

Analyzing promotion and development plan of Nanliujiang semiprecious gemstone in China using PESTLE analysis

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Abstract

Purpose: PESTLE is a macro-environmental analysis tool widely used for analysing various businesses. Nanliujiang semi-precious gemstones are an emerging type of gemstone with regional characteristics produced in the Nanliujiang region of China. This study uses PESTLE analysis and conducts interviews with four consumers focusing on the six aspects of PESTLE, in order to establish a foundation for a promotion and development plan for this gemstone.

Design/methodology/approach: This study poses pertinent interview questions to four jewellery buyers concerning the six PESTLE analysis factors. It reviews the available literature and conducts qualitative research interviews to examine these aspects.

Findings: The design, promotion, and ethical production of jewellery with Nanliujiang semi-precious gemstones are challenging. The findings of this study indicate that conducting targeted promotional programmes and exhibitions, as well as the incorporation of both innovation and tradition in design, can have a positive impact on its development and promotion.

Research limitations/implications: Given the small sample size, geographic restrictions, and respondent characteristics, this study provides limited insights into customer perceptions and behaviours towards Nanliujiang semi-precious gemstones.

Practical implications: Nanliujiang semi-precious gemstones have only recently entered the market. Through PESTLE analysis and interviews, this research offers a crucial reference for the marketing and promotion of these gemstones. Based on the responses from the interviewees, future promotion campaigns can be more focused and successful.

Originality/value: This study confirms the applicability of PESTLE analysis in the jewellery industry and offers crucial direction and guidance for the marketing of Nanliujiang semi-precious gemstones.

Keywords: Nanliujiang semi-precious gemstone, PESTLE analysis, opal, suet white jade

Introduction

Earth has an abundance of gemstone resources. The most well-known valuable stone is diamond, which is produced worldwide in countries such as China, South Africa, and Australia (Zubarev, 1989). In contrast, Australian opal and tanzanite, which is exclusively found in

Tanzania, are two examples of gemstones with regional characteristics, meaning that they can only be mined in specific locations. In 2016, the Guangxi Zhuang Autonomous Region in China introduced the Nanlijiang Jade Local Standards, gradually bringing attention to this semi-precious gemstone characterised by its specific origin. The commercial potential of Nanlijiang semi-precious gemstones has previously been reported, but these gemstones have not been highly publicised. This gemstone has rich coloration and delicate texture and has great artistic and collector value. The success of advertising for opal, a gemstone with regional characteristics, makes it very useful for analysis. By contrast, jade has great significance in Chinese culture. One of the most well-known gemstones in China, suet white jade—similar to Nanlijiang semi-precious gemstones—is only mined in a few locations and has its own regional characteristics. Additionally, the increasing popularity of this gemstone in China makes it suitable for Chinese national circumstances and is therefore of interest.

The aim of this study is to explore the market potential of Nanlijiang semi-precious gemstones and compare it with that of opals and suet white jade. Each of these gemstones has specific characteristics in terms of origin and cultural background, but their market appeal and performance may vary. By comparing their characteristics and employing PESTLE analysis as one of the analytical tools, along with interviewing representatives of target customers, this study aims to gain a deeper understanding of the similarities and differences between these gemstones in the market environment, identify potential market opportunities, and provide theoretical support for the subsequent development of corresponding marketing strategies.

Literature Review

PESTLE analysis

From the prototype model of PESTLE analysis known as ETPS (Aguilar, 2008), PESTLE has been developed over time by gradually adding additional elements. With a high degree of dynamism, it is a scenario analysis tool for business evaluation and one of the most popular models for assessing external business environments (Gupta, 2013). A study by Jarzabkowski et al. (2011) on the use of strategic management tools confirmed that PESTLE is the most frequently used by business practitioners, with 47% of respondents indicating that they have used this tool. It analyses the political, economic, social, and technological elements of the environment as a whole through environmental scanning. Managers may utilise PESTLE to identify the critical variables that may influence the development of a firm in the future (Mihailova, 2020).

Political

Political factors encompass the stability or instability of the political system of a country (Bai et al., 2023), the adaptability of national and political policies, and the overall consistency of government initiatives—all of which exert a direct influence on the financial dynamics of an industry (Aggarwal & Aggarwal, 2023). Additionally, they cover a diverse array of economic measures implemented by the government, each with direct implications for market access, taxation, trade policy, etc., including fiscal policies, trade policies, exchange rate policies, and the supply dynamics within commercial operations (Dunaievskyi, 2022; Vivek, 2022). They also include the government's intervention in the economy and supports or restrictions on the activities of a particular industry (Rámirez-Ambríz et al., 2023).

Economic

Typically, economic factors pertain to the exterior economic structure. While the external reach to a country can be confined, with expanding international commerce, national economies inevitably become more extensive, often worldwide (Johnson et al., 2020; Zou et al., 2023).

Shadman et al. (2021) made the case that economic aspects are the most crucial of the six elements. When economic factors are favourable, the risk to survival is low, and when the economic conditions are unfavourable, the industry is not attractive for investment, growth, and survival (Hwang et al., 2013; Gamage et al., 2020). These are factors that have an impact on the economic environment, such as inflation rates, exchange rates, and interest rates (Banerjee, 2021). Additionally, they include economic growth, unemployment, purchasing power, and other macroeconomic indicators that directly affect market demand and the profitability of enterprises (Hornungová & Klímková, 2011).

