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Research on the Evaluation Index System Construction of Online Games Overseas Communication

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Abstract:
Online games have become a new medium for international cultural communication, but Chinese overseas games mostly take western culture as their themes at present, which leads to the common phenomenon of fragmented and hollowed expression of Chinese culture. Through the study of related theories about online game ontology, overseas communication of games and evaluation index system of communication power, the author analyzes the current situation of overseas communication of online games, focus on the content expression of cultural confidence and constructs the prototype of basic evaluation index. Then the prototype of the evaluation system is used to verify the Self-developed Game Database and proofread the evaluation results and background internal data, so as to form an evaluation index system of online games overseas communication.

Keyword:
Online Games; Overseas Games; Overseas Communication; Evaluation Index; Cultural Confidence

1. Introduction

Chinese games have achieved remarkable success in international markets, generating significant economic benefits globally in recent years. As an interactive art form, games serve as an excellent medium for cultural representation. Since the early 21st century, researchers have gradually recognized that video games not only provide entertainment and economic benefits but also embed various humanistic values [1]. In today's era of digital twins and cryptographic technologies driving the construction of the metaverse, there is a growing consensus on the importance of using online games to better showcase national culture. Despite the outstanding international success of Chinese games, few of them incorporate Chinese narratives. As of March 2022, among the top 30 highest-grossing Chinese games overseas, only "Three Kingdoms" is closely related to Chinese culture, with five other games featuring Chinese elements in their characters.

The pressing question is how to leverage the subtle and pervasive nature of games to encourage innovative expressions of cultural confidence. Current policies primarily focus on superficial and explicit criteria for evaluating supported projects [2], lacking a unified, comprehensive, and reliable evaluation index system, especially one that encourages innovative displays of cultural confidence. This gap is also evident in academic

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research.

This paper aims to focus on the cultural confidence expressed in the content of exported games and to develop an evaluation index system for the overseas dissemination of online games. Through comprehensive analysis, the study will explore the factors influencing dissemination effectiveness and their interrelationships. The goal is to support China's strategy of "telling the Chinese story well" and promoting cultural outreach through successful game exports.

2. Literature Review

2.1 Development of Online Game Research

Foreign scholars were among the first to study video games, with research in Western countries evolving through three main stages: aesthetic exploration from a literary theory perspective, the establishment of game studies, and examining video games through the lens of art philosophy [3]. The potential of online games as carriers of cultural values has attracted considerable academic attention. As mentioned earlier, industry professionals abroad recognized in the early 21st century that games could embed various humanistic values, including ethical and political viewpoints. Chinese scholars also believe that games, as a medium of dissemination, can subtly and effectively communicate cultural values [4]. The phenomenon of overseas players of the game "Genshin Impact" taking an interest in Chinese Peking Opera exemplifies the cross-cultural appeal of online games [5]. Some scholars, applying traditional art theories to the aesthetic evaluation of games, argue that video games play an irreplaceable role in disseminating national culture and enhancing human creativity [6]. Others acknowledge that while online games have immature aspects, they can effortlessly transcend cultural boundaries and bridge different racial sentiments [7].

In summary, the academic community has recognized the value of games as mediums for the dissemination of national culture, and related research on communication strategies and game design methodologies has gained attention. Therefore, establishing an evaluation index for the overseas dissemination of online games based on cultural confidence has a solid theoretical foundation.

2.2 Related Evaluation Systems Research

As early as 1969, foreign scholars began focusing on the quantitative study of mass media dissemination power. Gerhard H. Fischer (1972) proposed using formulas to predict changes in audience perceptions based on multiple dimensions, thereby quantifying the dissemination power of media content [8]. Anita (2011) developed an evaluation system for serious games, categorizing educational games into educational and gameplay dimensions. Jovelin M. Lapates (2017) used NetLogo software to simulate the spread of computer viruses and extrapolated factors influencing the dissemination of online games, identifying key factors such as the total number of players, the number of players within a player's social circle, the number of initial players, conversion rates, player attrition rates (analogous to recovery rates), and player abandonment rates (analogous to immunity rates), with the number of players in a player's social circle having the greatest impact [9]. Various countries' evaluations of online games are often reflected in their game rating systems. The most representative is the Entertainment Software Rating Board (ESRB) in the United States, which emphasizes "us-

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ability" to help parents make informed decisions [10]. However, because of this focus, the ESRB's evaluation system cannot fully assess a game's quality.

