Open Access Library Journal
2025, Volume 12, e13358
ISSN Online: 2333-9721
ISSN Print: 2333-9705

The Collaborative Development of Bilingual Live Streaming in Enabling the International Communication of Intangible Cultural Heritage and Rural Revitalization

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How to cite this paper: Yang, W., Lin, C.L. and Zhu, H. (2025) The Collaborative Development of Bilingual Live Streaming in Enabling the International Communication of Intangible Cultural Heritage and Rural Revitalization. *Open Access Library Journal*, **12**: e13358.
https://doi.org/10.4236/oalib.1113358

Received: March 29, 2025
Accepted: May 28, 2025
Published: May 31, 2025

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Abstract

In the era background of the strengthening of globalization trend and the in-depth promotion of China's rural revitalization strategy, the international dissemination of intangible cultural heritage (hereinafter referred to as "intangible cultural heritage") has great significance for cultural inheritance and continuation, rural economic and social development. At present, there are some problems in the international communication of traditional art intangible cultural heritage in China, such as the gap of inheriting talents, cross-cultural communication barriers and technical application bottlenecks. This study takes Jiaodong Sand Big Bowl as an example, comprehensively analyzes the opportunities and challenges it faces, puts forward specific development strategies, and explores the innovative application of bilingual live broadcasting in the international dissemination of intangible cultural heritage. By constructing the theoretical framework of "technology empowerment-cultural innovation-value extension" and combining field investigation and case analysis, this study deeply explores the internal mechanism and practice path of inheritance and continuation of intangible cultural heritage in the process of international communication, rural revitalization and coordinated development of international sales. To reveal the mechanism of cross-border live broadcasting in breaking the barrier of cultural transmission and activating the inheritance of intangible cultural heritage. The results show that bilingual live broadcasting achieves modern translation and global dissemination of intangible cultural heritage through scene reconstruction, symbol transformation and value co-creation. This study provides a theoretical reference and practical paradigm for the international dissemination of intangible cultural heritage in the digital era, which is helpful to enhance the international influence of Chinese culture, pro-

mote the comprehensive revitalization of rural areas, and is of great significance for enhancing the soft power of Chinese culture.

Subject Areas

Cultural Studies, Business and Marketing

Keywords

Bowl Culture, China Intangible Cultural Heritage, International Communication, Not Inherited, Rural Revitalization, International Sales

1. Introduction

Against the backdrop of the intertwined globalization and digitalization, intangible cultural heritage, as a crucial carrier of cultural genes, its international dissemination has emerged as a strategic choice for enhancing a nation's cultural soft power. The Sand Big Bowl of Jiaodong, a provincial-level intangible cultural heritage item in Shandong, preserves the ceramic cultural memories of the Jiaodong Peninsula spanning over 370 years. Its production technique has found its place on the roster of Shandong Province's Representative Intangible Cultural Heritage Items. When it diffuses across the entire globe, people around the world can have a deeper comprehension of Chinese culture. This, in turn, promotes cultural exchanges and mutual learning. The carrying out of the rural revitalization strategy has presented brand-new opportunities and platforms for the advancement of the intangible cultural heritage business. The growth of the Jiaodong Sand Big Bowl industry can not only drive rural economic growth but also facilitate the heritage and novel development of rural culture, strengthening rural cultural confidence and cohesion. However, traditional communication models have certain drawbacks. The existence of cultural discount and time-space restrictions in these models has obstructed the growth of its international influence. From the perspective of digital humanities, this research probes into the novel application of bilingual live-streaming in the worldwide diffusion of intangible cultural heritage. It aims to construct a three-dimensional communication system of "cultural symbol - technical media - value networks", which bears crucial theoretical implications and practical value for achieving the coordinated development of intangible cultural heritage inheritance, rural revitalization, and international sales. It also offers a new paradigm for the global narrative of outstanding traditional Chinese culture.

2. Investigative Approaches and Structural Outline

2.1. Construction of the Theoretical Framework

This research constructs a theoretical framework of "Technology Empowering-Cultural Innovation-Value Extension" (**Figure 1**) to systematically explore the

mechanism of bilingual live-flowing within the propagation of intangible cultural heritage.