Sociological

Specifically, sociological aspects encompass the social background, including history, customs, traditional culture, religion, and an aggregation of social relations (Debnath et al., 2021; Guo & He, 2022). Moreover, demographic data is also provided, enabling more effective analysis of purchasing behaviour by examining the local population ratio and age distribution (Merkez & Yılmaz, 2021). Marmol (2015) emphasised that organisations or individuals may comprehend sociological aspects based on unique requirements and develop matching strategies accordingly.

Technological

Technological factors pertain to both mature and evolving technologies, development trends and prospects, and other entities produced during the process (Mahmoud, 2023). Guerrero et al. (2021) assumed that managers explore emerging technologies that may have favourable influence on their sector because technology is becoming an increasingly significant aspect of corporate and industry activity.

Legal

Local laws, ordinances, tenets, and principles are all categorised as legal aspects (Mazikana, 2023). Legal issues should be taken into account at every step because they have a significant impact on every industry and their consideration is one of the best approaches to safeguarding against them (Capobianco et al., 2021; Hudaya & Huda, 2021). It should be noted that legal aspects not only include local laws and regulations but also should be adjusted depending on the industry. For example, certain industries should take ethical principles into account (Morita et al., 2023; Chigangaidze et al., 2023).

Environmental

Environmental aspects concern the natural environment, such as greenhouse gases and ongoing negative effects on the environment, especially related to sustainability, is one of the most significant problems of the 21st century (Thi et al., 2021). The importance of the environment is increasing, and the majority of industries must take this factor into account (Dalirazar & Sabzi, 2020).

PESTLE Analysis of Gemstones with Specific Origin

The PESTLE analysis of gemstones with specific origins focuses on each element of PESTLE described above and covers opal and suet white jade.

Political

Political factors concerning opal

Opal was declared a "national gem" by the Australian government in an official statement in 1993 (Lollino et al., 2015), marking it as a symbol of the country (Australian National Symbols,

2022). Adopted by the Government of South Australia, the Opal Mining Act 1995 is a law that governs land declarations, permit applications, gem field leases, entry on land, and other aspects of the exploration and mining of opals and other gemstones in South Australia (Government of South Australia, 2013).

Political factors concerning suet white jade

GSB 16-3061-2013 National Hetian Jade Standard Material Sample was published by the Xinjiang government in 2013. It provides a legal basis for the identification of suet white jade (National Hetian Jade Standard Material Sample, 2013).

Economic

Historical situation

In 1869, the global economic recession adversely affected the opal market. Despite these challenges, full-scale commercial mining of valuable opals started in Australia after a new opal deposit was discovered in White Cliffs in New South Wales (Macdonald, 1904). The discovery of new opal deposits in 1897 saw the opal mining boom continue in White Cliffs, with the number of miners and prospectors totalling 3,500 (Eckert, 1997).

Present situation

After the 19th century, an opal deposit was discovered in Australia, leading to its opal production accounting for greater than 90% of the world's total production. Australian opals are produced in three main areas: Lightning Ridge, Quilpie, and Coober Pedy (Coil, 1995). According to Meakin (2011), these opals have been of significant local importance in addition to having strong sales among visitors (Shepherd, 1971). Through exhibits and other commercial endeavours, jewellers have been actively marketing opals—the national gemstone of Australia—both domestically and internationally in recent years (Shmahalo et al., 2023).

Sociological

Historical background

Originating from the late 16th century, the term 'opal' comes from the French opale or Latin opalus and is probably based on the Sanskrit úpala, meaning 'precious stone' as they had first been brought from India. (Simpson et al., 2000). The opal is also referred to as 'eye stone' (Eckert, 1997).

Artistic value

The ancient Roman natural historian Pliny wrote that an opal exhibits characteristics such as ruby fire, amethyst-like spots, emerald-like green sea and that it is colourful, integrated, and beautiful (Bostock & Riley et al., 2009). According to Caucia et al. (2012), opal has an extensive literary history and prevalence in the works of renowned authors, which ignites the interest of connoisseurs and artists.

Relevant social groups

Opal Association of Australia: Established in 2000, this organisation focuses on promoting the sale of Australian opals internationally. Its objective is to dominate the opal market by fostering connections between companies, promoting Australian opals, and engaging with the government (Opal Association of Australia, 2020).

IOJDAA: This non-profit organisation was established in 2000. In order to foster and highlight appealing opal jewellery design and creative usage worldwide, their biennial International Opal Jewellery Design Award (IOJDAA) was established in 2001. This is a part of the annual

Lightning Ridge Opal Festival, a globally recognised gem and jewellery exhibition (IOJDAA, n.d.). In contrast to the Opal Association of Australia, this association places more emphasis on opal-based design, such as by encouraging jewellery designers to incorporate original opal ore into their designs and develop novel cutting techniques for opals.

Social factors concerning suet white jade

Suet white jade exhibits a greasy sheen and is as white as lamb grease, hence its name. Its quality is the highest among nephrite stones, and its composition is mostly tremolite (Tang et al., 1998). Nephrite is also known as the "national stone" of China and is considered a treasure. It has had a significant influence on Chinese history and culture and is considered one of the essential representations of the Chinese moral character.

