

A Semiotic Study of Duan Inkstones as Tourist Souvenirs from the Tourists' Perspectives

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ABSTRACT

This paper examines Duan inkstones, a traditional cultural artifact from Guangdong, China, as tourist souvenirs through a semiotic lens. By analyzing the symbolic meanings, cultural connotations, and aesthetic expressions embedded in Duan inkstones, the study explores how tourists perceive and interpret these artifacts in the context of cultural tourism. Drawing on semiotic theory, the paper identifies three layers of meaning in Duan inkstones: material symbolism, cultural symbolism, and experiential symbolism. This study holds significant academic value and practical implications. Through interviews with tourists and analysis of purchasing behaviors, the study reveals that tourists value Duan inkstones not only for their artistic and historical significance but also for their role in constructing cultural identity and facilitating cross-cultural communication. The findings suggest that Duan inkstones serve as semiotic bridges connecting tourists to Chinese culture, offering insights into the dynamics of cultural consumption in tourism. It constructs a theoretical model to explore pathways for their visual transformation and material reconstruction, providing a methodological approach for differentiated innovation in souvenir design, and practically enhancing the cultural connotations and aesthetic qualities of such souvenirs and thereby strengthen their market competitiveness.

Keywords: *Cultural signs, Cultural tourism, Duan inkstones, Semiotic study, Tourist souvenirs, Souvenir design.*

1. INTRODUCTION

Tourism has increasingly become a platform for cultural exchange, where tourists seek authentic experiences that connect them to local traditions and histories. Souvenirs, as tangible representations of these experiences, play a crucial role in shaping tourists' memories and perceptions of a destination.

Among various cultural artifacts, Duan inkstones—a type of traditional Chinese inkstone originating from Duanzhou (now Zhaoqing), Guangdong Province—have gained popularity as high-value souvenirs. Known for their exquisite craftsmanship, historical significance, and cultural symbolism, Duan inkstones embody the artistic and philosophical heritage of Chinese literacy culture.

As tourist souvenirs, Duan inkstones are based on the long history and unique craftsmanship of the products in Zhaoqing, highlighting the cultural elements and showcasing the cultural connotation. The design of cultural tourism souvenirs aims to establish an effective perceptual connection between the products and daily life, the dual values of material and spirit, the specific cultural phenomena and values.

Compared with ordinary cultural and creative souvenirs, Duan inkstone tourist souvenirs, in addition to showcasing Zhaoqing's regional culture, preserving travel memories, and having practical functions (such as being used for writing and painting), also have unique characteristics such as inheriting traditional culture, promoting the spirit of craftsmanship, and stimulating cultural pride. Designers need to extract the core elements of Duan inkstone culture, such as the texture characteristics of Duan stones, traditional carved patterns (such as cloud-dragon patterns and flower-bird patterns), and the production processes, to create cultural products with certain symbolic or experiential forms and endow them with special cultural attributes and implications. For example, Duan inkstones can be made into exquisite decorative pieces with Zhaoqing's characteristic landscape patterns carved on them, which are not only ornamental but also allow tourists to feel Zhaoqing's natural scenery. Or they can be

designed into compact and practical stationery sets, enabling tourists to experience the unique charm of Duan inkstones in daily use. At the same time, it is necessary to balance the entertainment and educational aspects of the products, conveying the profound connotations of Duan inkstone culture while meeting tourists' aesthetic and entertainment needs.

From a semiotic perspective, artifacts like Duan inkstones are not merely objects but carriers of multiple layers of meaning. Symbolism in cultural products often reflects collective memories, social values, and aesthetic preferences, which tourists interpret through their cultural backgrounds and personal experiences.

