

From Ritual to Game: Research on the Innovative Design of Dali Bai Jيام Cultural Board Game under the Interactive Heritage

Yang Xicheng^{1*} and Atitthep Chaetnalao²

Ph.D. Student, Faculty of Decorative Arts, Silpakorn University^{1*}

Assistant Professor, Dr., Faculty of Decorative Arts, Silpakorn University²

*Corresponding author, e-mail: xicheng610@gmail.com

Received: March 11th, 2026; **Revised:** June 28th, 2026; **Accepted:** July 3rd, 2026

Abstract

As an important element of Yunnan Province’s intangible cultural heritage, the Dali Bai Jيام faces challenges in its transmission, including insufficient public awareness and limited dissemination channels. Based on the theory of embodied interaction, this study explores innovative pathways for transmitting Jيام culture by integrating it into board games. The study employed a mixed-methods approach, collecting data through questionnaires, fieldwork, and expert interviews. The results indicate that, while respondents’ awareness of Jيام culture is relatively low, they demonstrate a high level of interest and hold positive attitudes toward cultural board games, suggesting that board games have significant potential for cultural dissemination. Fieldwork and expert interviews further revealed that existing Jيام cultural and creative products largely remain at the level of visual symbol transformation, lacking a deep presentation of cultural experiences. Based on these findings, this study proposes three design schemes for Jيام cultural board games that integrate ritual practices, cultural identity, and production processes. The research indicates that embodied interactive board games can promote cultural experiences and public participation, providing new design insights for the innovative transmission and dissemination of intangible cultural heritage.

Keywords: Traditional Culture, Dali Bai Jيام, Board Games, Embodied Interaction, Heritage Preservation

Introduction

“Jيام” as a general term for various kinds of engraved prints used to be burned in Chinese folk religious ceremonies in the Jيام of Yunnan, and it is one of the original arts with the longest history, the simplest style, and the most extensive use in ancient Chinese prints (Yang, 2003). It is the crystallization of the inheritance accumulated by the labor of countless folk artists for thousands of years. It is the spirit of the Bai people, their hope for a better life, and they hope to convey their wishes through it and expect it to be realized (Figure 1). Despite its cultural significance, Dali Bai Jيام

has received limited engagement from younger generations, and existing studies have not sufficiently explored interactive or gamified approaches for its transmission.



Figure 1 Dali Bai Jiama.

Source : Yang Xicheng (2025)

The emphasis on culture has led to the emergence of an increasing number of cultural creations, and cultural board games are among them. A culture, which represents the beliefs and ideological values of a group of people, also seeps into life and becomes a habit of living, profoundly influencing the aesthetic and spiritual pursuit of human beings, and the process of design is, in fact, the inheritance and innovation for this culture (Huang & Huang, 2020). In Chinese traditional culture, both intangible spiritual culture and tangible material culture can provide valuable design resources for contemporary product design (Xu, 2018). In terms of the characteristics of cultural communication media, compared with paper books and film and television materials, board games, as a cultural carrier, can convey the abstract and generalized aspects of culture more graphically, with their unique intractability and rule-setting (Begy, 2017).

This study utilizes board games to broaden the development models and dissemination channels of the cultural industry, enrich the forms of expression for traditional culture in the new era, and achieve innovative breakthroughs through cultural and creative products as a medium. By exploring the integration and transformation of traditional and contemporary elements, it aims to popularize and promote the folk art of “Dali Bai Jiama” among the general public, thereby demonstrating practical social value in the promotion, transmission, and preservation of intangible cultural heritage. The design strategies proposed in this study can lay the groundwork for research approaches and methodologies in the preservation of other ethnic cultures, offering valuable references and insights.

Objectives

1. To investigate the perceptions and needs of cultural board game enthusiasts regarding the Dali Bai Jiama and related board game products.
2. To examine and analyze the current state of the contemporary transmission of the Dali Bai Jiama.
3. To evaluate the feasibility and design logic of integrating Dali Bai Jiama with board game products, and to develop a design strategy based on embodied interaction theory.

Literature Review

1. Protection of Intangible Cultural Heritage

Intangible cultural heritage is a new concept developed in the context of humanity's understanding of cultural heritage. It refers to the social practices, expressions of ideas, forms of expression, knowledge, and skills, as well as the associated tools, objects, artifacts, and cultural spaces that are recognized by communities, groups, and sometimes individuals as part of their cultural heritage (UNESCO, 2003).