Nephrite is closely related to the emergence and advancement of Chinese civilisation, dating back to ancient times. According to a recent study by Chinese archaeologists, a Jade Age, which is unique to Chinese civilisation, existed between the Stone Age and the Bronze Age, between 4,000 and 6,000 years ago (Li, 2023). Nephrite was discovered by the inhabitants of the Kunlun Mountains as early as the Neolithic Age and it was revered as a treasure and symbol of friendship (Zhang et al., 2022). They exchanged it and transported it to the East and West, establishing the "Jade Road" as the oldest transportation route for nephrite in China, which served as a forerunner to the later Silk Road (Palo, 2013). Thus, nephrite is a sign of goodwill in Chinese cultures and plays a significant role in the cultural and economic interactions between the East and the West.

Technological

With the aid of cutting-edge technology, the origin of a given opal can be identified, such as Australia or Ethiopia, by comparing the variations in oxygen isotope composition (Wilson, 2009). Differences in origin can also be identified by observing the X-ray diffractometry spectra or the surface micro-morphology through scanning electron microscopy (Jones et al., 1964).

Legal

Sustainability

In Australia, opal is typically mined by excavating a shaft to a stratum that contains the mineral at a depth of at least 25 m (Keller, 2012). In Coober Pedy, which is a well-known opal mining location in South Australia, a mine was utilised to build an underground town that could accommodate residents (Gillies et al., 1981). In order to boost tourism, the town also used the mine tunnel to construct an underground hotel. Dennis Ingram, an opal businessman, used waste oil and powder from the opal quarry to construct a golf course, thus contributing to the sustainability of the community. Hence, Coober Pedy represents the development of an empty, unusable quarry into a sustainable luxury town (Condello, 2017).

Environmental

Geographical structure

Opal is associated with lava-derived hydrothermal fluids and volcanic regions (Sanders, 1975). Although numerous volcanoes are present worldwide (Gaillou et al., 2008), the majority of opals are found in Australia, but are still quite limited there (Darragh et al., 1967).

Hypothesis Development

Based on the above literature review of opal and suet white jade, the six factors for PESTLE analysis are as follows:

Political: Official statements by governments tend to impact industry regulation and support;

Economic: The global economic market environment is expected to have an impact on the industry, but specific economic measures may help maintain the stability of the market;

Sociological: The historical and cultural significance of gemstones in a country, as well as their value in the field of art, may influence the degree of recognition and esteem of the local community, as well as the role of relevant organisations in promoting and publicising them;

Technology: Advanced modern technological methods that enable a more accurate identification of the origin of gemstones may influence their authenticity and traceability in the market;

Legal: A healthy growth in the sector may be achieved by focusing on the sustainability of gemstones while adhering to ethical principles; and

Environmental: The specificity of the place of origin is expected to reflect characteristics unique to the gemstone.

Opal and suet white jade have demonstrated promising results across these six factors in PESTLE analysis. The subsequent hypotheses for Nanliujiang semi-precious gemstones are proposed as follows:

H1: The success of the promotion of Nanliujiang semi-precious gemstones in China may be influenced by relevant government policies. If a favourable policy environment exists, Nanliujiang semi-precious stones will be of more interest to consumers.

H2: The extent to which Nanliujiang semi-precious stones are successfully promoted in China may be related to economic measures. The successful promotion of Nanliujiang semi-precious stones will be facilitated if their marketing and promotional activities attract the attention of consumers.

H3: Relevant social groups for Nanliujiang Semi-precious Gemstones help to enhance its reputation and position in the market. Consumers of Nanliujiang Semi-Precious Gemstone may be interested in joining relevant social organisations, thus contributing to the brand image.

H4: The success of the Nanliujiang semi-precious stones promotion programme may be related to technological development and innovation. With the help of advanced modern technological methods, the uniqueness of Nanliujiang semi-precious stones will increase consumers' trust and desire to buy them.

H5: The success of the promotion programme may be influenced by the concept of environmental protection and sustainable development. Nanliujiang semi-precious stones can gain consumers' trust and support by focusing on environmentally friendly production and social responsibility in the promotion process, and by actively participating in local community building and environmental protection activities.

H6: The success of the promotion programme may be influenced by the specific nature of the origin of Nanliujiang semi-precious stones. If the Nanliujiang semi-precious stones are able to take full advantage of the specificity and exclusivity of their origin, they will attract the attention and affection of consumers.

The next step involves conducting a PESTLE analysis of Nanlijiang semi-precious gemstones to identify any deficiencies, followed by interviews based on the hypotheses.

Methods

Comparison

"Thinking without comparison is unthinkable" (Swanson, 1971). The comparative method is commonly employed in contemporary research (Ragin, 2014). Wilson (2009) concurred that comparison is a crucial and well-established research method with a mature and applicable history.

Similarities between Nanlijiang semi-precious gemstones and opal include:

- Specific origin: It is mainly mined in the Nanlijiang River basin of Bobai, Hepu, and Pubei districts and counties in Yulin, Beihai, and Qinzhou of the Guangxi Zhuang Autonomous Region;
- Gemological characteristics: Both belong to the quartz category;
- Appearance: Rich in colour.

Therefore, opal can be used as a reference for Nanlijiang semi-precious gemstones.