2. LITERATURE REVIEW

2.1. Semiotic Theory and Cultural Artifacts

Semiotics, the study of signs and symbols, provides a framework for analyzing how meaning is constructed and communicated through objects, behaviors, and texts. According to Ferdinand de Saussure, a sign consists of a signifier (the physical form) and a signified (the concept it represents). In cultural contexts, artifacts often function as polysemic signs, carrying multiple layers of meaning that vary across cultures and individuals (Saussure, 1916). Cultural signs take culture as a system of signs or symbols to analyze and uncover the ideological structures deeply embedded in the human psyche. They represent the quintessence, both material and spiritual, of a particular ethnic group or geographical region, possessing historical and communicative attributes. Their defining characteristic lies in the transformation of cultural collective memory and individual consciousness centered around texts, enabling the continuation and development of ethnic cultures (Lv, 2023). From the perspective of semiotics, Lotman introduced the concept of cultural semiotics, prompting a shift in humanities scholars' perspectives on sign research from a previously singular, static examination to a contemporary, dynamic, and multifaceted creation in practice. He posited that the efficacy of cultural signs is exerted through specific sign continuum, where signs at different levels operate harmoniously within a unified meaning framework to jointly preserve and transmit cultural memory (Kang, 2018). Based on prior research, Morris proposed a fundamental framework of syntaxics, semantics, and pragmatics, investigating sign issues from the perspectives of form, interpretation, and use, respectively, thereby providing methodological support for cultural transformation in the field of art and artifact (Zhao, 2023).

Regardless of the form or manner in which signs are presented, they are capable of conveying specific core concepts or profound connotations. The function of signs lies in their ability to serve as carriers of meaning, transmitting information and ideas from one medium to another (Guo, 2011). This cultural association constitutes the symbolic significance of cultural signs.

Cultural signs possess the potential to convey meaning. Hunter (2012) employed semiotic methods to explore the cultural characteristics embedded in tourist souvenirs, particularly how they transform and transmit meaning through the process of totemization, demonstrating how material signs can carry and convey abstract cultural values. The symbolic significance of cultural signs is primarily manifested at the level of interpretants, which encompass the intrinsic meaning, implications, and value connotations of the sign within a specific cultural context. This interpretant is influenced by factors such as the cultural system, cultural tradition, and group experiences of the sign users, thereby acquiring cultural specificity and symbolic metaphority (Cheng & Zeng, 2023).

Wang (2018) proposed the viewpoint of applying cultural semiotics to the design of ethnic handicrafts, emphasizing the significance of regional cultural signs. Based on cultural semiotic theory, Ma (2024) directed his research perspective toward the field of tourist souvenir design. Their studies are dedicated to exploring how to organically integrate symbolic elements with cultural connotations into souvenir design, so as to enhance the cultural connotations and recognizability of souvenir products.

Victor Turner expanded semiotic analysis to rituals and signs, emphasizing their role in social cohesion and identity formation. He argued that signs derive their power from their ability to evoke shared emotions and values, acting as "social glue" (Turner, 1967). In tourism, souvenirs serve similar functions, embodying the essence of a destination and facilitating emotional connections between tourists and local cultures (Swanson & Timothy, 2012).

2.2. Souvenirs as Cultural Signs

Cultural signs can symbolically express regional characteristics. The theory of symbolic situational semantics posits that the meaning of signs can only be fully interpreted in conjunction with a specific context. Cultural signs emerge within specific socio-cultural contexts and are imbued with rich regional cultural heritage. In the design process, the conveyance of symbolic elements is primarily manifested at three levels: visual image signs, physical form signs, and traditional life ritual signs.

Visual image signs belong to the category of planar visual signs, while physical form signs create culturally rich physical and tangible images by utilizing the shape, structure, texture, etc., of physical entities. Traditional life rituals are rooted in the living customs and religious beliefs of ethnic groups. Through these three primary channels, designers can ingeniously integrate cultural sign elements into their works, endowing design creations with a unique cultural identity.

In recent years, research on cultural signs has become a hot issue in design, tourism, semiotics and the fields concerned. [Mo \(2023\)](#) argues that in design, the translation of cultural signs, along with the expression and interpretation of products, should align with the external environment. It is essential to establish a clear and effective connection between the restored cultural context (artistic conception) and real-life scenarios. [Xing \(2022\)](#) takes the symbolic meanings of cultural signs as an entry point and, using Macau as a case study, employs symbolic and metaphorical approaches to construct a design framework for tourist souvenirs. [Wang and Lan \(2023\)](#) analyze cultural signs in Han Dynasty architecture, exploring their syntactic, semantic, and pragmatic features from both material and spiritual perspectives. They propose design strategies for cultural and creative products, including perceptual abstraction of forms, direct quotation of content, and functional serialization. [Zhang and Huang \(2023\)](#) from the perspective of design semiotics, propose a design process for red cultural and tourism products that follows the sequence of "pragmatic clarity - semantic interpretation - contextual optimization - syntactic refinement" ([Zhang & Huang, 2023](#)). This approach systematically considers users, design elements, environment, and carriers, as well as their interactions in the design of tourism products. In this sense, tourist souvenirs can be regarded as products of the creative process involving cultural signs. Designers can interpret and disseminate cultural signs based on historical contexts, social formations, and individual needs, establishing emotional connections between cultural signs and target users by grasping their core essence through perceivable factors.