In recent years, research on the protection of intangible cultural heritage has gradually shifted from a static preservation model centered on documentation and conservation to a dynamic preservation approach focused on living transmission. Within this context, how to increase engagement among young people and effectively bridge traditional culture with modern life has become a key issue of concern in academic circles.

2. Dali Bai Jiama

Dali Bai Jiama is a type of woodblock print popular in the Dali region of Yunnan. It embodies multiple values, including religious belief, artistic aesthetics, and folk memory, and is an integral part of the traditional culture of the Bai people. As a form of local folk belief, Dali Bai Jiama also faces challenges in its transmission and dissemination. To a certain extent, this reflects the common challenges currently faced in the transmission and protection of intangible cultural heritage. Therefore, it is necessary to further identify the current issues facing Dali Bai Jiama to clarify the needs for its transmission and development.

The main problems that arise during the inheritance and protection of Dali Bai Jiama can be summarized as follows: 1) The production method is mainly passed down through oral instruction by artisans, which makes it difficult to disseminate the traditional method on the Internet; 2) The promotion methods of Dali Bai Jiama mainly use static dissemination techniques such as exhibitions, which are difficult to promote on a wider scale (Gao et al., 2024); 3) The transformation path of Dali Bai Jiama in the contemporary context is single, and the cultural and creative products are highly homogeneous, with a single message conveyed. In the process of protection and inheritance, attention should be paid to the historical origin of Dali Bai Jiama and its important position

in the history of the Bai ethnic group, the impact on ethnic identity and cultural inheritance (Huang et al., 2025), as well as the exploration of new paths for inheritance and protection.

3. Gamification

Gamification refers to the incorporation of game mechanics, interactive feedback, and experience design to enhance user engagement and the user experience (Deterding et al., 2011). In the field of cultural communication, by transforming communication content into more engaging and entertaining formats, users develop an understanding of and retain relevant knowledge through active participation; games thus serve as an important medium for connecting cultural content with contemporary audiences (Artese et al., 2023).

Game design that integrates intangible cultural heritage visual symbols can enhance users' perception and interest in traditional art. Gamification design is effective in the dissemination of traditional culture (Chen et al., 2024). Experiential games, through the mechanism of teaching through entertainment, convert cultural knowledge into participatory behavioral processes, thereby enhancing cultural identity and learning initiative. The game medium has significant potential in the dissemination of intangible cultural heritage (Qiu & Yao, 2023). Although gamification has been widely recognized as an effective strategy for increasing engagement, few studies have explored its application in the transmission of intangible cultural heritage, such as Dali Bai Jiamia.

4. Board Game

As a form of entertainment that combines fun, interactivity, and social engagement, board games serve as an important medium for the gamified dissemination of cultural content. Compared to digital games, physical board games place greater emphasis on players' tactile engagement, and face-to-face social interaction fosters stronger bonds among players, helping to create closer relationships and shared experiences (Ariya et al., 2025).

Cultural board games are the product of the fusion of cultural knowledge and game entertainment. Traditional culture can enhance board games, and the cultural value added through game themes or content can alleviate, or even dissolve, the inherent prejudice of some users towards the board game industry and increase the public's acceptance of board games (Dong, 2022). Therefore, cultural board games will let users understand the cultural attributes embedded in the product through certain rules at the beginning of the design to help them understand the social value that the product wants to spread (Jin, 2021), so that they can obtain the output of cultural value while interacting with the product.

5. Embodied Interaction

Embodied cognition can be traced back to Merleau-Ponty's theory of the phenomenology of the body, which posits that the body is not only a tool for perceiving the world but also a crucial foundation for the formation of cognition (Merleau-Ponty, 2001). It emphasizes that cognitive processes arise from bodily actions and interactions with the environment, rather than from

mere symbolic processing. Meaning emerges from bodily practices, and interactive experiences can deepen users' understanding of abstract cultural content (Dourish, 2019).

In ritualistic cultural activities, the participation and interaction mechanisms of the body can significantly promote participants' perception of the meaning of the experience and the formation of memory. In the empirical analysis of traditional Chinese cultural rituals, embodied interaction, as an intermediary for cultural participation and situational interaction, helps participants to more deeply experience the cultural connotations and construct emotions and meaning during the action process (Cai et al., 2025). Through interactive design of visual and auditory experiences, it is possible to enhance the public's participation and understanding of intangible cultural heritage through emotional and perceptual mechanisms (Yi et al., 2025).