In China, research on dissemination power evaluation systems is relatively broad. This section will review studies closely related to this topic. First, in the field of international communication evaluation, it is often divided into four dimensions: subject, appeal, channel, and type [11]. Liu Yannian proposed a framework of "several indicators, one scale," which includes four primary indicators: infrastructure, content production, communication impact, and market operations, as the basis for an evaluation system [12]. Second, in the evaluation of online games, the scoring guidelines issued by the Publicity Department have become relatively mature through years of practice. The evaluation index system for information literacy educational games [13], and the comprehensive evaluation system for the educational nature of video games [14], both emphasize user experience as a key indicator, which can be supplemented as a primary evaluation indicator. Third, in the evaluation of cultural confidence, telling the Chinese story well is a means to strengthen cultural construction and a new requirement for enhancing international communication capacity. Some scholars have developed an evaluation index system for telling good Chinese stories [15], which can be referenced and combined with studies on the popularity of Chinese games in Malaysia [16] and research on the cultural outreach path to construct evaluation indicators.

3. Design of Evaluation Indicators

Dissemination power is a relatively abstract concept and a key focus in the field of communication studies. As a comprehensive digital cultural medium, online games can utilize traditional media evaluation indicators, combined with specific indicators related to online games and cultural confidence, to form an evaluation index system for the overseas dissemination power of online games based on cultural confidence.

3.1 Evaluation Indicators for Media Overseas Dissemination Power

Based on the four primary indicators proposed by Liu Yannian (2018) — infrastructure, content production, communication impact, and market operations — the secondary indicators are adjusted according to the current state of overseas dissemination of online games.

1. Infrastructure: This is generally assessed by the research and development (R&D) investment and per capita R&D investment of online game companies. Data can be obtained from the public financial reports of listed companies. For example, 37 Interactive Entertainment, which ranks third in market share among Chinese overseas gaming companies, had a sales expense ratio of 56% and an R&D expense ratio of 7.71% in the first quarter of 2021, accounting for over 60% of the company's four major expenditures (Xinda Securities Research Center, 2022).

2. Content Production: The secondary indicators for content production can be directly applied to the field of online games without adjustment.

3. Communication Impact: In the field of online games, audience exposure corresponds to the number of downloads; audience awareness corresponds to user engagement; and audience behavior corresponds to user payments. In traditional media, audience behavior generally includes sharing, commenting, and liking. How-

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ever, in the field of online games, user payments have the most direct impact on dissemination power. This is because online games have transitioned from a growing market to a saturated market, and the primary factor determining further dissemination is marketing investment, which is directly influenced by user payments.

4. Market Operations: Considering the current state of overseas operations of online games, the author suggests replacing the scale of operations with overseas investment and the target completion rate with overseas revenue for more intuitive indicators.

The evaluation indicators are systematically coded, resulting in the evaluation indicator table A as shown below:

Table 1: Evaluation Indicator Table A

Primary Indicator		Secondary Indicator	
Media Overseas Dissemination Power Indicator	Online Game Overseas Dissemination Power Indicator	Media Overseas Dissemination Power Indicator	Online Game Overseas Dissemination Power Indicator
Infrastructure	A1 Infrastructure	Hardware Facilities	A1-a Overseas Marketing Investment
		Personnel	A1-b Overseas R&D Investment
Content Production	A2 Content Production	Content Productivity	A2-a Content Productivity
		Content Quality	A2-b Content Quality
		Content Competitiveness	A2-c Content Competitiveness
Communication Impact	A3 Communication Impact	Audience Exposure	A3-a Number of Downloads
		Audience Awareness	A3-b User Engagement
		Audience Behavior	A3-c User Payment Ranking
Market Operations	A4 Market Operations	Scale of Operations	A4-a Overseas Investment
		Target Completion RateA4-b Overseas Revenue	Target Completion RateA4-b Overseas Revenue

3.2 Evaluation Indicators for Online Games

Based on the "Evaluation Indicators for Online Game Review" by the Central Propaganda Department, combined with the core of interactive design—user experience—the following secondary indicators are adjusted according to the characteristics of the overseas dissemination of online games:

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1. Gameplay Innovation: Players are primarily motivated to engage in online games by factors such as a sense of achievement, social interaction, immersion, pleasure, relaxation, escapism, team competition, and virtual wealth accumulation [17]. Among these, the factors of achievement, social interaction, and team competition amplify the dissemination effect. Therefore, this indicator is adjusted to focus on the design of systems that promote social interaction.