[Gao, Yang, and Liu \(2010\)](#) argue that the symbolic nature of tourist souvenirs is not merely manifested in their material forms but also delves into deeper cultural structures. Specifically, they encompass the artistic-cultural dimension, the institutional-cultural dimension, and the value-conceptual dimension. This indicates that the design and significance of tourist souvenirs are not solely determined by their physical forms but also incorporate more abstract spiritual and cultural dimensions. [Jules-Rosette \(2007\)](#) posits in her research that tourist souvenirs are not merely commodities; they carry profound cultural and social meanings. The design, production, and marketing of these souvenirs are closely intertwined with social contexts. They not only serve as embodiments of "symbolic signs" and "media" but also play pivotal roles in cultural dissemination and influencing multiple facets of society. The unique advantages conferred by the cultural attributes of tourist souvenirs as a cultural carrier have consistently been a focal point of academic attention.

The relationship between tourist souvenir design and cultural inheritance has increasingly drawn the attention of scholars. [Ju and Tao \(2015\)](#) propose that tourist souvenirs should possess the following key characteristics: distinct regional features, commemorative significance, rich cultural connotations, ease of long-term preservation, and certain commercial value. They point out that although some local specialties can effectively reflect regional characteristics, they face certain challenges in terms of long-term preservation.

Souvenirs are more than mementos; they are cultural texts that tourists "read" and interpret based on their prior knowledge and expectations. Research has shown that tourists select souvenirs not only for their aesthetic appeal but also for their symbolic value, such as authenticity, uniqueness, and cultural relevance ([Wang & Zhao, 2016](#)). For example, in the context of Chinese cultural tourism, artifacts like jade carvings, silk products, and calligraphy tools are often chosen for their perceived connection to traditional values and craftsmanship ([Zhang & Xu, 2018](#)).

Duan inkstones, as a specialized form of cultural artifact, offer a rich field for semiotic analysis. Their material properties (stone texture, color), craftsmanship (carving techniques), and historical associations (literati culture) all contribute to their symbolic complexity. Understanding how tourists navigate these layers of meaning can provide insights into the dynamics of cultural consumption in tourism.

2.3. Duan Inkstones: Historical and Cultural Context

Duan inkstones have a history spanning over 1,300 years, dating back to the Tang Dynasty (618–907 AD). Renowned for their durability, fine texture, and ability to retain moisture, they were highly prized by scholars and calligraphers throughout imperial China. The inkstones are carved from Duan stone, a type of mudstone found in the Xijiang River valley, and are often adorned with intricate designs depicting landscapes, mythical creatures, or historical scenes (Li, 2019).

The culture of Duan inkstones is closely linked to the historical development of Zhaoqing, witnessing the political, economic, and cultural changes of Zhaoqing in different historical periods. It is an important spiritual sign of Zhaoqing's regional culture. In recent years, Zhaoqing has actively promoted the development of its cultural tourism industry and deeply explored local cultural resources. It has taken the culture of Duan inkstones as an important cultural calling card to build. Through measures such as holding Duan Inkstone Culture Festivals, establishing Duan Inkstone Cultural Villages, and Duan Inkstone Museums, it has vigorously promoted the culture of Duan inkstones, enhancing their popularity and influence. Duan inkstones, as tourist souvenirs, have emerged as an important carrier for tourists to understand Zhaoqing's regional culture and take away memories of Zhaoqing, making significant contributions to Zhaoqing's economic development and cultural dissemination.

Beyond their practical function, Duan inkstones symbolize scholarly achievement, artistic refinement, and the pursuit of knowledge. They are deeply embedded in Chinese literati culture, representing the ideal of the "scholar-official" (士大夫) who balanced administrative duties with artistic and philosophical pursuits (Clunas, 1991). Today, Duan inkstones are recognized as intangible cultural heritage by UNESCO, highlighting their global cultural significance.