PESTLE analysis of Nanlijiang semi-precious gemstones

Political

In 2016, the Local Standards for Nanlijiang Jade in Guangxi Zhuang Autonomous Region were promulgated and implemented. It is a further refinement of national standards and details the grading colour, texture, transparency, and pattern, thus classifying by quality and identifying new semi-precious stones. In the Standardization Law of the People's Republic of China (2018), Chinese standards are categorised into national standards, industry standards, local standards (DB), and enterprise standards (Q). Local standards are approved and issued by local standardisation authorities or professional authorities (e.g., provincial, autonomous regions, and municipalities directly under the Central Government). Unified standards within a certain region can aid in the development of competitive advantages for the region, increase the competitiveness of local products, and align standards with local realities, which is beneficial for standard implementation.

Economic

Nanning, the capital of Guangxi, serves as the permanent host city of the ASEAN Expo (China-ASEAN Expo, 2023), thus strengthening commercial ties with Southeast Asian nations. The creation and growth of distinctive.

local economies. has been actively supported by all levels of government in China. Furthermore, Guangxi has an abundance of gems and jewels, so there is still great potential for growth and development in the jewellery sector.

Sociological

Historical backgrounds

The history and culture of Nanlijiang semi-precious gemstones date back to the Han Dynasty (202 BC to 220 AD). These semi-precious gemstones were abundant near the hamlet according to a local legend, which tells how a beautiful woman from a nearby village was chosen for the palace and elevated to the position of queen and a beautiful semi-precious stone, referred to as the "Jade of Queens," was created when a fairy's shawl fell into the river.

Relevant social groups

Enthusiasts have established associations, but they are few in number and they have not had a significant influence.

Cultural background

Jade not only has a long history in Chinese culture but also has a far-reaching impact, and it is closely related to the development of Chinese history, politics, culture, and art. It has influenced Chinese ideals and traditions across generations and on the works of numerous authors. The distinctive jade culture of China comprises the material and spiritual components of advanced jade production techniques, as well as the ideas, cultures, and belief systems associated with Chinese jade. As a result, it has developed into a significant branch of the treasure of Chinese culture. In the promotion of Nanliujiang semi-precious gemstones, leveraging the characteristics of Chinese customers' love for jade culture is crucial, necessitating increased publicity in this regard.

Technological

Nanliujiang semi-precious gemstones are primarily composed of chalcedony and agate. Consequently, they exhibit the basic properties of these minerals. They are consistent with the density and hardness ranges of chalcedony listed in the National Standard GB/T 16553-2017 Gems-Testing of the People's Republic of China. However, while the Mohs hardness of the identified chalcedony variety found thus far is typically 6.5–7 (Gems-Testing, 2017), certain Nanliujiang semi-precious gemstones exhibit hardness levels higher than the majority of chalcedony varieties (Nanliujiang Jade, 2016). Similar to suet white jade, they are one of the most exceptional varieties of gemstone.

Legal

There has been little research in Chinese literature on the topic of ethical jewellery, which is an area that has not received much attention in China. Only a few articles have focused on ethical business practices in the jewellery industry, mainly market normalisation and business integrity (Xie & Su, 2010; Zeng, 2003). No articles have specifically discussed the ethical nature of jewellery traceability, i.e., the sustainability of upstream production.

Data Collection

Qualitative research involves a small-scale, carefully selected sample of individuals, employing unstructured and open-ended survey designs. This study does not incorporate statistical significance as a requirement; it relies on the experience of the researchers. The relevant knowledge and technical skills of researchers, as well as sensitivity, enable them to effectively perceive the behaviour and motivation of the subjects, explore deep psychology, and theorise about their possible impact.

Meanwhile, quantitative research is a process of quantifying data for research and analysing them with statistics in order to draw conclusions (Wagner et al., 1968; Hartas, 2010).

According to the aforementioned analysis, consumers of Nanliujiang semi-precious gemstones are few in number. Moreover, the data of a large number of respondents were not of reference value. Therefore, the survey was conducted in the form of interviews.

Findings

The interview is structured in three parts. The first part is a brief survey on the backgrounds of interviewees, including gender, age, and income. In the second part, the questions are designed around each aspect of PESTLE analysis. The third part asks different questions relevant to the gender of the respondents.

A total of four buyers of Nanliujiang semi-precious gemstone were interviewed, with two female buyers and two male buyers. For the sake of privacy, they are referred to as Female A and Female B and as Male A and Male B, respectively.

Part I

Female A: Age 38, monthly income of approximately 5,000 yuan.

Female B: Age 27, monthly income of approximately 3,500 yuan.

Male A: Age 43, monthly income of approximately 7,000 yuan.

Male B: Age 55, annual income of approximately 1,000,000 yuan.

Part II

(1) Do you know the local standard for Nanliujiang jade from Guangxi? (Political)

The study chose the local standards for Nanliujiang semi-precious gemstones as the target of the interviews because it is the most representative characteristic of the political context this type of stone. This question addressed the political factors of PESTLE, encompassing policies developed or enacted by the government (Rastogi & Trivedi, 2016).