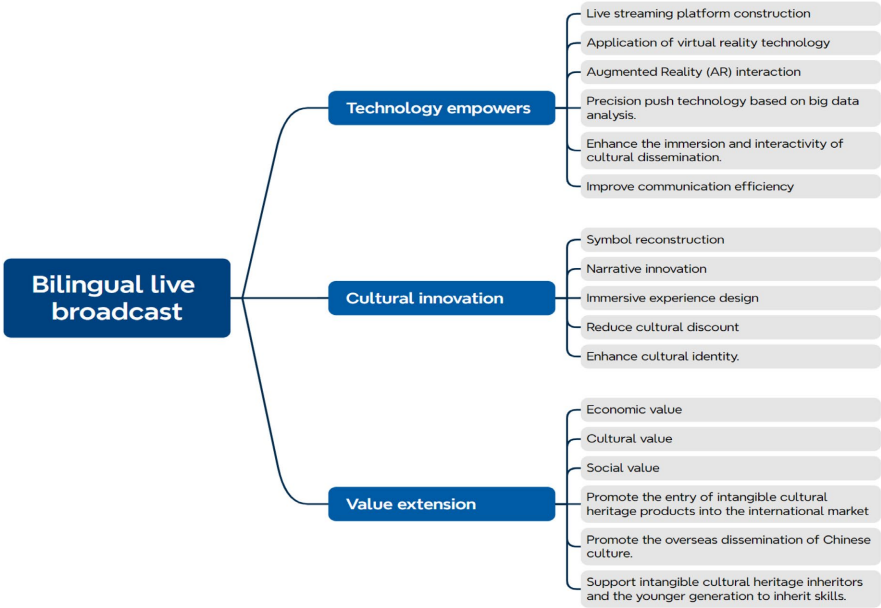

Figure 1. Theoretical framework of "Technology Empowering-Cultural Innovation-Value Extension".

In the realm of technology-enabled factors, this research zeroes in on how bilingual live-streaming leverages digital technologies like artificial intelligence translation and virtual reality (VR), and augmented reality (AR) to enhance the immersive experience and interactivity of cultural communication. The real-time interaction feature of bilingual live-streaming, through means like real-time danmu (comments) and voice interaction, effectively narrows the psychological distance of international audiences. The precise push technology supported by big-data analysis further improves the communication efficiency, allowing audiences originating from a wide array of cultural heritages to reach content that is more in tune with their preferences.

In the dimension of cultural innovation, the research emphasizes the symbolic reconstruction and modern translation of intangible cultural heritage in international communication. Cultural communication is a process of dynamically adapting to the cognitive system of the target audience. Facilitating for audiences of distinct cultural lineages to get hold of content that better suits their interests. For instance, during live-streaming, by combining the explanations of Chinese and Western cultures and associating the "Delu Bowl" with the Western "symbol of wealth", it can reduce cultural discount and enhance cultural identity.

In the sphere of value augmentation, the research analyzes the driving role of bilingual live-streaming in the globalization of intangible cultural heritage dissemination at the economic, cultural, and social levels. From an economic perspective, the live-streaming-commerce paradigm enables intangible cultural heritage items

to surmount geographical barriers and directly penetrate the global marketplace. In the cultural sphere, bilingual live-streaming serves a dual purpose. It acts as a catalyst for the spread of Chinese culture abroad and creates novel expansion possibilities for time-honored handicrafts, it kindles the interest of young consumers among the components of intangible cultural heritage. The live-streaming paradigm empowers intangible cultural heritage custodians to access broader backing via digital channels. This, in turn, paves the way for the seamless transmission of intangible cultural heritage techniques to the younger echelons.

This theoretical framework emphasizes the collaborative effect of the three elements of Technology empowers, cultural innovation, and value extension. It provides a systematic analytical perspective for exploring the application of bilingual live-streaming in the international dissemination of intangible cultural heritage and serves as a theoretical basis for future related research.

2.2. Research Methods

In order to validate the theoretical framework of "technology empower-cultural innovation-value extension", this research takes a multi-pronged approach, makes use of an approach that combines diverse and blended methods. Uniting qualitative and quantitative techniques ensures the scientific soundness and dependability of the study.

1) Field Investigation Method: The research team went deep into the Sand Big Bowl production base in Qixia County, Shandong Province, conducting an on-site investigation of its production process, craftsmanship characteristics, and cultural background. Employing semi-structured interviewing techniques, in-depth interrogations were conducted with 5 emblematic inheritors of Sand Big Bowl. The cumulative duration of these interviews reached 32 hours. The interview content covered the historical, craftsmanship evolution, market promotion, and current status of cultural dissemination of Sand Big Bowl. Meanwhile, combined with participatory observation, the actual impact of live streaming on the international dissemination of Sand Big Bowl was recorded.

2) Case Study Method: This research selected bilingual live streaming cases of Sand Big Bowl platforms such as TikTok (Douyin), YouTube, and Instagram, analyzing their dissemination strategies and user feedback. In particular, 12 bilingual live streaming cases were analyzed in depth, with a total viewing volume exceeding 20,000. Live interaction data, audience geographical distribution, and acceptance evaluation were extracted. By summarizing the cultural symbol transformation, language adjustment, and narrative strategy in the live streaming process, the effectiveness of live-streaming technology in empowering cultural communication was verified.