Conceptual Framework

This study has constructed a cultural translation framework centered on the Dali Bai Jiaoma, using board games as the medium and embodied interaction as the design method. It explores a new model for interactive inheritance and protection of intangible cultural heritage in a gamified context. This framework examines the inheritance predicament of the Dali Bai Jiaoma from the perspectives of culture and intangible cultural heritage protection. Then, through questionnaires, fieldwork, and expert interviews, it forms the cultural translation. Based on the embodied interaction theory, it verifies the feasibility of the new path for interactive inheritance and protection of traditional culture in the game medium through the design of board games (Figure 2).

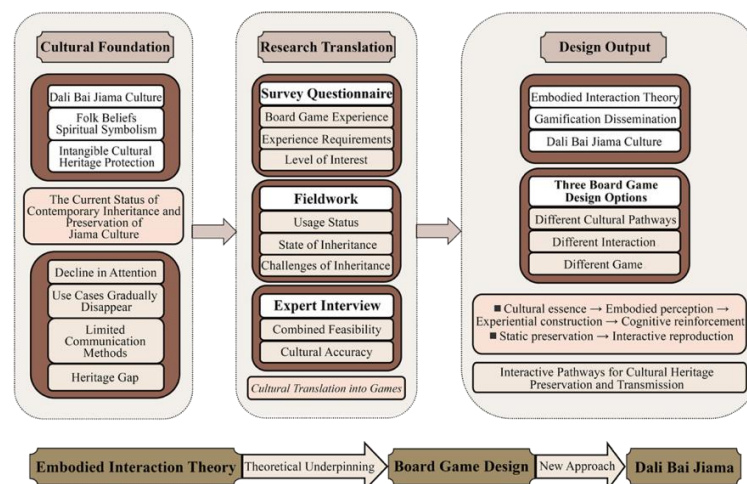


Figure 2 Conceptual Framework

Research Methodology

1. Population and Sampling

This study employed a mixed-methods approach, with the research participants divided into two groups.

The first group consisted of questionnaire respondents, targeting members of the general public with an interest in traditional culture or board games. Demographic information on the respondents, including gender and age, was collected to analyze differences in perceptions and needs regarding Dali Bai Jiamia and board game products among various demographic groups.

The second group consisted of expert interviewees, selected using purposive sampling. A total of seven experts were invited to participate in the interviews, including two Jiamia inheritors, three Dali Bai Jiamia researchers, and two board game design experts. Experts were required to have at least 10 years of practical or research experience in their respective fields to ensure the professionalism and representativeness of the interview content.

2. Research Instrument and Instrument's Quality

This study employed a mixed-method approach, integrating the advantages of quantitative and qualitative methods to offer a more comprehensive perspective.

2.1 Questionnaire: The questionnaire was designed based on relevant literature on the dissemination of intangible cultural heritage, cultural product design, and board game user research, and was tailored to the objectives of this study. It is primarily used to understand the public's perceptions, attitudes, needs, and preferences regarding traditional culture, Dali Bai Jiamia, and cultural board games. The questionnaire includes single-choice questions, multiple-choice questions, and a small number of open-ended questions to gather respondents' opinions and suggestions on the dissemination of Dali Bai Jiamia and board game design.

2.2 Expert Protocol: This study employed structured interviews to conduct in-depth interviews with seven experts, including two Dali Bai Jiamia inheritors, three Jiamia research experts, and two board game design experts. Interview outlines were designed specifically for each expert group based on their professional backgrounds and research focuses, with 10 questions formulated for each category, and each interview will last 30–60 minutes.

To ensure the effectiveness of the tools, the researcher employed the Index of Item Objective Congruence (IOC) and invited three experts to review and evaluate the tools to be used, in order to ensure the quality and validity of this study. After the evaluation, the research tools used received a score of 0.975, proving the credibility and accuracy of the collected data.

3. Data Collection

Data collection is carried out in three stages to ensure that the collected data complement each other. Based on the data collection and analysis in these three stages, three Dali Bai Jiamia board game designs centered on embodied interaction are constructed.

In the first stage, through questionnaire surveys, we aim to gather information about the target audience's understanding, experience, and demands regarding Dali Bai Jiamia and board games, providing user data support for the design. The questionnaire was distributed via an online platform, yielding a total of 136 responses, of which 127 were valid, resulting in a response rate of 93.38%. In

the second stage, through field investigations and on-site records, we will explore the history, current status of inheritance, and usage of patterns of Dali Bai Jiamia, and extract cultural elements that can be transformed. In the third stage, through expert interviews, we will verify and supplement the research results and assess the feasibility of combining Dali Bai Jiamia with board games.

4. Statistical Application of Research

This research is exploratory and design-oriented. These statistical results provide empirical evidence for the study, thereby enhancing the reliability and validity of the research conclusions and offering support for the development of design plans for tabletop games based on embodied interaction.