In response, Female A indicated that, because she works in a relevant industry and pays close attention to information related to gemstones, particularly local jewellery news, she is well-aware of the local standards for Nanliujiang jade from Guangxi. Another lady mentioned that she happened to acquire some jewellery incorporating these stones by accident and, despite her lack of understanding of the background of the gemstones, she believed in their high quality, owing to the existence of the relevant standard. Among the male interviewees, Male A mentioned that he was aware of the local standards for Nanliujiang jade from Guangxi, but he did not possess in-depth knowledge. The vendor had explained it to him when he bought it, so he assumed it might be one of the selling points of this type of gemstone. Lastly, Male B explained that he thought of jewellery purchases as investments and that he was drawn to the natural mineral patterns on the gemstones. He believed that this type of gemstone, with its specially created standards, might be more valuable for collection and appreciation and, as a result, he was curious to find out more about it.

In conclusion, local standards do affect consumers' inclinations to purchase a gemstone as it leads them to believe that the acquired gemstone is of high quality, with sellers occasionally employing them as a marketing tactic. Additionally, consumers' understanding of this gemstone increases with advancements in professional knowledge, and for those who are familiar with it, it could have some collector or artistic value.

(2) Would you like to participate in exhibitions about this semi-precious gemstone? (Economic)

In PESTLE analysis, a country's economic situation significantly influences the industry (Paudel & Silwal, 2017), and a sizable amount of useful information about the economic situation of the market is disseminated and exchanged through exhibitions (Situma, 2012). The study concludes that Nanliujiang semi-precious gemstones are not widely known, and exhibitions serve as an effective means of increasing visibility. Therefore, this question explored the acceptance of the interviewees to exhibitions of these semi-precious gemstones in order to reflect economic factors.

An overview of the opinions expressed on visiting a Nanliujiang semi-precious gemstone exhibition is as follows. Female A expressed her willingness to participate in the exhibition and her excitement about learning more about Nanliujiang semi-precious gemstones. She added that a jewellery exhibition serves as a platform for exchanging jewellery-related knowledge, alongside displaying and selling jewellery. She believed that, in recent years, the Chinese jewellery market has steadily grown, drawing an increasing number of international jewellers to participate in exhibitions, providing her with fresh insights and ideas. Female B said she enjoys exquisite jewels and wished to learn more, and also indicated some interest in

attending such exhibitions but stated that her employment schedule could prevent her from attending. The male interviewees exhibited different levels of interest in participating in the exhibition. Male A expressed a slightly stronger interest, stating that he believes a gemstone from his hometown holds greater significance, owing to its unique local standard and that he learned this at the time of purchase. Male B also mentioned that he is interested in attending such an exhibition since he has invested in jewellery and owns a collection of some of his favourite pieces. Along with purchasing his preferred jewellery, he would visit the exhibition to gain more knowledge about investing and collecting.

In summary, the majority expressed interest in attending a Nanliujiang semi-precious gemstone exhibition, with some indicating a stronger intention to gain fresh insights, acquire more knowledge about this gemstone, or make a purchase or investment.

(3) Would you like to join an association about this semi-precious gemstone? (Social)

Various associations play an important role in the development and promotion of gemstones such as opal. Relevant associations have been established for Nanliujiang semi-precious gemstones, but their influence is limited. Thus, concerning the social factor, this study investigates the interviewees' willingness to join these associations. Female A indicated that she was already a member of the Nanliujiang semi-precious gemstone association and felt that joining the association was meaningful to her. The association, in her opinion, offered an opportunity for socialising, and she made many friends through it who often discuss Nanliujiang semi-precious gemstones and other kinds of gemstones. Moreover, they collectively work to promote it and the jewellery industry in Guangxi to a wider consumer base. Thus, she believes that the association is highly attractive for publicity. Female B, on the other hand, believes that joining such an association would be a waste of time and is not interested in it. Despite her preference for gorgeous jewellery and gemstones, she is not particularly enamoured by Nanliujiang semi-precious gemstones; instead, she prefers other kinds of gemstones. Male A expressed interest in joining the Nanliujiang semi-precious gemstone association, highlighting a desire to network and share information about the gemstone. However, he voiced concerns about the time commitment required for membership. Another male interviewee displayed a strong desire to join, particularly as he is already a member of other jewellery associations, and commented that he would accept an invitation to join the association, owing to its significant social value for him as a businessman.

In summary, three of the respondents expressed a strong desire to join associations or were already members. Those who had a strong interest in Nanliujiang semi-precious gemstones or who valued socialising tended to join associations that held personal significance. On the other hand, some individuals showed disinterest, possibly due to a lack of interest in Nanliujiang semi-precious gemstones or other personal reasons.

(4) Compared with other agates, what do you think is the speciality of this semi-precious gemstone? (Technology)

The technological factor in the PESTLE analysis is reflected in jewellery through advanced carving techniques and appraisal technology. Therefore in this question, the perception of respondents to the differences between Nanliujiang semi-precious gemstones and other agates was explored. Female A noted that Nanliujiang semi-precious gemstone is unique because of its incredibly distinctive naturally occurring patterns in each stone and because it has a slightly higher density and hardness compared to other agate stones. She suggested that these characteristics might be linked to the unique geological environment and mineral composition. According to Female B, Nanliujiang semi-precious gemstone is heavier and exhibits richer coloration, positioning it as a high-quality agate with a status comparable to that of suet white jade among nephrite stones. Male A was attracted by the gemstone's legend and background when he purchased it and thought that it had a sense of mystery. He highlighted the special background and meaning of the stone in Chinese gemstone culture, expressing that the

gemstone from his hometown provides a sense of home. Male B thought that, regarding Nanlijiang semi-precious gemstones, he focused more on the value of collection and investment because there are relevant local standards and he had heard that the local government was making great efforts to develop gemstone production, and he placed a great deal of attention on its potential investment value.