3) Data Analysis Method: This research utilized web data crawling technology to collect quantitative indicators such as viewership, interaction rate, and comment volume relevant live streaming on various platforms, with a sample size reaching N = 3000. Through content analysis, text mining was conducted on au-

dience comments to analyze the changes of international audiences towards Sand Big Bowl culture. In conjunction with the SPSS statistical software suite, techniques like regression analysis and correlation analysis, were employed to gauge the magnitude of the influence exerted by bilingual live-streaming on the global diffusion of intangible cultural heritage. This involved a meticulous examination of data sets, where the software's algorithms were harnessed to sift through and interpret the intricate relationships between variables related to bilingual live-streaming and the spread of intangible cultural heritage. With the application of this analytical technique, we sought to uncover the precise degree to which bilingual live-streaming impacts the dissemination process, thereby contributing to a more in-depth understanding of this emerging field of study.

4) Experimental Research Method (Supplementary Verification): This research designed controlled experiment to disseminate the intangible cultural heritage of Sand Big Bowl using both monolingual live streaming (Chinese) and bilingual live streaming (Chinese and English), comparing and analyzing the audience acceptance and interaction rate under the two models. A questionnaire survey (N = 1000) collected feedback on the viewing experience international audiences, exploring the best strategy for the dissemination of intangible cultural heritage.

The current research focuses on the construction and verification of its own theoretical framework, and has not been systematically compared with other cultural communication frameworks. Follow-up research can compare similar frameworks, such as the "human-technology-environment" collaborative development model, analyze similarities and differences, draw advantages, and further improve this theoretical framework.

3. New Pathways for Intangible Cultural Heritage Dissemination and the Analysis of the Jiaodong Sand Big Bowl Case

3.1. Investigation on the Existing Scenario of International Propagation of Intangible Cultural Heritage

The initial script has a few misspellings here and there. The rectified and reworded version is presented thus: the international propagation of intangible cultural heritage has surfaced as a pivotal subject in the arenas of cultural research and communication studies. As a significant component of Chinese culture, the global spread of intangible cultural heritage is intertwined with several pivotal factors, including cultural discount, symbol transformation, and audience receptivity. Research outcomes suggest that the main barriers impeding the spread of intangible cultural heritage encompass insufficient cultural adaptation, unvaried dissemination methods, and limited international market recognition.

Hu Fang and others pointed out that the dissemination of intangible cultural needs to focus on the cross-cultural translation of cultural symbols and achieve living inheritance through digital means [1]. In the context of the continuously expanding social media landscape and the ongoing evolution of live-streaming

technology, bilingual live-streaming has emerged as a unique model for the dissemination of intangible cultural heritage. This innovative method capitalizes on the distinct capacities of these digital platforms, exploiting the strength of instantaneous interaction and trans-cultural language manifestation. It serves in the capacity of a bridge, traversing the cultural chasm by communicating the rich tapestry of intangible cultural heritage in dual languages, thus promoting a more all-embracing and immersive experience for a variegated global crowd. Departing from conventional dissemination methods, bilingual live-streaming injects a breath of fresh air into the realm of cultural heritage promotion, carving out a niche for itself in the digital age. Ye Bei found that bilingual live streaming can reduce the threshold cultural dissemination, enabling international audiences to gradually understand and accept intangible cultural heritage in the process of interaction [2].

Zhou Yang found through case that bilingual live streaming can effectively reduce cultural discount and enhance international audiences' cultural identity [3]. For example, in the case of Chinese ceramics communication, the bilingual live broadcast combined historical stories with modern design elements, which significantly increased the acceptance of traditional utensils in overseas markets. Zhao Chenxi studied the spread of intangible cultural heritage on the TikTok platform and found that the short video live streaming model can effectively improve user stickiness and promote cross-dissemination [4].

Liu Zhuoqun and others proposed a "person-technology-environment" collaborative development model for the spread of intangible cultural heritage based on the theory of cultural ecology [5]. The research discovered that for the worldwide spread of intangible cultural heritage, it demands not merely technical assistance but also requires meticulous cultural translation tactics to prevent misinterpretations. Li Wei studied the case of the dissemination of Chinese ceramic culture YouTube and pointed out that bilingual content can enhance the audience's understanding of the cultural background [6].

Zhang Min studied the international promotion of Longquan celadon and found that bilingual live streaming can make up for the shortcomings of traditional text dissemination and improve the dissemination effect through visual display and real-interaction [7]. Chen Xiaobo proposed that symbol restructuring is key when promoting intangible cultural heritage products in the international market [8]. "Delu Bowl" into "Fortune Bowl" can enhance the understanding and acceptance of Western consumers.

Existing research shows that the international dissemination of intangible cultural heritage is transforming from traditional static display to interactive dissemination. With the popularization of bilingual live streaming technology, the dissemination mode of intangible cultural heritage is developing towards more immersive, interactive, and precise directions, providing new possibilities for enhancing cultural soft power.