3. METHODOLOGY

This study adopts a qualitative approach, combining semiotic analysis with empirical data from tourist interviews. The semiotic framework allows for a systematic examination of the symbolic meanings attributed to Duan inkstones, while the interviews provide insights into tourists' subjective interpretations and motivations.

Data were collected through semi-structured interviews with 30 tourists who purchased Duan inkstones as souvenirs during their visit to Zhaoqing, Guangdong Province. The participants represented diverse ages (25–65) and occupational backgrounds (students, professionals, retirees). Key questions included:

What attracted you to purchase a Duan inkstone as a souvenir?

How do you perceive the cultural significance of Duan inkstones?

What meanings or associations do you attribute to the inkstone?

How does the inkstone relate to your overall travel experience?

In addition to interviews, participant observation was conducted at souvenir shops in Zhaoqing and Guangzhou, where the researcher noted the display strategies, pricing, and tourist interactions with the products.

Interviews were transcribed verbatim and analyzed using thematic coding. Initial codes were derived from the semiotic framework (material, cultural, experiential signs), and additional codes emerged inductively from the data. The analysis focused on identifying recurring themes, contrasts, and nuances in tourists' perceptions.

4. SEMIOTIC ANALYSIS OF DUAN INKSTONES

In the system of cultural semiosphere, cultural signs that are closer to the central area exhibit greater organization and abstraction, while those nearer to the periphery demonstrate more looseness and concreteness. The "boundary" serves as a distinguishing marker from other cultural semiospheres and undergoes integration or transformation with other cultural semiospheres over time and space (Liao, Yang, & Wang, 2023). Drawing on the fundamental framework of semiotics in design applications—comprising syntactics (signifier), semantics (signification), and pragmatics (signified)—the "periphery" encompasses both planar visual signs and three-dimensional spatial signs, all falling under the category of "signifier" manifestations that directly stimulate sensory experiences. The "intermedia" includes dynamic and evolving elements such as language, actions, and stories, which belong to the realm of "signification" and require factors like characters, behaviors, and settings to form comprehensive experiences. The "center" represents the deep spiritual texts that have been accumulated over time, including customs, beliefs, and cultural identities, encompassing both spirit and emotion, and necessitating

profound cognitive engagement from users to evoke insights. These three aspects are interconnected and collectively influence the evolution of the cultural semiosphere.

By integrating the cultural characteristics of signs, designers can view the design of Duan inkstones as tourist souvenirs as a creative process of cultural symbolization, translating designs based on the physical environment, social forms, and individual needs. The three hierarchical manifestations of the cultural semiosphere, ranging from the periphery to the center, correspond to the domains of signifier, signification, and signified. Utilizing cultural symbolic forms such as planarity, three-dimensionality, functionality, actions, and meanings, a design framework for Duan inkstone tourist souvenirs can be constructed (Yang & Gong, 2024).

4.1. Material Symbolism: The Aesthetics of Stone

The material symbolic level of Duan inkstones is manifested in the shaping of sensory experiences dominated by semiotic syntactics. The syntactics corresponds to the aggregate of signs that establish a representational connection with cultural objects. Positioned on the periphery of the semiosphere, it is readily perceivable and identifiable, generally corresponding to material cultural factors. During the design process, the similarity between signs and memory impressions can be utilized to trigger intuitive cognitive responses, endowing them with distinct cultural indicative and linking functions (Yu, 2020). The syntactics encompasses both planar and three-dimensional signs. Planar signs include colors, as well as shapes and patterns composed of points, lines, and planes, while three-dimensional signs involve forms in three-dimensional space, organizational spatial structures, and physical materials.

The cultural symbolic value of Duan inkstones extends beyond the mere inheritance of traditional meanings; it represents an innovative concept that combines deep-rooted core values with emerging trends. Based on the current status of the tourism market, Duan inkstones, as tourism souvenirs, can be coupled with folk culture, rural tourism, ecological experiences, and educational study tours. In designs dominated by the syntactics, designers need to explore youthful approaches to cultural expression, integrating mainstream value dissemination with public aesthetic demands in artistic creations. They should adhere to market-oriented operational logic and construct an innovative model that synergizes social and commercial values. For instance, combining tourism souvenirs with ecological tourism resources can create a fusion experience of "Duan inkstones + regional culture," enhancing the local characteristics of cultural tourism products and breaking away from the traditional forms of cultural products. Another example is the "Duan inkstones + Internet" model, which empowers tourism souvenirs by developing interactive, entertaining, and educational experiential products. This approach integrates historical narratives and revolutionary spirits with modern technological scenarios, overcoming the limitations of traditional displays and more readily evoking emotional resonance among users.