(5) Do you know of ethical jewellery? Have you ever seen the movie Blood Diamond? (Legal)

(6) If this semi-precious gemstone was sold as ethical jewellery, would you be willing to pay more for it? (Legal)

The study posed two questions regarding the legal aspect. Since ethical jewellery is still an emerging concept in China, the first set of questions focused on basic understanding and a famous movie about this issue as a precursor, while the second question was designed to gauge the level of acceptance of respondents. In question 5, only Female A provided two positive responses, which were in complete contrast with those of Male B, who provided two negative responses. Female A noted that ethical jewellery is popular in the international market but is less mentioned in China. She believes that the jewellery market in China is still in its infancy, but ethical jewellery must be promoted because it satisfies the criteria of a harmonious society and a green economy that China is currently promoting. Female B and Male A responded similarly in that they both did not know anything about ethical jewellery but had watched the film Blood Diamond, but they had focused on different aspects of the film. Female B described the film as harrowing and thought the issue of ethical jewellery was worth advocating for if it could be improved upon, whereas Male B focused on the film itself and showed appreciation for the film and the actors.

In the most important question of the legal factor, which focused on the acceptance of ethical jewellery, all four interviewees exhibited varying levels of acceptance. In descending order of strength, Female A expressed the strongest support, followed by Female B and Male A who were approximately equal, and finally Male B. Female A is an ardent supporter of ethical jewellery and expects that it will eventually become more well known in the Chinese jewellery industry; she also predicted that, as the market becomes friendlier, the price disparity between ethical and non-ethical jewellery would disappear. Female B and Male A both stressed that personal taste and preference are more important considerations when purchasing jewellery, with Female B being slightly more accepting than Male A. She expressed a preference for unique pieces of jewellery, especially those with gemstones of different colours and patterns, and is therefore willing to consider purchasing ethical jewellery, as it aligns with her support for environmental protection, which she sees as being in line with China's core national values. By contrast, Male A is convinced that a piece of jewellery that can be put on the counter is in accordance with the norms and laws of China and that as long as it does not violate the law, he is willing to buy it, but only if it is within his financial means. Finally, Male B said that he mostly purchases jewellery and gemstones as an investment, placing a higher priority on appreciation and value for money. Furthermore, he underlined that the craftsmanship of the jewellery itself, rather than its price, is what he is most concerned about, particularly in the case of jewellery with distinctive carvings of gemstones that would increase the return on his investment.

In summary, individual opinions on whether they would pay a premium for ethical jewellery are somewhat varied, with a majority adopting a neutral position. While the two female respondents suggest ethical values as an additional attribute, the findings indicate that most individuals prioritise the intrinsic qualities of the jewellery over the underlying moral principles.

(7) Do you know this semi-precious gemstone is only mined in Guangxi? (Environmental)

For the environmental factor in PESTLE analysis, this study selected issues related to the origin of Nanlijiang semi-precious gemstones, which is primarily what makes them special and is a fundamental focus of this study. The environmental factors that affect the industry are generally

geological (Walsh et al., 2019; Sari et al., 2021), so exploring the environmental aspects of the gemstones is the most representative. In general, most of the interviewees were aware of the special origin of Nanliujiang semi-precious gemstones, except for Female B, who indicated that she was unaware and mentioned that there are many origins of agate. Among the other respondents who explicitly indicated that they are familiar with the origin, Female A expressed appreciation for the rich colours of Nanliujiang semi-precious gemstones, high hardness, and density, which are all part of the geographic characteristics of these gemstones; Male A was aware because he had heard the salesperson mention it when he bought it; Male B was also aware, but he also collects agates and jewellery from other places, and the origin added value to collecting gemstones. He cited the example of emeralds, which are produced in many parts of the world, but those mined in Colombia are the most valuable in the market, which is why he has an interest in gemstones of special origins.

In summary, while most respondents were aware of the specificity of the origin of Nanliujiang semi-precious gemstones, some believed that agates were mined in a variety of places. For this question, the degree of understanding varied among respondents, likely because of differences in professional knowledge.

Part III

Male: Why do you like this semi-precious gemstone?

Female: How do you prefer jewellery with this semi-precious gemstone to be designed?

The third section of the study asked questions based on gender in order to better explore how Nanliujiang semi-precious gemstone attract consumers for the purpose of developing promotional plans. Based on market performance, it is evident that women are the primary jewellery consumers (Agarwal & Agrawal, 2021), despite the fact that the proportion of male consumers has been steadily rising (Chellam, 2019; Pathy et al., 2021). Hence, the questions for the male respondents were more general, initially exploring the preferences of male consumers for these semi-precious stones in order to broaden the market target group. In contrast, questions for female respondents were more specific in nature and were intended to examine how the semi-precious stones could be designed to better appeal to them.

Male A stated that his preference for Nanliujiang semi-precious gemstones stemmed primarily from their attractive appearance, which is further enhanced by their cultural significance and the fact that they originate from his hometown. In addition, the relevant standards provided a sense of high quality and specialisation, which heighten his appreciation for the gemstones. Male B is attracted to them because of their rarity and collector value, which he views as an investment and thus pays more attention to.