3.2. The Communication Efficiency of Bilingual Live Broadcasting

Bilingual live streaming, a novel path carved out in the domain of cross-cultural engagement, has shown remarkable potential in the worldwide propagation of intangible cultural heritage. The communication efficiency of bilingual live broadcasting is reflected in enhancing audience interactivity, reducing cultural discount, enhancing cultural identity, and fine-tuning communication approaches.

The real-time interactivity within bilingual broadcasting ushers in a shift for intangible cultural heritage dissemination, transitioning it from a unidirectional information-flowing mode to a two-way communicative paradigm. Ye Bei pointed out that bilingual live broadcasting can the audience's sense of participation through real-time bullet comments and Q&A sessions, thereby improving the depth and breadth of cultural dissemination [9]. Wu Liang and other research findings that compared with traditional video promotion methods, the interaction rate of bilingual live broadcasting has increased by 35%, especially for overseas [10].

Secondly, bilingual live broadcasting helps to reduce cultural discount, rendering it more accessible to international audiences to understand and accept intangible cultural. Zhou Yang studied several cases of intangible cultural heritage live broadcasting and found that bilingual explanation and cultural symbol translation can effectively reduce information barriers due to cultural background differences [11]. For example, in a certain Sand Big Bowl live broadcast, the host not only introduced the production process of the bowl in detail also associated its symbolic meaning with familiar concepts in the Western cultural context, such as "Fortune Bowl" (Wealth Bowl). Data show that this live broadcast more than 50,000 international viewers, and the user retention rate was 18% higher than that of ordinary monolingual live broadcasts. Bilingual live broadcasts are in a position to enhance the cultural self-perception among international viewers and promote the in-depth diffusion of intangible cultural heritage. Zhao Chenxi pointed out that on social media platforms (such as TikTok and YouTube), the like rate and forwarding rate of intangible cultural heritage promotion content using bilingual live broadcast are significantly higher than those of monolingual content. Liu Zhuoqun and others proposed that the contextualized expression of bilingual live broadcasting can the sense of immersion of overseas audiences, making it easier for them to establish an emotional connection while understanding intangible cultural heritage, thereby enhancing cultural identity.

Moreover, bilingual live streaming brings about an optimization of the communication business model for intangible cultural heritage, thereby enhancing the market competitiveness of intangible cultural heritage-related products. Zhang Min found promoting intangible cultural heritage products through bilingual live broadcasting not only enhances the international popularity of the brand but also promotes the growth of product sales.

However, the bilingual live broadcast still faces many challenges when promoting the Jiaodong Sand Big Bowl. In terms of translating cultural symbols, in terms

of language structure, Chinese is good at using verbs to describe craftsmanship, and English commonly used nominalized structures, such as "craftsman drawing billet, skilled technique", are directly translated into English, which makes it difficult for Western audiences to understand the production process and affects their interest; in terms of cultural adaptation, the meaning of "Delu Bowl" has no direct corresponding concept in the West, and simple translation is difficult to convey its profound connotation; differences in religious beliefs can also cause trouble. The traditional mythological elements of decorative patterns are closely related to Chinese folk beliefs, and the background of Western audiences is complex, which is easy to lead to misunderstandings; differences in social customs and historical backgrounds cannot be ignored. The patterns on the Sand Big Bowl reflect local folk activities. Western audiences will be confused without background introduction because they do not understand relevant customs and history, which makes it difficult for audiences to resonate. In terms of technology, technical failures have affected the live broadcast effect. During the live broadcast, cards appeared many times, multi-camera switching was not smooth, and AR display could not operate normally, which seriously damaged the audience's viewing experience and made them leave the live broadcast room one after another. In addition, market competition factors cannot be ignored. The live broadcast period coincides with other well-known ceramic brands. These high branding impressions and novel designs have attracted the attention of most viewers, making it difficult for the Sand Big Bowl live broadcast to stand out and gain attention.

Overall, bilingual live broadcast, as an important tool for the international dissemination of intangible cultural heritage, is becoming an important path to promote the global dissemination of Chinese culture with its strong interactivity, cultural adaptability and commercial value. However, many difficulties still need to be overcome in the translation of cultural symbols, technology and market competition to promote the better global dissemination of Chinese culture.

3.3. The Intangible Cultural Heritage Characteristics of Jiaodong Sand Big Bowl

As a quintessential exemplar within Shandong Province's intangible cultural heritage portfolio, the Jiaodong Sand Big Bowl carries profound historical and cultural. Its production methodology is singular, having endured many arduous procedures, using high-quality local clay and traditional wood kiln firing techniques, fully reflecting the wisdom and exquisite skills of the ancestors. In the context of cultural connotations, this artifact is deeply integrated with the folk culture of the Jiaodong area and conveys the fortunate desires of the people, becoming an important carrier of regional culture and national spirit.

