Reader on Audience Development and Cultural Policy* (pp. 13-32). Routledge.
- Carroll, N. (2021). The philosophy of art history, dance, and the 1960s. In *Arthur Danto's Philosophy of Art: Essays* (pp. 167-181). Brill.
- Chomsky, N. (2021). Minimalism: Where are we now, and where can we hope to go? *Gengo Kenkyu (Journal of the Linguistic Society of Japan)*, 160, 1-41.
- Edgerton, S. Y. (2020). *The heritage of Giotto's geometry: Art and science on the eve of the scientific revolution*. Cornell University Press.
- Han, X. (2018). Modern glass art and glass culture: Industrial development research. *Journal of the National Academy of Art*, China Academic Journal Electronic Publishing House, 131.





- Hou, M. (2024). *Contemporary design based on the aesthetic spirit of Chinese traditional aesthetics: Constructing aesthetic paradigms*. China National Knowledge Infrastructure.
- Jung, J. E. (2020). *Eloquent bodies: Movement, expression, and the human figure in Gothic sculpture*. Yale University Press.
- Lee, T. H. (2019). Education in traditional China. In *The Routledge Encyclopedia of Traditional Chinese Culture* (pp. 238-253). Routledge.
- Li, F. (2022). Reflection and problem analysis of contemporary Chinese glass art. *Shanghai Arts and Crafts*. China Academic Journal Electronic Publishing House.
- Li, F. (2022). Several issues in the reflection of Chinese contemporary glass art. *Shanghai Art & Crafts*. China Academic Journal Electronic Publishing House.
- Li, J. (2020). Material, crafts, and model: Boshan glass as a carrier of culture and emotion. *Zishi*, 10, 26-31. China Academic Journal Electronic Publishing House.
- Li, J., & Chen, X. (2020). Research on the problems and countermeasures of the development of the Zibo Boshan glass industry. *Rural Economy and Science-Technology*, 11, 1-10.
- Li, Y. P. (2022). The studio glass movement: Boundary shifting and identity dilemma. *Journal of the China Academy of Art*, 4, 259-261. China Academic Journal Electronic Publishing House.
- Moszynska, A. (2020). *Abstract Art* (2nd ed.). Thames & Hudson.
- Quan, Y. (2021). Discussion on the application of Chinese traditional cultural elements in modern environmental art design. *Scientific and Social Research*, 3(4), 149-151.
- Rodríguez-Labajos, B. (2022). Artistic activism promotes three major forms of sustainability transformation. *Current Opinion in Environmental Sustainability*, 57, 101199.
- Silvia, P. J. (2005). Emotional responses to art: From collation and arousal to cognition and emotion. *Review of General Psychology*, 9(4), 342-357.
- Sternberg, R. J. (2006). The nature of creativity. *Creativity Research Journal*.
- Sun, Z. (2019). Inheriting the past and embracing the new: The ink language in modern glass art. *Hundred Schools in Arts*, (S1), 53. China Academic Journal Electronic Publishing House.
- Wang, Y. (2020). Discuss the 'utensil' in the evolution of the 'empty' in glass decorative art. *Culture and Design*, China Academic Journal Electronic Publishing House, 53, 1-10.
- Wohl, H. (2021). *Bound by creativity: How contemporary art is created and judged*. University of Chicago Press.
- Yang, L. (2012). *Research on the folk craft culture of Zibo and its contemporary industrialization*. Shandong University.
- Yi, C. (2022). The current state and reflections on modern glass sculpture in China. *Popular Literature and Art*. China Academic Journal Electronic Publishing House.
- Yue, Z. (2013). A brief discussion on the current status and breakthroughs of Zibo glass art. *Literary Life: Mid-Monthly Journal*, 9, 30-40.
- Yusa, I. M. M., Ardhana, I. K., Putra, I. N. D., & Pujaastawa, I. B. G. (2023). Emotional design: A review of theoretical foundations, methodologies, and applications. *Journal of Aesthetics, Design, and Art Management*, 3(1), 1-14.
- Zeng, Q. B. (2016). *On the integration of sculpture and painting in traditional Chinese sculpture*. China Academy of Art.
- Zhang, H., Xu, H., Tian, X., Jiang, J., & Ma, J. (2021). Image fusion meets deep learning: A survey and perspective. *Information Fusion*, 76, 323-336.
- Zhao, H. (2008). *Study on the historical development of ancient glass in the Zibo area*. China Academy of Art.
- Zhao, H. (2023). The application of traditional cultural elements in contemporary sculpture art. *China Art Newspaper*, 2023, June 7, p. 007. China Academic Journal Electronic Publishing House.
- Zhao, Y. P. (2020). Art inheritors in Zibo: Inheritance and innovation of Zibo ceramic and glass art. *Zishi*, China Academic Journal Electronic Publishing House.