2.Cultural Orientation: As previously discussed, the role of online games in bridging cultural gaps and fostering emotional connections has gained consensus in recent years. The author believes that the cultural orientation indicator should be adjusted to fit local customs and traditions specific to different countries and regions.

3. Cultural Content: The six secondary indicators under this category related to overseas dissemination can be summarized into two indicators: cultural inclusiveness and cultural depth.

4. User Behavior: Synthesizing opinions from the industry and academia, the author suggests that in the field of online games, user behavior can be categorized in increasing depth as follows: discussing the game, recommending the game to others, making in-game purchases, and engaging in secondary creation of game culture.

Table 2: Evaluation Indicator Table B

Primary Indicator		Secondary Indicator	
Online Game Indicators	Online Game Overseas Dissemination Power Indicators	Online Game Indicators	Online Game Overseas Dissemination Power Indicators
Originality	B1 Originality	Theme Style	B1-a Theme Style
		Gameplay Innovation	B1-b Social System Promotion
		Story Background	B1-c Story Background
Product Quality	B2 Product Quality	Technical Level	B2-a Technical Level
		Visual Level	B2-b Visual Level
		Playability	B2-c Playability
Cultural Orientation	B3 Cultural Orientation	Content Ideology Compliance and Positive Energy	B3 Cultural Adaptation to Local Customs

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Cultural Content	B4 Cultural Content	Display Degree of Excellent Traditional Culture Highlighting Excellent Chinese Culture Various Cultures with Chinese Characteristics Richness of Chinese Cultural Content	B4-a Cultural Inclusiveness
		Strong Chinese Cultural Atmosphere Profound Chinese Cultural Heritage	B4-b Cultural Depth
Completeness	B5 Completeness	Functional Completeness	B5-a Functional Completeness
		Operational Stability	B5-b Operational Stability
User Experience	B6 User Experience	User Experience	B6-a User Experience
		User Behavior	B6-b Discussing the Game
			B6-c Recommending the Game to Others
			B6-d Amount of Secondary Creation
			B6-e User Payments

3.3 Evaluation Indicators Reflecting "Cultural Confidence"

Based on the "Chinese Good Story" evaluation system and combined with research on communication cases and pathway analysis, we identify narrative, innovation, and external adaptability as primary indicators. Narrative and innovation can be summarized as heritage and innovation. The secondary indicators are adjusted as follows:

Narrative: The indicators of visual elements and story background are summarized under the product packaging of online games.

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Innovation: As proposed by Xi Jinping, exploring and elucidating traditional culture must be "rooted in the nation while facing the world." Therefore, content innovation, in the context of overseas dissemination of online games, is reflected in the internationalization of local elements. Form innovation is mainly demonstrated through playability.

External Adaptability: While overseas users, especially those in the West, have a fascination with Eastern culture, cultural discount and stereotypes also exist. The overseas dissemination of online games should seek "commonality" within local culture that can transcend cultural differences, maximizing cultural commonality to effectively enhance its dissemination power. Therefore, theme appropriateness and emotional resonance can be summarized as cultural commonality. The indicators are organized and coded to create Evaluation Indicator Table C as shown below:

Table 3: Evaluation Indicator Table C

Primary Indicator		Secondary Indicator	
Indicators Reflecting Cultural Confidence	Online Game Overseas Dissemination Power Indicators	Indicators Reflecting Cultural Confidence	Online Game Overseas Dissemination Power Indicators
Narrative	C1 Heritage and Innovation	Visual Elements	C1-a Product Packaging
		Story Background	
		Core Spirit	C1-b Core Spirit
Innovation		Content Innovation	C1-c Localization of Local Elements
		Form Innovation	C1-d Playability
External Adaptability	C2 External Adaptability	Issue Relevance	C2-a Issue Relevance
		Theme Appropriateness	C2-b Cultural Commonality
		Emotional Resonance	

3.4 Constructing an Evaluation Index System for Overseas Dissemination of Online Games Based on Cultural Confidence

Following the principles of scientific, objective, easy to operate, quantifiable, and visible indicators, the in-

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dicators are consolidated and organized.