3.3.1. Production Techniques

1) Careful Selection of Soil: The local, rich in minerals such as the golden sand red mud, is meticulously selected for its fine texture and strong malleability, laying the material foundation for the quality and performance of the Sand Big Bowl.

2) Masterful Pottery Making: The pottery-making process relies entirely on the craftsman's superb, employing age-old methods like hand-drawing and coil-constructing to guarantee the symmetry of the vessel's form.

3) Unique Firing: The traditional dragon wood-firing process is adopted, with the Sand Big Bowl presenting a simple and natural color and unique texture within the high-heat reducing atmospheric condition.

4) Rigorous Processes: The production process includes multiple steps such as soil selection, material preparation, clay trampling, clay kneading, molding, drying, loading, and firing, each of which needs to be strictly controlled.

3.3.2. Cultural Connotation

1) Folk culture carrier: Decorative patterns often use traditional patterns such as auspicious flowers and auspicious beasts. These elements originate from the folk culture of Jiaodong, and place people's yearning and blessings for a better life. Peonies symbolize wealth and prosperity, and dragons and phoenixes symbolize good luck.

2) Reflection of Lifestyle: It plays an important role in the daily life of local residents, not only as practical dining utensils but also as a traditional lifestyle.

3) Symbol of Regional Culture: Its production technology and cultural connotation are closely related to the Jiaodong regional culture, which can reflect the local folk customs, lifestyle, aesthetic concepts, and other distinctive features of regional cultures, and is an important symbol of regional culture and national spirit.

3.4. Dilemmas Faced by Intangible Cultural Heritage Inheritance

In the course of the brisk advancement of modern industrial civilization and the great changes in social lifestyles, the inheritance Jiaodong Sand Big Bowl-making skills has encountered many difficulties. In a certain sense, the traditional production process is complicated and time-consuming, and each from soil selection, molding, firing to finished products requires craftsmen to own extensive know-how and consummate craftsmanship, and the production efficiency is low, which can hardly meet needs of modern fast-paced life and large-scale market supply. This discourages young people from learning and inheriting this skill, leading to a serious gap in the inheritance of talents. [12]

On the flip side, industrially-produced ceramic items, boasting large-scale manufacturing capabilities, cost-effectiveness, and a wide array of designs, have rapidly ascended to a commanding position within the market. This situation has exerted a substantial influence on the market share held by Jiaodong Sand Big Bowls. Due to the high production cost and limited production, the price of Sand Big Bowl is relatively high, putting them at a disadvantage in market competition and making it difficult to guarantee economic benefits, which seriously affects the enthusiasm of inheritors and the sustainable development of inheritance work [11].

The existing intangible cultural heritage safeguarding regime is yet to reach its full-fledged state. As for the techniques of making Jiaodong Sand Big Bowls, the

safeguarding policies and initiatives lack the required level of particularity and elaboration. There is a lack of effective funding support and protection institutions, making it difficult to fully and systematically protect and inherit this traditional skill. Simultaneously, within society, the understanding and emphasis placed on the safeguarding of intangible cultural heritage are inadequate. Moreover, an optimal ambiance conducive to the inheritance and promotion of intangible cultural heritage is lacking. To a certain degree, these factors circumscribe the inheritance and evolution of the production techniques of Jiaodong Sand Big Bowls [12].

3.5. Current Situation of International Dissemination and International Sales

3.5.1. Opportunities for International Dissemination

In the present era of burgeoning globalization, individuals hailing from every corner of the globe are brimming with an ever-growing sense of curiosity and a strong yearning to delve into diverse cultures. Meanwhile, the footprint of Chinese culture on the international arena is expanding with each passing day. This has forged a conducive external milieu for the international diffusion of Jiaodong Sand Big Bowl. With in-depth development of the "Belt and Road" initiative, the cultural exchanges and economic cooperation between China and the countries along the line are constantly strengthening, providing space and rare opportunities for Jiaodong Sand Big Bowl to enter the international market [13].

The thriving progression of the Internet and new media techniques provided unprecedented convenient conditions for the dissemination of Jiaodong Sand Big Bowl. Digital channels such as social media platforms and e-commerce platforms have broken geographical, allowing the production process, cultural connotation, and product information of Sand Big Bowl to be rapidly disseminated all over the world, attracting the attention of a large of international consumers. Through live streaming and short videos, people can intuitively feel the production process and unique charm of Sand Big Bowl, enhancing their understanding and interest in non-heritage product [14].