In this sense, the material properties of Duan inkstones—their color, texture, and weight—serve as the first layer of symbolic meaning. Tourists often described the inkstones as "beautiful," "unique," and "natural," emphasizing their appreciation for the raw material. As what a tourist noted:

"The greenish-purple hue of the stone is so striking. It reminds me of traditional Japanese inkstones, but this one feels more... organic, like it's connected to the earth."

This perception aligns with the semiotic concept of the "indexical sign," where the material properties of the object (e.g., color, texture) directly index its origin and authenticity (Peirce, 1931). The natural variations in Duan stone, such as veining patterns and color gradients, are seen as markers of genuineness, distinguishing them from mass-produced replicas.

4.2. Cultural Symbolism: Literati Heritage and Artistic Refinement

Semiotic pragmatics represents the process of operation and dynamic change within a cultural context. It primarily operates at the interactive level, influencing the meaning reconstruction of other signs and cultures in a fluid manner. This encompasses individual speech and behavior, events driven by collective will, or updates and changes in consciousness within a specific timeframe. In the realm of tourism souvenirs, the translation of cultural signs dominated by pragmatism primarily revolves around product functionality and human-computer interaction. It involves matching the usage environment with the cultural context to establish a dual resonance between user actions and specific cultural connotations. The situational construction of tourism souvenirs forms a multi-faceted

circular system comprising "users - objects - behaviors - environment," where user interactions with the product yield immediate or sustained feedback, establishing a clear and rational interaction mechanism.

Situational construction led by pragmatics can immerse actual users in the roles of characters within Duan inkstone stories. By transforming the characteristics of objects or locations within these stories into perceivable cultural signs in product representations, it links behaviors within the syntactics with user actions, or connects the functional utility of products with meanings within the cultural semiosphere. This seamlessly integrates the transmission of cultural information into users' individual behaviors. Therefore, designers need to establish a perceptual experience link between the cultural context of Duan inkstones and everyday life environments. Through an "interpretive" approach, they construct an information field that guides users to personally participate in and experience the history of Duan inkstones, thereby exerting an educational influence and inspiring a sense of value identification among users.

The cultural symbolism of Duan inkstones is rooted in their historical association with Chinese literati culture. Many tourists recognized the inkstones as signs of scholarly achievement and artistic sophistication. A European art historian commented:

"Owning a Duan inkstone is like owning a piece of Chinese intellectual history. It's not just an object; it's a connection to the scholars who used these to write poetry and paint centuries ago."

This reflects the semiotic function of the inkstone as a "cultural icon" (Barthes, 1957) where the object represents broader cultural values and ideals. The carvings on the inkstones, often depicting landscapes, bamboo, or pine trees, further reinforce these associations, as these motifs are traditional signs of resilience, longevity, and moral integrity in Chinese art.

4.3. Experiential Symbolism: Authenticity and Memory-Making

Design approaches dominated by syntactics can be categorized into two pathways: shaping intuitive experiences and intertextual experiences. After deeply exploring the expressive forms and spiritual connotations of Duan inkstone souvenirs, designers refine prototypical features of cultural signs centered around them, forming memory anchors in users' experiential cognition to meet users' sensory-dominated perceptual experiences with cultural and creative products. Intuitive experiences represent users' reactions upon encountering the product's appearance, with the primary design direction being to establish explicit guidance during the process of cultural translation, focusing mainly on planar signs such as shapes, colors, and patterns (see the elaboration of the material symbolism of Duan inkstones in 4.1). Additionally, in design, typical and recognizable cultural signs with local characteristics can be selected from Duan inkstone souvenirs for the extraction of prototypical features. By shaping direct and explicit sensory experiences centered around users' instinctual cognitive levels, designers can evoke users' affinity for revolutionary history and the regional identity of Duanzhou. Shaping intertextual experiences, on the other hand, involves paying attention to physical factors such as the three-dimensional structure and materials within the cultural context of Duan inkstones. By combining cultural signs to explore the connotations and extensions of design objectives, designers employ methods such as concrete interpretation, deconstruction and reorganization, fusion and splicing, and abstract simplification to integrate these elements into a visual network that allows for associative analysis. This, in turn, creates a fluid emotional field and metaphorical intentions within the usage environment.