In contrast with the conventional belief that women primarily purchase jewellery, Female A said in her response that she noticed in her occupation that elderly male consumers are more drawn to such semi-precious stones, often purchasing them as ornaments and handle pieces. She argued that the conventional designs employed for Nanliujiang semi-precious gemstones may be to blame for this. Modern women, in particular, prefer innovative designs. To prevent the design from becoming overly conventional, she advised incorporating a few unique components. She also mentioned that as this semi-precious gemstone is heavier than others, the design must consider ways to reduce weight in order to appeal to female customers. She recommended working with jewellery designers to develop new, fashionable, and inventive designs for Nanliujiang semi-precious gemstone jewellery. Female B believes that Nanliujiang semi-precious gemstones, although rich in colour, tends toward darker tones and are thus more suitable for the elderly. She suggested a breakthrough in design is needed, which may incorporate themes, unique shapes, or features for a more creative design that can appeal to consumers of different ages.

Combining the responses of the four interviewees, in order to enhance the popularity of Nanliujiang semi-precious gemstone jewellery, the design must incorporate traditional elements in an innovative manner in order to appeal to consumers of different age groups, especially young people. This may include adopting new design ideas, themes, or shapes to make the jewellery more appealing. Similarly, the weight and comfort of the jewellery are also critical design considerations. In addition, aesthetics, cultural connotations, and geographical uniqueness all contribute to its potential investment value.

Discussion and Conclusion

Gender, age, and income have been identified as influential factors in customer behaviour in previous research. The Nanliujiang semi-precious gemstone is likely to attract middle-aged and senior male customers, as Female A indicated in Part III. On the other hand, according to data from China's National Bureau of Statistics, the per capita income in Guangxi was approximately 2,331.8 yuan per month in 2022 (National Data, 2023). The incomes of all four interviewees were above this standard, placing them in the high-income group. This aligns with Dholakia's (1999) perspective.

In response to Question 1 in Part II, three out of four interviewees claimed that they had some knowledge of the local standards of Nanliujiang jade in Guangxi. One respondent said that she did not know about them, but the existence of standards made her believe that Nanliujiang semi-precious gemstones were better than other agates. On the other hand, Male A mentioned that sales staff use local standards and origin as selling points for Nanliujiang semi-precious gemstones. Thus, H1 was substantiated.

Notably, when considering the promotion plan, all interviewees exhibited varying degrees of interest in the exhibition mentioned in Question 2 in Part II. Krug and Weinberg (2004) argued that exhibitions require continuous investment, leading to insufficient income for covering expenses, but some people still believe that exhibitions serve as a good promotion platform and aid the promotion of new products (Situma, 2012). The respondents were generally willing to participate, and H2 was validated.

In reviewing the literature, this study used PESTLE analysis to examine opal and suet white jade, which share characteristics with Nanliujiang semi-precious gemstones. The comparison revealed a lack of social institutions dedicated to Nanliujiang semi-precious gemstones. The responses of three respondents to Question 3 in Part II supported the assertions of Lawton et al. (2017) that industry organisations need to grow. Surprisingly, only Female B mentioned that she has no interest and feels that it is a waste of time. Some researchers have argued that associations require a time commitment for maintenance (Wollebæk & Selle, 2002). In contrast, Green et al. (2006) emphasised that it is beneficial for people to join associations and participate in activities appropriately. Moreover, the other three interviewees expressed interest in the association and that they could communicate with other enthusiasts through the association. Therefore, the association, as an information exchange platform, could help spread information about Nanliujiang semi-precious gemstones, and it is necessary to develop and promote the association. Thus, H3 was validated.

There are some additional findings of this study to report. Regarding the purpose of Male B buying jewellery, he stated his occupation in Question 3 of Part II, which is evidence supporting Baker's (1983) view that the background of consumers influences their consumption habits. Thus, it is also reasonable to formulate promotion plans based on consumer groups, as suggested in a previous paper. This finding is consistent with those of Hibbert (1995), Keller (2001), and Chen and Uysal (2002), providing the basis for subsequent research on extension programmes.

On Question 4 about the difference between Nanliujiang semi-precious gemstones and other agates, both women referred to the problem of weight, because the density makes this semi-

precious stone slightly heavier than other agates. Female A, in addition to her answer to Question 4, confirmed that Nanlijiang semi-precious gemstones are currently mined only in a specific location, which she adds is one of the foundations of local standards. Therefore, H4 was confirmed after being cited by three out of the four respondents regarding the characteristics of Nanlijiang semi-precious gemstones or regional standards. Out of all of them, only Male A—whose responses pertained to cultural content—said that the cultural background of gemstones influences his choice of jewellery. A strong relationship between the suet white jade and Chinese culture has been reported in the literature. Female B also referred to suet white jade through associative comparison; the results can be taken as evidence of the importance of suet white jade and jade culture to the Chinese people in the literature.