4.1 This study primarily employs descriptive statistical analysis, including frequency distributions and percentage analysis, to examine respondents' interest in and awareness of Dali Bai Jiamia, their experience with board games, and their preferences regarding game features and artistic styles.

4.2 The qualitative data obtained through fieldwork and expert interviews, after being subjected to thematic classification and comparative analysis, complement the quantitative results.

Results

1. Users' understanding and demands regarding Jiamia and board game products.

In accordance with the research objectives, the sample was drawn from specific interest groups most likely to provide relevant information. The survey was created using a questionnaire platform and distributed to the public via social media channels such as WeChat; data collection lasted one week. Rather than focusing on sample size, greater emphasis was placed on the alignment of participants with the research objectives to ensure the collection of representative data. A total of 136 valid responses were received. After data screening, incomplete responses and questionnaires with abnormal response times were excluded to ensure data quality. Ultimately, 127 valid questionnaires were retained for analysis, resulting in a valid response rate of 93.38%, which ensured the representativeness and adequacy of the survey data.

Of the 127 valid questionnaires, the sample consisted primarily of respondents aged 18–35, accounting for 79.53% of the total. Women made up 54.44% of the sample, while men accounted for 45.56%, resulting in a relatively balanced overall gender distribution. The results indicate that this survey primarily reflects the perceptions and needs of the 18–35 age group regarding Dali Bai Jiamia and cultural board games. Therefore, future designs should prioritize feedback from this age group while also taking into account the needs of different genders and other potential user groups (Table 1).

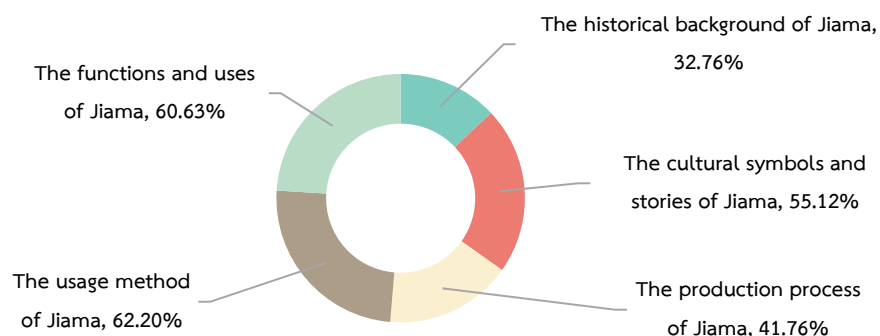
Table 1 General Information Profile

Information	Profile Variables	Frequency	Percentage
Gender	Male	40	31.5%
	Female	69	54.33%
	Prefer not to say	18	14.17%
Age	Under 18 years old	10	7.87%
	18-25 years old	61	48.03%
	26-35 years old	40	31.5%
	36-45 years old	15	11.81%
	Over 45 years old	1	0.79%

Note: * N = 127

The research findings reveal a significant gap between the level of awareness (70.08% of respondents had a low level of understanding) and the level of interest (69.29% of respondents expressed a high level of interest). This result indicates a pattern of low awareness but high interest, suggesting that Dali Bai Jiama has not yet been fully disseminated to the general public but possesses a solid foundation for potential acceptance.

In order to understand which knowledge about Dali Bai Jiama the users want to learn or understand, the researcher set up multiple-choice questions for the users to select. This data can be used as a reference when designing the board game of Dali Bai Jiama (Figure 3).

**Figure 3** The proportion of the public's interest in Jiama-related knowledge

Source : Yang Xicheng (2025)

In terms of tabletop gaming experience, 31.5% of the respondents have no relevant experience, 41.73% have relatively little experience, and a total of 73.23% belong to the low-experience group. Only 7.08% have extensive experience. Overall, the popularity of tabletop games among the sample population is still limited.

Despite their lack of experience, the majority of respondents still have a positive attitude towards cultural board games. 66.93% of the respondents indicated that they were "somewhat interested" or "very interested" in participating in cultural board game experiences; 59.84% of the respondents believed that promoting traditional culture through board games was "relatively effective" or "very effective". The data shows that the public holds an approving attitude towards the way of combining board games and traditional culture.

In terms of product preferences, 94.52% of the respondents preferred game structures that were "simple" or "moderate" in complexity, while only 5.49% preferred complex mechanisms. Regarding the duration of gameplay, 85.04% of the respondents were willing to accept a single game session duration of less than one hour, and 50.4% preferred it to be within 30 minutes. These results indicate that the target market is more suitable for design strategies that have clear mechanisms, a tight pace, and are easy to grasp.