For many tourists, purchasing a Duan inkstone is less about acquiring an object and more about creating a meaningful travel experience. The inkstone serves as a "symbolic anchor" (Cohen, 1988) that ties the tourist's memories to the destination. An American student tourist shared.

"I bought this inkstone for my dad because he loves calligraphy. Every time he uses it, he'll think of my trip to China. It's a way to share my experience with him."

This highlights the semiotic role of the inkstone as a "memorial sign" (Urry, 2002), where the object becomes a vessel for storing and recalling emotional and sensory experiences. The act of selecting, bargaining for, and carrying the inkstone home also contributes to its experiential symbolism, as these rituals enhance the tourist's sense of involvement and authenticity.

5. DISCUSSION

Cultural signs, as markers that carry specific meanings and connotations, continuously drive the renewal of human cognition and thinking, the transmission of information, and the generation of meaning through their explicit symbolic forms and intrinsic operational mechanisms (Yu, 2020). Each cultural sign is like a key that can unlock the door to people's cognitive understanding of a specific culture, transforming abstract cultural concepts into intuitive, easily comprehensible, and disseminable elements.

5.1. The Semiotical Significance of Duan Inkstone as a Tourist Souvenir

Designing tourism souvenirs with Duan inkstones as a cultural sign is conducive to delving deeply into the intrinsic value behind Duan inkstone culture. The refined literary tastes, craftsmanship spirit, and regional cultural characteristics embodied in Duan inkstones can be presented to tourists in a more vivid and intuitive manner through the medium of tourism souvenirs. This allows tourists to experience the charm and profoundness of traditional culture while appreciating and using these souvenirs. Meanwhile, this design approach broadens the diverse channels for the dissemination of Duan inkstone culture. Traditional methods of spreading Duan inkstone culture may be confined to the circles of literati or specific cultural venues. However, as tourism souvenirs, Duan inkstone culture can travel to a wider range of regions along with tourists' footprints, reaching people of different levels and backgrounds, thereby achieving extensive cultural dissemination and exchange.

5.1.1. Tourist Motivation and Symbolic Consumption

The findings suggest that tourists' motivation to purchase Duan inkstones is driven by a combination of aesthetic appreciation, cultural curiosity, and emotional connection. Unlike utilitarian souvenirs (e.g., keychains, magnets), Duan inkstones are chosen for their symbolic capital—the ability to convey cultural knowledge, social status, and personal identity (Bourdieu, 1984). This aligns with the concept of "symbolic consumption," where consumers derive value from the meanings and associations attached to products (Belk, 1988).

5.1.2. Cultural Identity and Cross-Cultural Communication

Duan inkstones also function as tools for cross-cultural communication, allowing tourists to engage with Chinese culture on a deeper level. For non-Chinese tourists, the inkstone represents an entry point into understanding Confucian values, artistic traditions, and historical narratives. Conversely, for Chinese tourists, purchasing a Duan inkstone can be an act of cultural reaffirmation, a way to reconnect with their heritage. This dual function underscores the inkstone's role as a "cultural mediator" (MacCannell, 1976) facilitating dialogue between different cultural worlds.

5.1.3. Challenges and Opportunities in Cultural Tourism

While Duan inkstones offer significant cultural value, their commercialization poses challenges. The study found that some tourists expressed concerns about authenticity, particularly regarding machine-made replicas sold at tourist sites. This highlights the need for transparent labeling and education about the craftsmanship involved in producing genuine Duan inkstones. Additionally, souvenir shops could enhance the interpretive value of the inkstones by providing information about their history, symbolism, and care instructions.

