

Research on the Impact of Gamification Marketing on the Expansion of the Pearl Industry Chain in Zhanjiang

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Abstract: In order to revive Nanzhu and promote rural revitalisation in Zhanjiang, this article explores the impact of gamified marketing on the pearl industry chain in Zhanjiang. Based on theoretical research and questionnaire surveys, this article examines the key channels through which gamification marketing can expand the pearl industry chain in Zhanjiang City. The conclusion of the research is as follows. (1) This article explores the theoretical basis of gamification marketing to expand the pearl industry chain in Zhanjiang City. Strengthening the influence of publicity, strengthening brand building and enhancing emotional identification are important channels for gamification marketing to expand the pearl industry chain. (2) The consumer group of women and young people is an important component of the questionnaire survey, as well as an important part of the pearl consumption field in Zhanjiang. Although the research subjects are mostly low-income college students, a good knowledge foundation, innovative ability, and a proactive spirit of exploration have improved the reliability of the questionnaire. (3) The questionnaire data shows that expanding channels to promote the pearl industry, strengthening the brand awareness of pearl products, and expanding the influence of pearl products and services are the three most popular options among the respondents. The second is to improve customers' product experience through interactive means, increase consumers' emotional identification, increase the fun of

marketing and establish good customer relationships.

Keywords: Gamification Marketing; Pearl Industry; Industrial Chain Expansion; Zhanjiang City; Questionnaire Survey

1. Introduction

Currently, there are two types of pearl aquaculture in China: freshwater aquaculture and saltwater aquaculture. Guangdong is the largest producer of saltwater pearls in China. According to the China Fisheries Statistical Yearbook, the production of seawater pearl aquaculture in Guangdong Province in 2021 was 1,505 tonnes, accounting for 74.95% of the national seawater pearl aquaculture. Seawater pearl aquaculture in Guangdong is mainly concentrated in the Leizhou Peninsula of Zhanjiang, especially in Leizhou and Xuwen. However, due to factors such as high yield and low value, declining profits and weak market competitiveness, the development of Zhanjiang's seawater pearl industry is facing difficulties. The Zhanjiang Municipal Agricultural and Rural Bureau attaches great importance to the revitalisation of the seawater pearl industry and focuses on processing relevant proposals for the planning and construction of the seawater pearl industry. In the process of revitalising the pearl industry in Zhanjiang and extending the industrial chain, innovative marketing models have become an important way to revitalise seawater pearls in Zhanjiang City. The expansion of the Zhanjiang seawater pearl industry chain requires the search for new marketing models to meet market demand and enhance the

competitiveness of the industry.

In the sharing economy era, traditional marketing models are no longer sufficient to meet the needs of modern consumers due to the emergence of "product obsession" and "marketing myopia" as a result of total competitive orientation. In recent years, the emerging game marketing model, which integrates game design elements with corporate products or brands, has gradually caught the attention of consumers. Visual game development platforms such as Cocos, GameMaker and Gizmo, as well as the recently popular Chinese game "A Sheep", have made huge profits through short-term promotional bombardment. According to the 2021 Guangdong Game Industry Data Report, the expected revenue scale of games in Guangdong Province (including client games, mobile games, web games and other games) will reach RMB 232.27 billion in 2021, accounting for 78.7% of the national game market revenue scale; accounting for 25.9% of the global online game revenue. Therefore, this article takes the seawater pearl industry in Zhanjiang City as the object to study the impact of game marketing models on the expansion of the pearl industry chain in Zhanjiang City, which has important theoretical and practical significance.