A total of 17 users provided suggestions, mainly focusing on the following points: 1) Emphasize that board games should enhance the presentation of cultural backgrounds and highlight the characteristics of Dali Bai Jiamia; 2) The rules should be clear and concise to accommodate players with low experience; 3) The visual expression should be rich and unique to enhance attractiveness. 4) Some users suggested adding certain competitive mechanisms to enhance the sense of participation, and some respondents expressed their expectations for the market development of this product.

The results of the survey provide empirical evidence for understanding the target audience's perceptions, interests, and needs regarding Dali Bai Jiamia and cultural board games, and offer data support for the subsequent development of Dali Bai Jiamia board game design proposals.

2. An Exploratory Study on the Bai Ethnic Group's Jiamia Game and Board Game Products in the Market

To examine the current state of the contemporary inheritance of the Dali Bai Jiamia culture, the researcher conducted direct observations through photographs and videos during fieldwork. Field investigations primarily focused on two directions. On one hand, they were conducted at museums and research institutes to understand the historical background, pattern characteristics, and transmission status of Dali Bai culture and Dali Bai Jiamia. On the other hand, investigations were carried out among the public to explore folk stories about Dali Bai Jiamia, its usage, and the categories of related cultural and creative products. The researcher also conducted exercises and analyses of board games available on the market, examining their design concepts, design principles, and presentation styles (Table 2).

Table 2 Fieldwork Location for Dali Bai Jiamā and Board Game Investigation

Location	Category	Observation Content	Key Findings
Yunnan Provincial Museum	Museum	Jiamā Patterns, Activities, Related Cultural Products	Launch related activities, Experience traditional production, Products lack innovation
Dali Bai Autonomous Prefecture Museum	Museum	Jiamā Exhibition, Documentation Materials, Explanations	Organizing historical documents, The presentation method is relatively simple and static
Weishan Folk Culture Museum	Museum	Exhibition, Jiamā Patterns, Local Stories	Patterns are unique and diverse, Insufficient exhibition and conservation methods
Dali Bai Autonomous Prefecture Bai Culture Research Institute	Research Institution	Research Materials, Expert Explanations, Document Records	Provide academic support, Save the research data, Limited practical experience
Dali Intangible Cultural Heritage Bai Jiamā Training Center	Traditional Cultural Venues	Jiamā Patterns, Hands-on Experience, Folk Tales	Rich exhibition content, Emphasize practice, Cultural dynamic inheritance, The product types are diverse, but they are highly homogeneous.
Jiangzhiji Dali Folk Art Center – Jiamā Printmaking Art Gallery	Traditional Cultural Venues	Training Courses, Manual Operations, Jiamā Patterns	Rich Jiamā patterns, original versions and knowledge, Learning and creating experiences, Transmission of knowledge
Bangkok International Game Festival 2024	Board Game Activity	Board Game Trial Play, Gameplay Learning	Emerging design concepts, Unique form of expression
Morpho Board Game Night	Board Game Store	Gameplay Observation, Social Interaction, Board Game Experience	Expanding the research gap in cultural board games

The researcher conducted fieldwork in Bai ethnic regions, including Dali Ancient City, Xizhou, Heqing, Jianchuan, Eryuan, Midu, and Weishan. Findings reveal that Dali Bai Jiamā exhibits a

trend of evolving from religious rituals toward concurrent development as folk displays and artistic creations across different regions, with significant geographical variations. In urban and tourist areas, Dali Bai Jiaoma is mainly used for cultural display and as a tourist souvenir, having largely lost its religious nature and focusing more on visual symbols and commercial value. In traditional villages and religious communities, Dali Bai Jiaoma has maintained traditional production methods, usage methods, and patterns, and has been better protected.

The Dali Bai Jiaoma exhibits three distinct characteristics. In the tourist area, the Jiaoma products are designed to be more visually appealing. In the village, the traditional rituals are still preserved. In the emerging market, it has developed in an artistic direction. This not only reflects the various paths by which Dali Bai Jiaoma adapts to modern society, but also reveals its balance between traditional beliefs, folk life, and contemporary art. When using the table game as a highly interactive method of inheritance and protection, it is necessary to focus on these three characteristics of Dali Bai Jiaoma.