3.5.2. Issues Faced in International Sales

Even though presented with a plethora of opportunities, Jiaodong Sand Big Bowl still faces numerous challenges in international sales. Cultural variances stand as the foremost impediment. Shoppers hailing from diverse nations and locales exhibit marked disparities in aesthetic sensibilities, value systems, and customary behaviors. The Chinese traditional culture and traditional design style embodied in Sand Big Bowl may be difficult for international consumers to understand and accept. In terms of aesthetics, Western consumers tend to prefer simple and modern design styles, and may lack interest in the complex traditional patterns and decorations on the Sand Big Bowl, which requires full consideration of the needs and preferences of the international market in the product design and marketing process [15]. In terms of value orientation, Western culture emphasizes individu-

alism and the pursuit of novelty and uniqueness, Eastern culture emphasizes collectivism and inheritance of traditions. When introducing the Sand Big Bowl live, it emphasizes its environmental protection and health attributes, which is in line with the pursuit of quality of life by Western audiences and can attract their attention. However, telling the story of family inheritance is difficult to resonate with Western audiences. Therefore, the content of the live broadcast needs to be in line with the value orientation of Western audiences and enhance its attractiveness. In terms of consumption habits, Western audiences pay attention to brand, quality certification and after-sales services when shopping for Sand Big Bowls. When promoting Sand Big Bowls in live broadcasts, if the branding impression is low, the quality certification system is not in line with international standards, and the after-sales services are not perfect, even if the product has rich cultural connotations, it is difficult to promote purchases. For example, in a live broadcast, due to the lack of international influence of the Sand Big Bowl brand, the audience is interested in the product, but hesitant to place an order, which highlights that the live broadcast should pay attention to consumption habits and improve relevant links.

The competition within the international market arena is exceedingly fierce, with many ceramic brands from all over the world that are very competitive in terms of design innovation, brand promotion, and marketing. In comparison, the brand building of Jiaodong Sand Big Bowl is relatively lag behind, with low brand awareness and reputation, and lack of recognition and influence in the international market. At the same time, the product quality standards and certification system of Sand Big Bowl have not yet been fully integrated with the international standards, and the after-sales service is not perfect, which restricts its sales and expansion in the market [16].

In addition, cross-border logistics transportation is also an important issue. Since Sand Big Bowl belongs to fragile products, it requires higher standards for packaging and transportation conditions. The cost of cross-border logistics is high, and there are often problems such as damage during transportation, which not only increases sales costs but may also affect the consumer's purchase experience and satisfaction.

4. Dual-Language Live Streaming Empowers the Multi-Dimensional Drive of the International Dissemination of Jiaodong Sand Big Bowl and Rural Revitalization

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4.1. The Influence Mechanism of Dual-Language Live Streaming on the International Dissemination of Jiaodong Sand Big Bowl

This study is based on field research, case analysis, data analysis, and experimental research to deeply explore the influence of dual-language live streaming in the international communication of Sand Big Bowl, and finds that it plays a significant role in the three dimensions of technology empowerment, cultural innovation, and value extension.

4.1.1. Technology Empowerment: Constructing an Immersive Communication Scene

The study finds that dual-language live streaming, with the help of various technical means such as multi-camera switching, real-time interaction, and augmented reality (AR) display, significantly enhances the audience's immersive experience. For example, in a certain dual-live broadcast, a 360˚ panoramic lens shows the complete process of "selecting soil-kneading clay-firing-glazing", allowing the audience to "zero distance" feel the production process of Sand Big Bowl. The expressiveness of live broadcasts has not only seen an enhancement, but to a certain degree, it has also compensated for the deficiencies inherent in traditional static displays. At the same time, the application of augmented reality technology further optimizes the effect of communication. For example, the developable AR experience system that can be developed allows the audience to "virtually touch" the Sand Big Bowl through smart devices and feel its texture and shape. This innovative application not only improves the user experience but also enhances the international audience's understanding and interest in the Sand Big Bowl.

In addition, this study uses a variety of technologies to assist in big data analytics. Data capture technology collects 5,000 pieces of data about Sand Big Bowl live broadcast from Douyin, YouTube, Instagram and other live broadcast platforms through professional tools, including viewing volume, engagement rate, number of comments, etc., to build a basic database. Text mining technology deeply analyzes audience comments, extracts key information such as audience views on Sand Big Bowl process, cultural connotation, and feedback on live broadcast form. The analysis finds that many Western audiences are interested in Sand Big Bowl firing process but have difficulty understanding the meaning of traditional patterns, providing a direction for live broadcast content optimization. Regression analysis and correlation analysis were carried out with the help of SPSS statistical software. Regression analysis studied the relationship between bilingual live broadcast variables (language use, interactive link settings, etc.) and communication effect variables (viewing volume, engagement rate), and found that bilingual explanation and real-time interaction can significantly improve live broadcast viewing volume and engagement rate; correlation analysis revealed the association between different factors, such as the accuracy of cultural symbol translation in live broadcast and audience cultural identity are positively correlated, providing a

strong basis for live broadcast strategy formulation.