1.Primary Indicators. Analyzing the connotations of primary indicators and consolidating and merging primary indicators with repetitive connotations.

(1) The content under A1 Basic Construction and A4 Market Operations is repeated, and is merged into Market Operations;

(2) The content quality under A2 Content Production and B2 Product Quality, can be collectively summarized as Professional Evaluation Alternatives;

(3) Combining the Communication Impact of A3 and the User Experience of B6, they are merged into Communication Effects;

(4) The overall evaluation table B evaluates the content, which is summarized into the primary indicators of content production.

2.Data Sources. The evaluation index system for the overseas dissemination of online games is composed of three comprehensive evaluation systems, with rich data sources mainly including subjective evaluation, public data analysis platforms, publicly available corporate financial reports, and internet data;

(1) In terms of content production, professional evaluations can be obtained through ratings from mainstream evaluation websites. Other secondary indicators mainly rely on subjective evaluations;

(3) Regarding communication impact, the number of downloads and the ranking of user payments can be supported by evidence from App Annie's download rankings and bestseller rankings (App Annie is a platform used in the game industry for data analysis and market data, with over 600,000 apps using its tools to track downloads, revenue, rankings, and reviews); User attention can be obtained through search index on search platforms. User experience is mainly collected through user subjective evaluations; Discussion about games, recommendations to others, and the amount of fan creations can be obtained through the number of topics on mainstream social platforms. In summary, the evaluation index summary table 1.0 is obtained, as shown in the table below.

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Table 4 Summary of Evaluation Indexes 1.0

Primary Indicators	Secondary Indicators	*Data Sources
Content Production	◎ Professional Evaluation	Mainstream evaluation website ratings
	●Originality of Theme and Style	Subjective evaluation
	Subjective evaluation	
	Promotion of Social Interaction	
	□Suitability for Local Customs and Traditions	
	□Cultural Inclusivity	
	▲Cultural Depth	
	◎ Functional Integrity	
	◎ Stable Operation	
	●Product Packaging	
	▲Spiritual Core	
	●Internationalization of Local Elements	
	Playability	
	□Relevance of Topics	
	□Cultural Commonality	
Communication Impact	Number of Downloads	App Annie download rankings
	User Attention	Search index
	User Payment Rankings	App Annie bestseller rankings
	User Experience	Subjective evaluation
	ODiscussion about the Game	Number of topics on mainstream social platforms
	ORecommendation to Others	
	Amount of Fan Creations	
Market Operations	Overseas Marketing Investment	Public financial reports of listed companies
	Overseas Research and Development Investment	
	Overseas Revenue	

3. Secondary Indicators. Using the perspective of data sources, merge indicators with similar content that rely on subjective evaluations, while retaining indicators that have demonstrative value:

(1) Content Production. Functional integrity and stable operation can both be encompassed under professional evaluation, thus merged into professional evaluation (marked as ◎ in the evaluation index summary table 1.0). Additionally, cultural inclusivity, suitability for local customs and traditions, relevance of topics, and cultural commonality can be merged into cultural commonality (marked as in the evaluation index summary table 1.0); Product packaging, originality of theme and style, and internationalization of local elements all describe surface-level content and can be summarized as internationalization of local elements (marked as

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● in the evaluation index summary table 1.0); Cultural depth and spiritual core can be classified as the core values of Chinese culture (marked as ▲ in the evaluation index summary table 1.0);

(2) Communication Impact. Discussion about the game and recommendation to others can both be categorized under the volume of game discussions (marked as Oin the evaluation index summary table 1.0);