3. Feasibility Analysis of the Combination of Jiaoma Culture and Board Games

The study supplemented and refined the theoretical and knowledge deficiencies in the previous literature review through expert interviews and evaluated the feasibility of promoting the inheritance and protection of Dali Bai Jiaoma through embodied interactive cultural board games. The interviews adopted purposive sampling to invite 7 experts in the relevant fields to participate in in-depth interviews. The recordings were transcribed and then analyzed systematically.

Based on expert interviews, this study summarized the findings in three areas: the current state of Dali Bai Jiaoma, issues in the development of board game products, and key considerations in the design of Jiaoma-themed board games.

3.1 Dali Bai Jiaoma

At present, the Dali Bai Jiaoma of the Bai people in Dali is facing multiple challenges during its transmission process. On one hand, there is a gap in the transmission process, as the older generation of artisans gradually withdraws, while the younger generation has insufficient awareness and willingness to learn about Jiaoma, resulting in a transmission gap and a decrease in practitioners. On the other hand, with the changes of the times, the patterns and usage methods of Dali Bai Jiaoma have constantly evolved, but the dissemination of related cultural knowledge is insufficient, and the public's understanding remains at a superficial level.

The current research mainly focuses on the functional, religious beliefs, and technical aspects. There are relatively few systematic studies from the perspective of patterns and visual symbols. The cultural value has not been fully explored. At the same time, some cultural and creative products' innovations are merely superficial and neglect the cultural connotations. Overall, the current protection methods are still mainly based on collection, publication, and exhibition, and the

forms are relatively monotonous, making it difficult to continuously attract young people's participation.

3.2 Board Game Products

At present, the awareness and acceptance of board games in China is still relatively limited. The public's understanding of board games mostly remains at the traditional forms, such as poker and mahjong, and their understanding of the diversity of modern board games is limited. They also lack experience. How to expand awareness and lower the participation threshold remains an important challenge. Meanwhile, although the board game market is developing rapidly, the phenomenon of product homogeneity is obvious. Some products overly pursue short-term benefits and neglect the innovation of gameplay and experience, which affects players' continuous participation. Some cultural board games only add visual elements without a deep integration of cultural content and game mechanics. In addition, the board game industry chain still has deficiencies, which affect the quality of industry development.

3.3 Dali Bai Jiaa Culture Board Game Product Design

The design of Dali Bai Jiaa board games should follow the principle of upholding tradition while innovating. It is necessary to ensure the accurate and clear expression of cultural information and avoid arbitrarily changing the cultural content to cater to the market. In the design, the cultural background, usage functions, application scenarios, pattern features, and production techniques of Dali Bai Jiaa should be systematically presented. Moreover, its folk, religious, and artistic values should be deeply explored to provide a cultural basis for the design.

Compared to ordinary cultural products, board games have a stronger ability to convey information and a more immersive experience. Therefore, it is necessary to clearly define the design goals, ensuring a high degree of compatibility between the cultural content and the game mechanism. Not only should cultural elements be reflected in the visual and component aspects, but also cultural connotations should be presented in the gameplay. This will enable players to gradually understand Jiaa culture during the entertainment experience, thereby promoting the dissemination and protection of traditional culture.

Based on the results of questionnaire surveys, field research, and expert interviews, this study identified representative elements of Dali Bai Jiaa and applied them to board game mechanics and visual design, resulting in three conceptual designs for Jiaa-themed board games. Each of the three designs explores different pathways for adapting Dali Bai Jiaa content into board games, drawing on distinct game mechanics and embodied interaction methods.

Option 1: The researcher discovered in their study that Jiaa has diverse functions and usage methods. Different ritual scenarios require the use of different Jiaa. The production of Jiaa requires specific tools and materials, and the use of Jiaa is often accompanied by offerings, rituals, and other behaviors. This key information serves as a transformation element for player interaction,

forming a strategy competition board game scheme. Players can collect tools and offerings, make Jiama to complete specific ritual tasks, and ultimately obtain cultural points. This circular mechanism closely links the strategic behaviors of players in collecting and making with the cultural goals of completing rituals and inheriting Jiama, enabling players to understand the symbolic meaning and ritual value of Jiama in their actions.

Option 2: The production and use of Jiama involve crafting, trading, and utilization. People employ Jiama not only during festivals or religious ceremonies but also in daily life to seek blessings and ward off misfortune. Different ritual contexts require distinct types of Jiama. The researcher has distilled these cultural characteristics into actionable game mechanics and information. Players assume roles with distinct skills, experiencing the full lifecycle of Jiama—from creation to activation, trading, and ritual use through a complete cycle. This immersive interaction enables them to grasp the cultural significance and heritage value of Jiama.