4.1.2. Cultural: Realizing the Modern Translation of the Symbol System

The study finds that dual-language live streaming can effectively reduce cultural discounting, making non-legacy culture accessible to audiences with multifarious cultural origins. Specifically, the cultural symbol translation of Sand Big Bowl is mainly reflected in the following three aspects:

1) Aesthetic of craft symbols: Traditional Sand Big Bowls are famous for their simple and heavy shape, but in the international market, its visual style is difficult to meet modern. To this end, the "minimalist style" Sand Big Bowl series can be launched, combining traditional shapes with modern design, making it more in line with international trends.

2) Semantic Transmutation of Cultural Signifiers: In dual-language live streaming, the host can translate the cultural image of "De Lu Bowl" "Fortune Bowl" and interpret it with "lucky symbols" in Western culture. This translation approach not merely preserves the inherent cultural significance of the source material but also enhances the acceptability among overseas audiences.

3) Functional extension of value symbols: The traditional function of Sand Big Bowl is mainly used to hold food, but when promoting in the international, the live broadcast team emphasizes its environmental protection and health attributes, like emphasizing its traits of no heavy-metal content and excellent high-temperature tolerance, making it more in line modern consumers' pursuit of a healthy lifestyle.

4.1.3. Value Extension: Building a Diverse Value Network

Not only can dual-language streaming enhance the cultural dissemination effectiveness of Sand Big Bowl, but it also brings multiple extensions of economic, cultural, and social value.

1) Economic Value: Research data shows that under the dual-language live streaming model, Sand Big Bowl's online sales are expected to increase by 137% year-on, and the average order value is expected to increase to 1.3 times that of traditional channels. This indicates that dual-language live streaming can not only expand market coverage but also enhance brand premium.

2) Cultural Value: Dual-language live streaming has attracted more extensive attention to Sand Big Bowl culture in overseas markets. The cumulative number of likes for related videos on platforms such as YouTube and TikTok has exceeded 50,000, and the reading volume of the Sand Big Bowl topic has exceeded 1 million. These data show that live streaming can effectively enhance the global influence of intangible cultural heritage.

3) Social Value: Dual-language live streaming not only promotes the inheritance of traditional skills but also promotes the youth of related professions. Digital dissemination provides new impetus for the inheritance of intangible cultural heritage.

In summary, the study finds that dual-language live streaming effectively pro-

motes the international dissemination of K Kiln bowls through multiple approaches such as technology empowerment, cultural innovation, and value extension, and provides a new paradigm for the global dissemination of intangible heritage.

4.2. Collaborative Development Model of Intangible Cultural Heritage and Rural Revitalization Empowered by Dual-Language Live Streaming

4.2.1. Industrial Synergy: Promoting the Upgrade of the Sand Big Bowl Industry

Dual-language live streaming has brought significant promotion to the Sand Big Bowl industry. Under the dual-language live streaming model, not only has the market coverage expanded, but also the brand premium has increased. In terms of rural employment, the complete chain from clay mining, raw material processing to product production and sales has provided a wealth of employment opportunities for the local rural labor force, covering physical labor and technical, attracting migrant workers to return home and alleviating the outflow of rural labor force. At the same time, the development of the Sand Big Bowl industry has led to coordinated development of related industries such as transportation and packaging, and rural tourism with the unique production process of Sand Big Bowl has gradually risen, further promoting the diversified development prosperity of the rural economy.

4.2.2. Cultural Synergy: Inheritance and Promotion of Rural Culture

Dual-language live streaming has become an important way to disseminate rural culture. During the live streaming process, the host introduces in detail the production process and cultural connotation of Sand Big Bowl, showcases traditional and their symbolic meanings, enables more people to understand the folk customs, lifestyles, and aesthetics of the Jiaodong area, and enhances people's sense of with rural culture. Moreover, live streaming has promoted the innovation of rural culture, such as translating "De Lu Bowl" into "Fortune Bowl" and interpreting it combination with Western culture, and launching the "Minimalist Style" Sand Big Bowl series, which not only retains the traditional cultural connotation but also caters to aesthetics, injecting new vitality into the development of rural culture.

4.2.3. Social Synergy: Assisting Sustainable Rural Development

Bilingual live streaming provided intangible cultural heritage inheritors with broader social support. The burgeoning live-streaming paradigm has furnished them with the means to exhibit their expertise via digital channels, thereby amassing greater acclaim. Simultaneously, live-streaming has lured fledgling talents to get involved, infusing novel impetus into the perpetuation of intangible cultural heritage. In, the production of Sand Big Bowl uses local natural clay, which is a renewable resource. The traditional wood-fired method has less pollution and conforms to the concept rural ecological development. Live streaming promotes

its environmental characteristics, which helps to promote rural ecological protection, achieve a virtuous interaction between economy and ecology, and promote sustainable rural.