About gamified marketing. Gamification has become the most talked about topic in advertising and marketing. It was officially included in the Oxford Dictionary in 2011. Gamification marketing strategies effectively increase user engagement by incorporating game elements into products and services, thereby improving brand image and sales performance [1]. Gamification is a way to understand customers by collecting basic user information through methods such as user engagement rates, churn rates, seed identification, and return rates in order to collect and track data more efficiently [2]. Unlike the development of commercial games, gamification marketing has the advantage of being lightweight and can be completed and launched in a short period of time, matching the high frequency marketing needs of brands [3]. The user experience and value brought by gamified marketing can better explain ideal consumer behaviour, such as brand loyalty, positive word-of-mouth and resistance to negative information [4]. So, how can the

application of gamification mode improve the marketing effectiveness of products and services? Researchers have conducted online surveys on brands in the hotel, retail and financial services industries and found that the driving factors for consumer engagement with brands include playability, design aesthetics, goal clarity, incentives and symbolic benefits [5].

In terms of extending the industrial chain. The industrial chain refers to a highly coordinated supply chain, service chain, logistics chain and financial chain with a global allocation of production factors such as labour, equipment, data, technology and capital [6]. From a value perspective, the industrial chain is a process within and between manufacturers that focuses on optimising the overall value and creative activities of the industry. From a supply perspective, the industrial chain covers the entire process from sourcing raw materials to delivering products or services to consumers, with a focus on reducing costs and improving efficiency [7]. The industrial chain is divided into vertical supply and demand chains and horizontal collaboration chains. The division of labour in vertical chains divides industries into upstream, midstream and downstream relationships, which is the main structure of the industrial chain. Horizontal cooperation is related to industrial support issues [8]. Based on the industrial chain perspective, many scholars have made important research findings. Scholars have analysed the development and influencing factors of international tungsten competition from the perspective of the industrial chain, and found that tungsten competition is most intense in Asia and Europe [9]. Some studies have calculated the carbon emissions of China's beef industry from the perspective of the entire industry chain, which accurately identifies the current situation and influencing factors of carbon emissions in the beef industry [10]. Strengthening inter-industry cooperation and division of labour can optimise the structure of the industrial chain [11]. The development of industrial cooperation and division of labour in China is increasing, and low-level industrial chains are shifting to high-level industrial chains.

Gamification marketing has implications for extending the industrial chain. Gamification marketing is an emerging modern marketing

model, and further research is needed to extend the industry chain. Related research has simulated a blood supply chain game to maximise the value of the industry chain for blood supply and demand, providing process analysis and cost-benefit calculations [12]. Some scholars have studied the industrial chain of East Asian game companies from 2000 to 2000 and found that there is economic interdependence between game suppliers and buyers, so the industrial value chain will not develop along a single trajectory, but will be diversified [13]. Players' enjoyment of games has accelerated the development of online games, thereby improving the quality of developers' work; the investment and pricing strategies of online games are key decision-making issues in the operation of the industry chain [14]. The overall efficiency of the game supply chain depends on the revenue and cost sharing decisions of the distribution platforms [15]. In the Nash bargaining strategy, distribution platforms can design revenue sharing contract parameters to achieve industry chain coordination.

The existing literature provides a logical framework and research approach for this study. The marginal contribution of this study is as follows: First, the research topic of innovation. Gamification marketing is an emerging model, and there has not been much in-depth research on the extension of the industry chain. This paper incorporates gamification into the analytical framework, explores the impact of gamification on industrial chain extension in Zhanjiang pearl industry, and enriches the existing research literature on industrial chain extension through gamification. The second is the study of theory. The mechanism theory of how gamification marketing affects the industrial chain needs to be further explored. Taking the pearl industry in Zhanjiang as the research object, this article attempts to improve the gamification marketing to extend the industrial chain of the pearl industry in Zhanjiang and improve the research theory of this topic. The third is the research method. Due to the difficulty of quantifying core variables such as gamification marketing and the industrial chain of Zhanjiang pearl industry, this project plans to use a questionnaire survey to conduct research. Based on the consumer's perspective, the specific information to be understood will be

transformed into corresponding questions and options, thus achieving preliminary quantitative work for related research. This study has important policy implications for the use of gamified marketing to expand the pearl industry chain in Zhanjiang.