Option 3: Jiama, as woodblock-printed materials burned or posted during folk religious rituals, serve multiple purposes and carry symbolic meanings. Their patterns are diverse and their compositions distinctive. Jiama depicting the same god may exhibit subtle variations across different production periods or among different artisans. These differences reflect the dynamic characteristics of local beliefs, craft traditions, and iconographic systems. Scheme Three transforms the process of identification, memorization, and matching into the core gameplay experience. It aims to present the Dali Bai Jiama through symbol recognition and pattern memorization, enabling players to understand the cultural logic and aesthetic characteristics of the horse imagery through information identification and symbol matching.

Conclusion and Discussion

1. Conclusion

This study focuses on the innovative protection and inheritance of the Dali Bai Jiama, using a mixed research approach. It systematically examines the key information of the Dali Bai Jiama and the current challenges in its contemporary inheritance, and explores feasible paths for its integration with board game products. The study reveals that: 1) The current methods of protecting traditional culture are mostly static, and there are still limitations in public participation and continuous dissemination. 2) The current Jiama cultural creative products are highly homogeneous, mostly remaining at the visual symbol level, lacking in-depth presentation of the cultural background and connotation. 3) The research further verifies the feasibility of combining board games with traditional culture, achieving a cultural dissemination model of learning while playing. 4) Based on the research data, three board game design schemes are proposed, constructing cultural experiences through different mechanisms, and preliminarily proving the potential value of board games in the innovative protection and dissemination of Dali Bai Jiama.

2. Discussion

The survey results show that most respondents have a positive attitude toward cultural board games and recognize their value in promoting traditional culture. These findings are consistent with relevant conclusions from research on gamified communication, namely that game mechanics can enhance learning interest and cultural engagement through interactive participation and goal-driven approaches (Deterding et al., 2011). At the same time, this study further found that even though respondents' overall experience with board games was relatively limited, they still demonstrated a high willingness to participate, indicating that board games have a solid foundation of public acceptance as a medium for cultural dissemination.

The results of expert interviews indicate that the core values of the Jiamia culture are reflected not only in visual symbols but also in practical activities such as rituals, prayers for blessings, and folk customs. Therefore, it is difficult to fully convey its cultural significance through visual displays alone. This study attempts to incorporate embodied interaction theory into board game design, reconstructing cultural experience scenarios through players' decision-making, role-playing, and task completion. This finding extends previous studies on embodied cognition (Wilson, 2002) by demonstrating its applicability in cultural heritage gamification, particularly in ritual-based contexts.

This study also found that there might be certain tensions between cultural expression and the playability of the game. Excessive gaming might weaken the cultural context, reducing cultural content to symbolic elements, while overly emphasizing cultural narratives might affect the smoothness of the game mechanics and the entertainment experience. There needs to be a moderate balance between cultural content and game mechanics; otherwise, it is likely to affect the player experience and the dissemination effect (Mortara et al., 2013). Therefore, in the future design of cultural board games, a balance needs to be established between the depth of cultural expression and the player experience.

Recommendations

1. Research Applicability and Expansion

The proposed design approach in this study is not only applicable to the Dali Bai Jiamia, but also can provide references for other traditional cultures. By converting cultural behaviors into interaction rules, it can be extended to educational games, cultural experience products, and public communication scenarios, providing cross-media application possibilities for the revitalization of intangible cultural heritage.

Furthermore, the social interaction feature of physical board games helps enhance the effect of cultural dissemination and holds potential value for further promotion and industrial transformation.

2. Future Research

This study still has certain limitations. 1) The size and geographical scope of the user sample are relatively limited. In the future, cross-regional samples can be used to verify the generalizability of the research conclusions. 2) The current design mainly remains at the conceptual and prototype stage. Further evaluation of the long-term impact of different mechanisms on the depth of cultural understanding and memory effect through systematic user testing is still needed.

Future research can further conduct user tests and establish quantitative evaluation indicators to more systematically assess the impact of different game mechanisms on the depth of cultural cognition and memory effects.

Acknowledgment

To improve the grammar and readability of the article, the researchers used AI-powered language editing tools as an aid. However, all concepts, data, and content were entirely written and analyzed by the researchers; no AI tools were used to generate the research data or findings.