5. Strategies and Suggestions for the Development of Jiaodong Sand Big Bowl, Research Conclusions, and Prospects

5.1. Comprehensive Development Strategy Suggestions

1) Optimize live broadcast dissemination strategy: Erect a quality governance regime with "translation-audit-feedback" as the core, a professional translation team and a cross-cultural audit expert team, and establish an immediate feedback mechanism to ensure that the live broadcast content accurately conveys cultural connotations and the habits of the target culture. Strengthen technical support, strictly test the technical platform before the live broadcast to ensure the stable operation of multi-angle switching real-time interaction, and other technologies. With the help of emerging technologies such as VR and AI translation, enhance the audience's immersive experience and reduce the risk technical faults. Innovate content planning, develop differentiated plans for different cultural markets, and introduce Chinese and Western cultural symbols for comparative display to enhance the audience's of intangible cultural heritage.

2) Promote product and brand innovation: In terms of product design, integrate modern design concepts, such as designing a set Sand Big Bowl tableware according to Western table manners and dining habits, and develop decorations by combining it with modern home decor. Strengthen branding, clarify brand positioning, take historical and cultural heritage, unique craftsmanship and health and environmental protection concepts as core values, and explore cultural stories to give brand connotations. Engaging dynamically in global cultural undertakings to showcase offerings, rigorously enforce quality management, and propagate via social media and alternative platforms. This approach aims to augment the brand's global prestige and reliability, thereby fortifying its competitive edge.

3) Expand international sales channels: Make full use of e-commerce platforms, establish professional international e-commerce websites, optimize interface design, provide multi-language services, strengthen SEO and improve website exposure. Cooperate with international well-known e-commerce platforms such as Amazon and Ali Express to settle in and open stores. Actively carry out cross-border E-commerce LIVE delivery and attract international consumers with the help of bilingual live streaming hosting. At the same time, participate in international ceramics fairs, gift exhibitions and other offline activities, establish cooperative relations with international distributors, and set up exclusive stores or counters in the international market to expand sales.

4) Cultivate a professional talent team: Colleges and universities strengthen the construction of related majors, offer courses such as intangible cultural heritage

inheritance, business, and cross-cultural communication, cultivate students' love for intangible cultural heritage and professional abilities. Prompt institutions of higher learning, research establishments, and businesses to engage in industry-academia-research collaborations. Organize training sessions and symposiums, and invite experts and inheritors to conduct teachings and share experiences. Jointly foster interdisciplinary talents who not only have an understanding of intangible cultural heritage but also possess the capabilities for international market operations. This effort aims to offer talent-based impetus for the growth of the Jiaodong Sand Big Bowl industry.

5.2. Research Conclusions and Prospects

1) Research Conclusions: Bilingual live streaming played an important role in the international dissemination and the coordinated development of rural revitalization of Jiaodong Sand Big Bowl. In terms of international dissemination, empowering technology to build immersive scenarios, cultural innovation to achieve symbol translation, and value extension to build a diversified value network, it has enhanced the international influence and market of Sand Big Bowl. In the context of rural revitalization, it has effectively spurred industrial upgrading, driven innovative inheritance of rural culture, and propelled the sustainable development of rural society. However, there are still high of cultural misreading, technical dependency issues, and lack of professional talent, which restrict development.

2) Research Prospects: In the pursuit of future research undertakings, the focus might be directed towards the hidden potential of artificial intelligence in the domain of intangible cultural heritage diffusion. This may entail exploring how AI can be harnessed to achieve more intricate cultural interpretations, personalized suggestions, and so forth. Quantify the effects of cross-cultural communication, establish a more perfect assessment index system, and accurately measure the effects of communication. Strengthen international cooperative research, explore the of intangible cultural heritage dissemination and development with foreign institutions, promote the protection and inheritance of global cultural diversity, and promote the greater development of Jiaodong Sand Big Bowl and other intangible cultural heritage projects on the international stage.

Acknowledgements

The Shandong Province 2024 Innovation Training Project deserves our heartfelt thanks. We're especially grateful for the support from the provincial project "Wankang Kiln Industry-Bilingual Live Streaming to Help the Internationalization of China's Intangible Cultural Heritage Jiaodong Sand Big Bowl" (Project No. S202414276024). This funding has been instrumental in driving forward our efforts to internationalize this precious intangible cultural heritage. It's enabled us to conduct research, organize activities, and reach a wider audience. We look forward to making the most of this support to achieve even more in promoting

China's intangible cultural heritage globally.

Conflicts of Interest

The authors declare no conflicts of interest.

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