2. Theoretical Analysis

First, the fun of gamification increases consumer demand. Gamification can increase consumer motivation and make products and services more attractive. A 5% increase in customer attention leads to a 25%-95% increase in profits. Gamification and fun have become a good strategy to increase sales, brand awareness and customer loyalty [16]. Gamification can add game design elements such as rankings, medals, points, levels, tasks, and random rewards to the sales process to provide an excellent experience of Zhanjiang Pearl's products and services, thereby increasing consumer demand [17]. Second, gamified interactivity increases consumer engagement. Gamification can motivate consumers to change their behaviour, and provide a convenient and effective way for consumers to achieve long-term goals. Consumers can also share the game process and results with friends, increasing the social network influence of the Zhanjiang pearl industry and inviting consumers to participate in value co-creation through interactive consumer experiences. Through gamification and effective marketing promotion, the Zhanjiang pearl industry can enhance its competitiveness and market share, continuously innovate and improve its products and services, which is conducive to the expansion of the pearl industry chain.

Hypotheses 1: Gamification marketing can be beneficial for the expansion of the Zhanjiang pearl industry industry chain by strengthening the influence of publicity.

Brands play an important role in extending the industrial chain, and access to platforms and gamification scenarios has a positive impact on brand memory. Brand awareness is related to consumers' memory and reflects their cognitive ability towards the product brand. The higher the engagement of the players in the game, the more receptive they will be to deep-seated environmental stimuli, including brand elements embedded in products and services, ultimately increasing consumers' better

impression of advertising brands [18]. In the gaming scene, by communicating and interacting with consumers in an appropriate way, the brand can easily establish resonance with young consumer groups, while continuously enhancing brand vitality and increasing brand value. Consumers develop a sense of identification and belonging with the brand while participating in gaming activities, and this emotional connection helps to increase consumer loyalty to the brand, thereby increasing purchase intention [19]. At present, the new scientific research achievements in Zhanjiang's pearl industry have not entered large-scale production, with a low level of industrialisation, weak brand awareness and a lack of driving force from the core large pearl leading enterprises. Gamification can promote the value of Zhanjiang's pearl industry or services, build customer loyalty, attract talent, invest capital and introduce technology. Brand building is conducive to industry chain extension and sustainable development [20].

Hypotheses 2: Gamification marketing can be beneficial for the expansion of the pearl industry chain in Zhanjiang by strengthening brand building.

Game players generate three different types of emotional identification, namely self-identity, role-identity and social identity, in the context of participating in the game, forming a stable production mode of bidirectional regeneration of emotions and consumption [21]. The player's sense of accomplishment, such as challenges, badges, missions, goals, leaderboards, and other game elements. Immersion features mainly immerse the player in the game environment, such as role-playing, storytelling and other game elements. Social interaction features mainly allow players to participate in social interactions, such as team and group participation in games. At present, despite factors such as natural disasters and the aquaculture environment, the market share of Zhanjiang seawater pearls is steadily shrinking and the brand value is plummeting. At the same time, domestic freshwater pearls and foreign seafood pearls, as well as Nanyang pearls, have surged, and many pearl farmers have switched to trading other types of pearls. Establishing emotional resonance with consumers and producers through game storylines, emotional cues and character stories can enhance the emotional dependence of the

Zhanjiang pearl industry. Once consumers' psychological needs have been stimulated, the economic value of the game can be maximised, activating the economic benefits of fans and extending the industry chain [22].

Hypotheses 3: Gamification marketing can be beneficial for the expansion of the pearl industry chain in Zhanjiang by enhancing emotional identity.

3. Questionnaire Design and Data Characteristics

3.1 Questionnaire Design

This study used a questionnaire survey to test the theoretical hypotheses. The members of the research team organise, concretise and operationalise the problems based on the purpose and content of the project. The questionnaire for this project consists mainly of two parts of information. The first part mainly focuses on the relevant background of the research, including the purpose of the research and basic information about the respondents, such as gender, age, income and education level. The second part mainly designs relevant options on the important ways for gamified marketing to promote the pearl industry chain, as well as questions and options for understanding other information. The survey questionnaire is set up on the Question Star app, and after the questionnaire questions and options are set up, the group members publish them on communication tools such as WeChat and QQ. To improve the accuracy of the questionnaire, exclusion questions are set to reduce the occurrence of errors and other mistakes among respondents. The total number of questionnaires collected is 533, and after excluding the exclusion questions, there are 492 remaining questionnaires, with an effective rate of 92.308%.