References

- Ariya, P., Wongwan, N., Intawong, K., & Puritat, K. (2025). Digital Literacy through Gaming : A Comparative Study of Knowledge Acquisition, Social Presence, and Emotional Reactions in Digital and non-Digital Board Games. *Social Sciences & Humanities Open*, 11, 101387. <https://doi.org/10.1016/j.ssaho.2025.101387>.
- Artese, M. T., Gagliardi, I., Fortunati, M., & Pasciuto, T. (2023). Storytelling and Gaming Tools for Easy Immersive Fruition of Intangible Heritage. *Digital Presentation and Preservation of Cultural and Scientific Heritage*, 13, 277 - 282. <https://doi.org/10.55630/dipp.2023.13.27>.
- Begy, J. (2017). Board Games and the Construction of Cultural Memory. *Games and Culture*, 12(7 - 8), 718 - 738. <https://doi.org/10.1177/1555412015600066>.
- Cai, Y., Gong, Z., Yang, Y., Xiao, Y., & Zhou, J. (2025). Embodied Interaction and Cultural Involvement : How Familiarity and Challenge Shape Tourism Rituals. *Journal of Hospitality and Tourism Management*, 65, 101335. <https://doi.org/10.1016/j.jhtm.2025.101335>.
- Chen, X., Zhu, X., Tang, Y., & Huang, Z. (2024). Exploring Visual Art Perception Through Gamification and Intangible Heritage Elements in Game Design. *Proceedings of the 3rd International Conference on Art Design and Digital Technology*. EAI. <https://doi.org/10.4108/eai.24-5-2024.2350058>.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From Game Design Elements to Gamefulness : Defining " Gamification". In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (9 - 15). <https://doi.org/10.1145/2181037.2181040>.

- Dong, H. (2022). *Research on the Design of Children's Cultural Board Games under the Perspective of Embodied Interaction* [Master's thesis, East China University of Science and Technology]. CNKI. **(In Chinese)**
- Dourish, P. (2019). *Where the Action is : The Foundations of Embodied Interaction* (2nd ed.). MIT Press.
- Gao, Y., Yang, J., & Zhao, W. (2024). Design of a Popular Science Interactive App for Yunnan Jiaoma Woodblock Prints based on Information Visualization. *2024 5th International Conference on Intelligent Design (ICID)*, 1 - 6. <https://doi.org/10.1109/ICID64166.2024.11024699>.
- Huang, K. L., & Huang, Z. Y. (2020). The Integration of Chinese Traditional Drama Culture in Board Game Design. *Popular Literature and Art*, (20), 70 - 71.
<http://www.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFDLAST2021&filename=DZLU202120053>. **(In Chinese)**
- Huang, P. C., Sirivesmas, V., & Punyalikit, R. (2025). The Significance and Application Value of Bai "Jiaoma" Images in Souvenir Design. *Journal of Educational Innovation and Research*, 9(2), 762 - 782. <https://so03.tci-thaijo.org/index.php/jeir/article/view/281670>.
- Jin, Y. C. (2021). *A Research on Communication Ethical Failures of Modern Literary Board Games from the Perspective of Communication Game theory* [Master's thesis, Shandong University]. CNKI. <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202201&filename=1021042684.nh>
- Merleau-Ponty, M. (2001). *Phenomenology of Perception* (C. Smith, Trans.). Routledge.
- Mortara, M., Catalano, C. E., Bellotti, F., Fiucci, G., Houry-Panchetti, M., & Petridis, P. (2013). Learning Cultural Heritage by Serious Games. *Journal of Cultural Heritage*, 15(3), 318 - 325. <https://doi.org/10.1016/j.culher.2013.04.004>.
- Qiu, H. J., & Yao, X. (2023). Research on the Design of National Intangible Cultural Heritage Theme Experiential Game Mode and Cultural Communication. *Design*, 8(2), 164 - 170. <https://doi.org/10.12677/design.2023.82022>. **(In Chinese)**
- UNESCO. (2003). *Convention for the Safeguarding of the Intangible Cultural Heritage*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000132540>.
- Wilson, M. (2002). Six Views of Embodied Cognition. *Psychonomic Bulletin & Review*, 9(4), 625 - 636. <https://doi.org/10.3758/BF03196322>.
- Xu, M. L. (2018). Application of Traditional Culture in Modern Product Design. *Art Technology*, 31(11), 178 - 179. <http://www.cnki.net/KCMS/detail/.aspx?dbcode=CJFDLAST2019&filename=YSSK201811139>. **(In Chinese)**
- Yang, Y. S. (2003). *The Paper Charms of Yunnan*. Yunnan People's Publishing. **(In Chinese)**

Yi, C., Huang, J., & Song, L. (2025). Enhancing Intangible Cultural Heritage Dissemination through Digital Experience : An Affective Events Theory Approach. *npj Heritage Science*, 13, 438. <https://doi.org/10.1038/s40494-025-02017-x>.