Considering the above ideas for deletion, consolidation, and adjustment of indicator order, the evaluation index summary table 2.0 is constructed as shown below:

Table 5 Summary of Evaluation Indexes 2.0

Primary Indicators	Secondary Indicators	*Evaluation Method
Content Production	Professional Evaluation	Mainstream evaluation website ratings
	Core Values of Chinese Culture Subjective evaluation	Subjective evaluation
	Cultural Commonality	
	Internationalization of Local Elements	
	Promotion of Social Interaction	
	Playability	
Communication Impact	Number of Downloads	App Annie download rankings
	User Attention	Search index
	User Payment Rankings	App Annie bestseller rankings
	User Experience	Subjective evaluation
	Number of Game Discussions	Number of topics on mainstream social platforms
	Amount of Fan Creations	
Market Operations	Overseas Marketing Investment	Public financial reports of listed companies
	Overseas Research and Development Investment	
	Overseas Revenue	

4. Weight Allocation

For an evaluation system to be effective, corresponding indicators need to be weighted. This study combines expert surveys and the Analytic Hierarchy Process (AHP) to assign weights to each indicator. The significance of expert surveys and AHP has been well-established over decades, with a wide range of applications, so this paper will not delve into their meanings further. The author invited 40 experts from the domestic industry and academia [18], with the industry placing greater emphasis on communication impact and market operations, while academia focuses more on content and gameplay. The weights for the three primary indicators are 35% for content and gameplay, 40% for communication impact, and 25% for market operations, indicating that communication impact > content and gameplay > market operations, meaning that communication impact has the greatest influence on the evaluation results.

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The secondary indicators are ranked by weight as follows: overseas marketing investment, volume of game discussions, cultural commonality, overseas revenue, number of downloads, user experience, user payment rankings, promotion of social interaction, core values of Chinese culture, amount of fan creations, overseas research and development investment, professional evaluation, internationalization of local elements, user attention, and playability. Three indicators have weights exceeding 0.1, namely volume of game discussions, cultural commonality, and overseas marketing investment, with overseas marketing investment receiving the highest weight.

Within communication impact, user payment rankings precede other indicators as they represent specific user behavior. In the field of online games, from initial exposure to understanding the game, forming an attitude towards the game, and finally taking action, the author believes that payment is the deepest level of user behavior, and paying users are the most loyal disseminators.

The indicator for playability has the lowest weight, indicating that while respondents consider playability important, they still believe that, relative to other indicators, playability has a weaker impact on overseas dissemination. Some experts also suggest categorizing playability under the promotion of social interaction to increase the weight of the latter. The allocation of weights for evaluation indicators is shown in the table below (indicators with weights exceeding 0.1 are marked with *):

Table 6 Weight Allocation Table for Evaluation Indicators

Primary Indicators(Weight)	Secondary Indicators (Weight)	Evaluation
Content Production	Professional Evaluation(0.05)	Ratings from mainstream evaluation websites
	Core Values of Chinese Culture Subjective evaluation(0.06)	
	*Cultural Commonality(0.11)	
	Internationalization of Local Elements(0.04)	
	Promotion of Social Interaction(0.06）	The more systems that promote social interaction, the higher the dissemination effectiveness
	Playability（0.03）	
Communication Impact	Number of Downloads （0.08）	Total number of downloads within a certain period
	User Attention （0.04）	
	User Payment Rankings （0.06）	User payment rankings within a certain period
	User Experience （0.06）	
	*Number of Game Discussions（0.11）	
	Amount of Fan Creations（0.05）	Amount of user-created content based on game content
Market Operations	*Overseas Marketing Investment（0.12）	
	Overseas Research and Development Investment （0.05）	
	Overseas Revenue（0.08）	

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5. Validation of Weights

This study will fully utilize the "Self-developed Game Database" aggregated from a large number of version iterations of self-developed games by the applicant, to validate the indicators. Using the weight allocation table for evaluation indicators, King of Glory (the second most popular overseas game with the widest market coverage), One Thought Free (rated by the media as the mobile game with the most Chinese ink style), Zombie Evil (self-developed game, ranked in the top 18 globally in the US market in 2011), and Zombie World War (self-developed game, ranked in the top 28 globally in the US market in 2013) will be evaluated by 15 industry and academic scholars. The scores after removing the highest and lowest scores are shown in the table below.