3.2 Data

This section mainly presents the characteristics of the specific information of the research object and visualises it by means of a sector graph (Figure 1). In terms of gender, the proportion of males and females is 23.577% and 76.423% respectively, indicating that females are the main target of this survey and they have a higher level of attention to the pearl industry. In terms of age, the research

subjects of this project are concentrated in their youth, with 94.512% between the ages of 18 and 44, and a minority distributed in the age groups of 18 and under and 45 to 59. There were no respondents in the 60-74 and 75 and over age groups. Youth consumption is an important part of pearl consumption in Zhanjiang and occupies a special position in the overall consumer market. Therefore, the majority of respondents in the questionnaire are young people, which is more in line with reality. In terms of income, the main income distribution of the respondents is below 30000, accounting for 53.049%. The shares of 30000 to 50000, 50000 to 80000, 80000 to 150000 and above 150000 are 12.398%, 11.382%, 13.008% and 10.163% respectively. In terms of educational background, the proportion of undergraduate and masters students is relatively high at almost 90%. Among them, undergraduate students are the main educational background group of research subjects, accounting for 74.797%. This is followed by the Masters group with 15.041%. In terms of income and education, most of the respondents are university students. Although their income is not high, their good knowledge base, innovative ability and proactive research spirit have improved the reliability of the questionnaire.

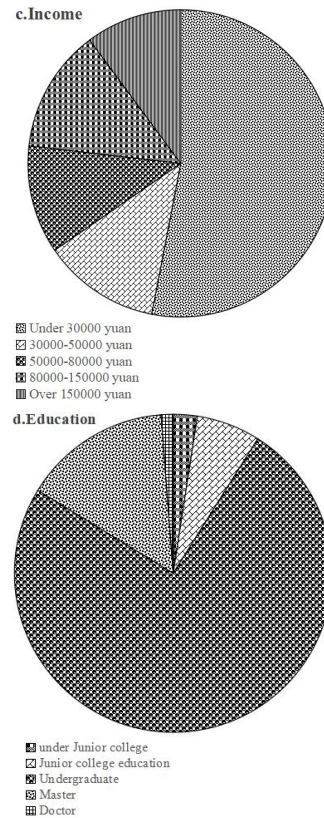
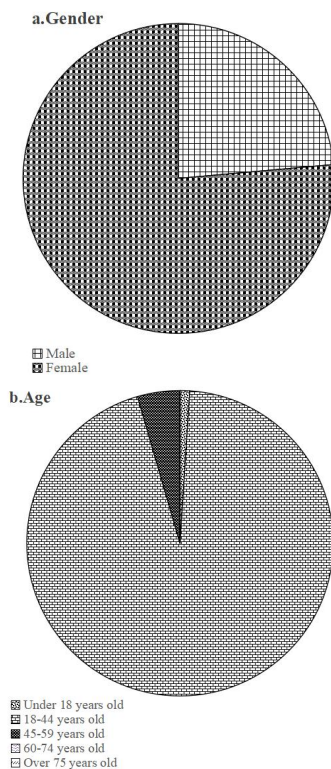