5.2. Problems With Duan Inkstones as Tourist Souvenirs

5.2.1. Lack of In-Depth Exploration of Unique Regional Culture and Insufficient Distinctiveness

Some of the Duan inkstone tourist souvenirs currently on the market, although centered around Duan inkstones, fail to deeply explore the unique historical and cultural connotations of Zhaoqing as the birthplace of Duan inkstones in their designs. Some products simply reduce or deform the appearance of traditional Duan inkstones or just print patterns of Duan inkstones on ordinary souvenirs without organically combining Duan inkstone culture with Zhaoqing's regional characteristics, historical stories, and folk customs. For example, some Duan inkstone decorative pieces merely imitate the shapes of traditional Duan inkstones, lacking unique design creativity. Compared with inkstone souvenirs from other regions, they have no obvious differences, making it difficult for tourists to form a deep impression and unique memory, resulting in insufficient distinctiveness.

5.2.2. Prominent Homogenization in Design and Lack of Creativity and Expressiveness

In terms of the visual design of Duan inkstone tourist souvenirs, there is a relatively serious problem of homogenization. Many products adopt rather traditional and formulaic design methods, such as simple line drawings and flat pattern printing, lacking innovation and individuality. For example, some Duan inkstone bookmarks only have pictures of Duan inkstones and simple text descriptions printed on them, with a single design style and no innovation based on modern design concepts and aesthetic trends. In terms of product forms, they are also relatively monotonous, mostly in the form of traditional Duan inkstone shapes, lacking diverse applications and extensions of Duan inkstone cultural elements. This fails to provide consumers with fresh and unique cultural experiences and is difficult to attract tourists' attention and purchase intentions.

5.2.3. Failure To Fully Meet the Cognitive Needs of Tourists of Different Ages and Need for Optimization of Carrier Practicality

In terms of product carriers and functional designs, Duan inkstone tourist souvenirs do not fully consider the cognitive needs and consumption preferences of tourists of different age groups. Currently, most Duan inkstone tourist souvenirs on the market are decorative pieces and traditional stationery, such as Duan inkstone decorative ornaments and Duan inkstone seals, with relatively low practicality. The young tourist group focuses on personalization, fashion, and interactivity. They hope that tourist souvenirs can not only have cultural connotations but also meet their aesthetic needs and social sharing needs. For example, young tourists may be more inclined to creative and customizable Duan inkstone peripheral products, such as mobile phone cases and keychains with Duan inkstone elements. Middle-aged and elderly tourists pay more attention to the historical and cultural value and collection value of products. They hope that tourist souvenirs can carry more historical memories and cultural information, such as commemorative Duan inkstone sets and limited-edition Duan inkstone works. Children are curious and like products with fun and interactivity, such as small Duan inkstone handicrafts that they can participate in making and toys with stories about Duan inkstone culture. However, the existing Duan inkstone tourist souvenirs have not been subdivided and precisely positioned according to the needs of tourists of different age groups in product design and functional development, making it difficult for the products to meet the specific emotional needs of different tourists and limiting the dissemination and influence of Duan inkstone culture.

5.3. Implications For Duan Inkstone Production and Design

Grounded in semiotic theory, this research offers insights into the production and design of Duan inkstones as cultural artifacts and tourist souvenirs. By analyzing the symbolic meanings, cultural connotations, and aesthetic expressions embedded in Duan inkstones, the research identifies three layers of semiotic significance that collectively shape tourists' perceptions and motivations. These findings provide actionable guidance for enhancing the cultural value, aesthetic appeal, and market competitiveness of Duan inkstones.

In the production, producers should prioritize the selection of high-grade Duan stone, highlighting its unique veining patterns and color gradients as markers of authenticity. Clear labeling and certification can differentiate genuine products from mass-produced replicas, addressing tourists' concerns about authenticity (Swanson & Timothy, 2012). What's more, while preserving traditional stone carving, designers can explore hybrid materials (e.g., integrating Duan stone with bamboo or metal) to create modern, functional items like desk sets or calligraphy tools. This approach balances innovation with cultural heritage, appealing to younger tourists seeking contemporary aesthetics.

In the design, designers can incorporate storytelling elements into inkstone designs, such as engraving poems or historical anecdotes related to Zhaoqing's literati tradition. For example, an inkstone could feature a scene from the *Dream of the Red Chamber*, accompanied by a brief explanation of its cultural significance. This transforms the inkstone into a cultural icon (Barthes, 1957) enriching its symbolic value. Moreover, designers can develop themed inkstone series, such as "The Four Treasures of the Study" (inkstone, brush, paper, ink) or "Zhaoqing Landscapes," to cater to collectors and cultural enthusiasts. Each series could include a booklet explaining the historical and artistic context, enhancing educational value.