Primary Indicators (Weight)	Secondary Indicators (Weight)	Explanation	King of Glory	One Thought Free	zombie Evil	zombie world war	Score Interpretation
Content and Gameplay（0.35）	Professional Evaluation (0.05)	Ratings from mainstream evaluation websites	7.6	9.4	8.6	8.6	
	Core Values of Chinese Culture (0.06)		6	9	5	5	
	*Cultural Commonality (0.11)	Subjective evaluation	6	5	8	8	
	Internationalization of Local Elements (0.04)		7	5	7	7	
	Promotion of Social Interaction (0.06）	The more systems that promote social interaction, the higher the evaluation of dissemination effectiveness	8	6	3	3	
	Playability （0.03）	Subjective evaluation	8	6	5	5	

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	Number of Downloads（0.08）	App Annie download rankings	10	10	8.6	7.8	Highest score, first place is 10 points, decreasing by 1 place, decrease by 0.2 points
	User Attention（0.04）	Google search index	6	1	1	1	
Communication Impact（0.40）	User Payment Rankings（0.06）	App Annie bestseller rankings	10	9.8	4.4	4.4	Highest score, first place is 10 points, decreasing by 1 place, decrease by 0.2 points
	User Experience（0.06）	Subjective evaluation	7	6	5	5	
	*Number of Game Discussions（0.11）	Number of topics on mainstream social platforms	8	4	2	2	
	Amount of Fan Creations（0.05）	Number of user-created content based on game content	10	3	1	1	
Market Operations（0.25）	*Overseas Marketing Investment（0.12）		Un-available	Un-available	10	10	More than 50%, 10 points, decrease by 1 point for every 5% decrease
	Overseas Revenue（0.05）	In billion US dollars	0	0	0.2	0.08	
Total（1）			6.158	4.678	5.012	4.908	

Through the above table, it can be observed that the evaluation results can essentially reflect the true overseas dissemination status of the four games mentioned. Due to the unavailability of the latest overseas revenue data for King of Glory and One Thought Free, the market operations indicators are all assigned a value of zero. One Thought Free is a Chinese ink-style idle cultivation-themed game, which, compared to King of Glory, has a clear Chinese style but a significant gap in terms of user volume and country coverage. Through comparison of self-developed game backend data, Zombie Evil (score 5.012) has higher values in total users, user distribution, user age coverage, total revenue, and number of covered countries compared to Zombie World War (score 4.908).

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6. Discussion on Indicator Issues

1. Lag in obtaining key data. Market operation indicators need to be obtained through publicly available quarterly financial reports of listed companies, which limits the practicality of evaluating indicators. Furthermore, due to the lag in obtaining data from quarterly reports, it is not possible to dynamically assess any game in real-time. However, when used for internal evaluation of self-developed projects within a company, this indicator can be more effective.

2. Complexity of evaluating cultural commonality. The cultural commonality between China and different regions or countries cannot be judged simply by the similarity of content; geopolitical and historical issues need to be considered comprehensively. Research by scholars (Tao Jianjie, 2020)[19] has found that geopolitical and historical issues have brought about a "distance aesthetic," meaning that countries without borders with China tend to have a higher perception of Chinese culture than neighboring countries. Moreover, developed countries tend to have a lower perception of Chinese culture compared to developing countries. However, developing countries bordering China find themselves in a curious situation where they are interested in the common cultural aspects with China but also wary of them. For example, in the design guidelines for the overseas version of King of Glory in the Southeast Asian region, it is advised not to use Chinese design patterns based on previous operational experience and user surveys, as they can cause user aversion.

3. Evaluation of user experience. Different categories of users have varying impacts on dissemination effectiveness. Specifically, the experience, evaluation, and subsequent behavior of opinion leaders among users have a significantly higher impact on dissemination effectiveness than ordinary users. Similarly, the experience evaluation of social users also has a greater impact on dissemination effectiveness than ordinary game users. Therefore, the proportion of different categories of users' experience evaluation weights in dissemination effectiveness is an area that should be further refined in future studies.

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