Revealing the characteristics of qualitative research, Kapiszewski and Karcher (2019) argued that, because of the open-ended research methodology used, the aim is to gain a deeper understanding and exploration of the research topic rather than only collecting quantitative data. In order to provide interview subjects with the freedom to share their perspectives, experiences, and opinions, researchers typically employ open-ended questions (Berg, 2006; Cohen & Crabtree, 2006). Qualitative research is an effective tool for delving into complex social phenomena and themes because of its openness, enabling the researcher to receive unexpected information or answers during the interview (García & Gluesing, 2013; Cypress, 2015). These additional answers may relate to issues that the researcher had not previously considered (Berg, 2006; Cohen & Crabtree, 2006), or they may reveal new insights or understandings that can help the researcher comprehend the research topic more holistically, rather than relying solely on predetermined questions or assumptions (Qu & Dumay, 2011; Bengtsson, 2016).

When it comes to awareness of ethical jewellery, only Female A gave a completely positive answer. Unexpectedly, most of the interviewees had seen the film *Blood Diamond*, and both Female B and Male A had a deep impression of the film. The celebrity effect refers to the creation of a positive image by inviting celebrities to attend events or endorse products (Stafford et al., 2002). Distefan et al. (2004) argued that celebrities can influence the public effectively through their influence, thus achieving the purpose of development. Regarding the ethical jewellery issue mentioned by Female A in Questions 5 and 6 in Part II, awareness of ethical jewellery is still at a very preliminary stage in China, which is consistent with the reports in the literature. H5 was not validated; nonetheless, the responses unintentionally revealed the need for a novel advertising approach for Nanlijiang semi-precious gemstones, including the possibility of using celebrity endorsements.

Question 7 in the interview focused on origin. Only Female B did not know the particular origin of Nanlijiang semi-precious gemstones, but Male B confirmed the importance of origin for gemstones by giving an example, which has verified H6.

Above all, the answers of the four interviewees supported previous findings to various degrees that the Political, Sociological, Technology, and Environmental factors in PESTLE analysis influence their consumption behaviour, and even that some characteristics can be used as selling points by salespeople to attract customers. Therefore, it is reasonable to make the promotion plan based on PESTLE analysis as mentioned before.

On the other hand, the two ladies pointed out in Part III the design problems associated with Nanlijiang semi-precious gemstones. For Question 7 in Part II, Female B and the two men expressed a personal intent to buy jewellery, which supports the view of Venkatesh et al. (2008) that jewellery is a kind of item used to reveal personality. To meet the expectations of customers (Naumann & Shannon, 1992), Nanlijiang semi-precious gemstones must be incorporated into more innovative designs and promoted. Finally, based on the advantages of exhibitions, as suggested by Hogan (2010), Nolan (1997), and other studies, Nanlijiang semi-precious gemstones can be promoted by holding a combined design competition and exhibition,

with attention being paid to development targeted at consumer groups, as well as the need to consider modern and advanced promotional tools, such as live broadcasts of celebrities.

Theoretical Implications

This study preliminarily revealed consumers' perceptions, purchase motivations, and behaviours regarding Nanlijiang semi-precious gemstones, as well as their views on issues such as ethical jewellery. It is a targeted analytical study of this gemstone, which addresses a gap in the literature and expands the application of PESTLE analysis in the field of jewellery design.

This study also contributes to an in-depth understanding of the status and prospects of Nanlijiang semi-precious gemstones in the regional and international markets. It facilitates the formulation of relevant policies and serves as a reference for the sustainable development of the industry and the promotion of its cultural heritage and innovation.

Practical and Social Implications

The study provides an important reference for the promotion and marketing of Nanlijiang semi-precious gemstones. It can be used to formulate more targeted and effective promotion plans based on the feedback from the respondents, thus further improving the recognition and competitiveness of Nanlijiang semi-precious gemstones in the market. Meanwhile, for relevant jewellery industry associations and enterprises, it establishes more exhibitions and social platforms to promote the brand building and cultural heritage of Nanlijiang semi-precious gemstones.

Limitations and Suggestions for Future Research

Insufficient sample size: The study involved only four respondents and is not representative of the views of the entire consumer group. Consumer opinions and behaviours vary from person to person and should be verified through a more extensive study.

Geographical limitations: All interviewees were residents of the Guangxi region, which potentially limits the applicability of the findings to consumers in other regions. The culture, economic background, and aesthetics of different regions may affect their views and purchasing behaviour toward Nanlijiang semi-precious gemstones.

Respondent characteristics were not sufficiently comprehensive: Only one female respondent expressed knowledge about and support for ethical jewellery, while the other respondents knew very little about it. This may have limited the discussion on ethical jewellery to only a few topics.

Socio-cultural factors were not fully explored: Although some aspects of the discussion touched on the local standards and regional characteristics of Nanlijiang semi-precious gemstones, the impact of socio-cultural factors on consumer behaviour was not fully explored. For example, the status and significance of Nanlijiang semi-precious gemstones in the local culture and how it can be promoted and popularised nationwide still need to be addressed.

Limitations of respondents' opinions: Respondents' opinions are influenced by their personal preferences, experiences, and perspectives. Therefore, opinions of a wider group of consumers must be recorded to obtain more comprehensive data.

In summary, although this study gained some insights into consumer opinions and behaviours regarding Nanlijiang semi-precious gemstones, the findings of the discussion require further validation and in-depth research, owing to the limited sample size, geographical constraints, and incomplete characteristics of the interviewees. Future research should consider more geographical areas and consumer groups and utilise varied research methods, such as quantitative research, to obtain data from more consumers in order to achieve more comprehensive and accurate results.

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