Figure 1. Basic Characteristics of Research Subjects

4. Results and Discussion

4.1 Affiliations

Table 1 shows which factors are important influencing variables for gamified marketing to promote the pearl industry chain. The option settings include 14 options, including establishing good customer relationships, expanding channels for promoting the pearl industry, and improving the efficiency of pearl sales. The research results show that support for expanding channels to promote the pearl industry, strengthening the brand awareness of pearl products, and expanding the influence of pearl products and services ranked in the top three and received more support from the research subjects. The response rates for these three items are 17.344%, 16.802% and 14.295% respectively, and the popularity rates are 52.033%, 50.407% and 42.886%. It is not difficult to find that gamified marketing can be beneficial to the expansion of the pearl industry chain in Zhanjiang through channels such as strengthening the influence of publicity and strengthening brand building. Theoretical Hypothesis 1 and Theoretical Hypothesis 2

were validated. In addition, support for options such as improving customer experience, increasing emotional identification, making marketing more enjoyable and building good customer relationships through interactive methods is high, with response rates of 10.569%, 9.824%, 8.672% and 8.537%

respectively, and popularity rates of 31.707%, 29.472%, 26.016% and 25.610%. The above options reflect that gamified marketing can benefit the expansion of the Zhanjiang pearl industry chain by enhancing emotional identity, and theoretical hypothesis 3 has been verified.

Table 1. What Factors are Important Variables for Gamified Marketing to Promote the Pearl Industry Chain

Option	Response		Penetration rate(%) (N=492)
	n	Response Rate (%)	
A1. Build good customer relationships	126	8.537	25.610
A2. Expanded channels to promote the pearl industry	256	17.344	52.033
A3. Improve the efficiency of pearl sales	35	2.371	7.114
A4. Increase emotional identification with the consumer	145	9.824	29.472
A5. Enhance the customer experience of merchant products through interactivity	156	10.569	31.707
A6. Enhance the fun of pearl marketing	128	8.672	26.016
A7. Improve the level of pearl products and services	18	1.220	3.659
A8. Expand the influence of pearl products and services in Zhanjiang City	211	14.295	42.886
A9. Enhance the ability of pearl marketing	36	2.439	7.317
A10. Strengthen the brand awareness of pearl products	248	16.802	50.407
A11. Improve the R&D level of pearl enterprises	30	2.033	6.098
A12. Improve the innovation efficiency of pearl products and services	38	2.575	7.724
A13. Increase the added value of pearl products	33	2.236	6.707
A14. Improve the risk assessment and guarantee system of the pearl industry chain	16	1.084	3.252
Summation	1476	100	300

5. Conclusions

Based on a consumer perspective, this paper combines theoretical hypothesis analysis and questionnaire survey methods to examine the impact of gamification marketing on the pearl industry chain in Zhanjiang City. The research conclusions are as follows: (1) Based on theoretical analysis and literature review, this paper explores the theoretical basis of gamification marketing to expand the pearl industry chain in Zhanjiang City. Among them, enhancing the influence of publicity, strengthening brand building and enhancing emotional identity are important ways for gamification marketing to expand the pearl industry chain in Zhanjiang City. (2) The research subjects are mainly women, young people and students with incomes below 30,000 yuan. Women and young consumers are an important part of pearl consumption in Zhanjiang. Although the research subjects are

mostly low-income college students, their good knowledge base, innovative ability and active exploration spirit have improved the reliability of the questionnaire. (3) Expanding the channels to promote the pearl industry, strengthening the brand awareness of pearl products, and expanding the influence of pearl products and services are the top three supported options among the research topics. Second, there is also high support for options such as improving customer experience, increasing emotional identification with consumers, increasing marketing interest, and building good customer relationships through interactive means.

Based on the research findings of this article, the policy recommendations are as follows: Gamification marketing can expand the pearl industry chain in Zhanjiang City. Therefore, in optimising gamification marketing strategies, it is necessary to first conduct market research and accurately specify marketing plans.

Especially for consumer groups such as women and young people, understand their interests, consumption habits and game preferences. Second, explore diversified game marketing channels such as social media, game exhibitions and other channels to promote and increase brand awareness. Improve game awareness and user conversion rate through word-of-mouth from game players, and attract more potential users. Thirdly, use data analysis tools to analyse and optimise the results of gamified marketing. Set targeted marketing strategies for different game features and player preferences, and track the costs and benefits of gamified marketing to improve gamified marketing plans.

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