For many tourists, purchasing a Duan inkstone is an experiential act tied to memory-making and emotional connection. The inkstone serves as a memorial sign (Urry, 2002) storing and recalling travel experiences. Tourists value the rituals of selection, bargaining, and gifting, which enhance authenticity and involvement (Cohen, 1988).

In this regard, the production and design of Duan inkstones can strive for its authenticity and memory-taking. For example, in the marketing process, some interactive workshops can be set up. Offer hands-on workshops where tourists can carve simple patterns or personalize inkstones with their names or travel dates. This creates a participatory experience, deepening emotional attachment. Designers can design storytelling products. Design packaging that narrates the inkstone's journey from quarry to finished product, using visuals and text to highlight craftsmanship and cultural heritage. The design can even include a QR code linking to videos of artisans at work, transforming the purchase into a multisensory experience.

Strategic designs are good ways to eliminate the problems of homogenization and lack of innovation of the design. For example, age-specific designs can be employed. To cater to the preferences of young tourists, develop customizable inkstone accessories (e.g., phone cases, keychains) with minimalist designs or pop culture references. For middle-aged tourists, create limited-edition inkstone sets with certificates of authenticity, targeting collectors and cultural enthusiasts. For youngsters and children, design interactive toys or educational kits (e.g., inkstone-making kits) that introduce Duan inkstone culture through play.

6. CONCLUSION

Based on semiotic theory, this study explores how tourists perceive and assign meaning to Duan inkstones as souvenirs, focusing on the semiotic processes involved in their selection, interpretation, consumption, and the application value as well. The research employs a qualitative analysis method, utilizing a semiotic analytical paradigm to investigate the meanings and connotations of Duan inkstones. It constructs a theoretical model to explore pathways for their visual transformation and material reconstruction, providing a methodological approach for differentiated innovation in souvenir design, and practically enhancing the cultural connotations and aesthetic qualities of such souvenirs and thereby strengthen their market competitiveness. This study holds significant academic value and practical implications.

This semiotic study of Duan inkstones as tourist souvenirs reveals that these artifacts are rich in symbolic meanings that extend beyond their physical form. Tourists perceive Duan inkstones as carriers of material beauty, cultural heritage, and personal memories, making them highly valued souvenirs. The semiotic analysis highlights three layers of meaning—material, cultural, and experiential—that shape tourists' interpretations and motivations. Producers and designers can create inkstones that are not only aesthetically appealing but also culturally meaningful and market-competitive. Future innovations should focus on differentiating products through storytelling, interactivity, and age-specific designs, ensuring Duan inkstones remain relevant in the global cultural tourism landscape.

From a theoretical perspective, the study contributes to the understanding of how cultural artifacts function as signs in the context of tourism, offering a framework for analyzing other traditional crafts. Practically, the findings suggest that cultural tourism stakeholders should emphasize the symbolic dimensions of souvenirs in marketing and interpretation strategies. Future research could explore how digital technologies (e.g., augmented reality) might enhance the semiotic engagement of tourists with cultural artifacts like Duan inkstones.

In an era of globalized cultural exchange, Duan inkstones stand as testaments to the enduring power of traditional crafts to bridge cultures and create lasting connections. As this study demonstrates, their value lies not only in their artistic merit but also in their ability to tell stories—of history, identity, and the human desire to make meaning.

FUNDING

This research is supported by the Science and Technology Department of Zhaoqing University (Grant number: fw202501).

INSTITUTIONAL REVIEW BOARD STATEMENT

The Ethical Committee of the Science and Technology Department of Zhaoqing University, China has granted approval for this study on 13 January, 2025 (Ref. No. fw202501).

TRANSPARENCY

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

COMPETING INTERESTS

The author reports no competing financial or non-financial interests that could have appeared to influence the work reported in this paper.

ACKNOWLEDGEMENT

The author extends his gratitude to the Zhaoqing University for providing a permit to conduct this study. Further, the author is grateful to participants and respondents for sparing their precious time to provide information for this study.

ARTICLE HISTORY

Received: 6 November 2025/ Revised: 3 December 2025/ Accepted: 17 December 2025/ Published: 1 January 2026

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