

FACTORS AFFECTING THE SUSTAINABLE DEVELOPMENT OF COMMERCIAL MARTIAL ARTS GYMS IN BEIJING, CHINA

FATORES QUE AFETAM O DESENVOLVIMENTO SUSTENTÁVEL DAS ACADEMIAS COMERCIAIS DE ARTES MARCIAIS EM PEQUIM, CHINA

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Abstract

In recent years, the sustainable development of commercial martial arts gyms in Beijing has attracted growing attention, driven by the convergence of national fitness policies and the revitalization of traditional cultural heritage. The purpose of this study is to: (1) To study the current situation of the sustainable development of commercial martial arts gyms in Beijing, China; (2) To Analyze the positive factors affecting the sustainable development of commercial martial arts gyms in Beijing, China; (3) To find a sustainable development approach for commercial martial arts gyms In Beijing, China. This study employed a mixed method research. The first phase involved qualitative interviews with 15 commercial martial arts experts to assess the current situation. The second phase used quantitative methods, collecting 360 valid questionnaires analyzed via Smart PLS to develop and test a Structural Equation Model (SEM) with thirteen hypotheses. The final phase conducted focus group discussions with 13 experts to find a sustainable development approach for commercial martial arts gyms In Beijing, China. The research findings reveal: (1) Despite growth from health awareness and policy support, Beijing's martial arts gyms face low youth engagement, uneven teaching, limited resources, and weak strategy;

Resumo

Nos últimos anos, o desenvolvimento sustentável das academias comerciais de artes marciais em Pequim tem atraído cada vez mais atenção, impulsionado pela convergência das políticas nacionais de condicionamento físico e pela revitalização do patrimônio cultural tradicional. O objetivo deste estudo é: (1) Estudar a situação atual do desenvolvimento sustentável das academias comerciais de artes marciais em Pequim, China; (2) Analisar os fatores positivos que afetam o desenvolvimento sustentável das academias comerciais de artes marciais em Pequim, China; (3) Encontrar uma abordagem de desenvolvimento sustentável para as academias comerciais de artes marciais em Pequim, China. Este estudo empregou uma pesquisa de método misto. A primeira fase envolveu entrevistas qualitativas com 15 especialistas em artes marciais comerciais para avaliar a situação atual. A segunda fase utilizou métodos quantitativos, coletando 360 questionários válidos analisados via Smart PLS para desenvolver e testar um Modelo de Equações Estruturais (SEM) com treze hipóteses. A fase final conduziu discussões em grupos focais com 13 especialistas para encontrar uma abordagem de desenvolvimento sustentável para academias comerciais de artes marciais em Pequim, China. Os resultados da



(2) Quantitative analysis shows policy support, cultural inheritance, operations management, and income diversification significantly influence sustainability—directly and indirectly via customer perceived value, with strong model validity; (3) Expert focus groups propose a development path guided by policy, culture, management, diversified income, and customer value for long-term growth. A integrating tradition and commerce for the sustainable development of martial arts gyms; Providing strategic guidance and practical insights for policymakers, gym operators, and cultural innovators.

Keywords: Commercial Martial Arts Gym. Sustainable Development. Policy Support. Cultural Inheritance. Operations Management. Diversified Income Structure. Customer Perceived Value.

pesquisa revelam: (1) Apesar do crescimento impulsionado pela conscientização sobre saúde e pelo apoio de políticas, as academias de artes marciais de Pequim enfrentam baixo engajamento dos jovens, ensino desigual, recursos limitados e estratégia fraca; (2) A análise quantitativa mostra que o apoio de políticas, a herança cultural, a gestão operacional e a diversificação de receitas influenciam significativamente a sustentabilidade — direta e indiretamente por meio do valor percebido pelo cliente, com forte validade do modelo; (3) Grupos focais de especialistas propõem um caminho de desenvolvimento orientado por políticas, cultura, gestão, diversificação de receitas e valor para o cliente, visando o crescimento de longo prazo. Uma integração entre tradição e comércio para o desenvolvimento sustentável de academias de artes marciais; fornecendo orientação estratégica e insights práticos para formuladores de políticas, operadores de academias e inovadores culturais.

Palavras-chave: Academia Comercial de Artes Marciais. Desenvolvimento Sustentável. Apoio Político. Herança Cultural. Gestão Operacional. Estrutura Diversificada de Receitas. Valor Percebido Pelo Cliente.

1 INTRODUCTION

As an important part of Chinese culture, martial arts carries rich historical, philosophical and social functions. With the transformation of social and economic structure and consumer demand, commercial martial arts halls in Beijing have gradually developed from traditional cultural heritage sites to diversified institutions integrating fitness, cultural experience and social exchange (Liu, 2023; Krause & Zheng, 2022). However, problems such as unclear market positioning, single operation model and lagging digital transformation have seriously restricted the high-quality development of commercial martial arts halls. Especially in the context of the rapid expansion of the fitness industry and sports service industry, commercial martial arts halls face unprecedented market competition pressure (Ng, 2020).

In recent years, the state and Beijing municipal governments have successively issued a number of policies to create a favorable environment for the development of martial arts halls. For example, the "14th Five-Year Plan for Sports Development" and the "Martial Arts Industry Development Plan (2019-2025)" clearly include the martial arts industry in the key sectors of national economic and cultural development, and propose to strengthen the construction of sports facilities, promote industrial integration and encourage social capital investment (Government Website of the People's Republic of China, 2020; 2019). The Implementation Plan for Beijing to Implement the Outline for Building a Strong Sports Nation emphasizes digital transformation, talent cultivation, and cross-border integration, and promotes progress in technology empowerment and business innovation in martial arts halls (Beijing Municipal People's Government, 2020). Policy support has effectively lowered the entry threshold and operating costs of commercial martial arts halls, and enhanced their social functions and market competitiveness.

Scholars have systematically studied the sustainable development of commercial martial arts gyms from the perspectives of policy support, cultural heritage, operation management, and diversified income structure. Policy support helps improve industry norms and resource allocation efficiency (Zhang, 2021), while cultural heritage strengthens customer identity and loyalty (Yoo, 2020). Efficient operation management improves service quality and brand competitiveness (Hwang, 2021), while diversified income structure helps improve economic resilience and reduce external risk shocks (Zhang Wei, 2022). In addition, the study also found that customer perceived value plays a significant mediating role between the above factors and sustainable development (Keller & Kotler, 2021).

In view of the complex challenges facing the development of commercial martial arts gyms, this paper, based on previous research, systematically incorporates the four dimensions of policy support, cultural heritage, refined operation management, and diversified income structure into the same theoretical framework for the first time, and establishes a systematic structural equation model (PLS-SEM) with customer perceived value as the mediating variable. The study not only focuses on the role of policy guidance and cultural integration in the modern transformation of traditional martial arts, but also focuses on analyzing the actual results of digital transformation and cross-industry

collaboration. By combining questionnaire surveys with expert interviews, we further proposed innovative paths and policy recommendations suitable for the development of local commercial martial arts gyms in Beijing, enriching the theoretical and empirical foundations in the field of sports management and industrial sustainable development.

2 RESEARCH OBJECTIVES

1. To study the current situation of the sustainable development of commercial martial arts gyms in Beijing, China.
2. To Analyze the positive factors affecting the sustainable development of commercial martial arts gyms in Beijing, China.
3. To find a sustainable development approach for commercial martial arts gyms In Beijing, China.

3 LITERATURE REVIEW

1. Policy Landscape for Commercial Martial Arts Gyms

An analysis of the 14th Five-Year Plan for Sports Development, the Martial Arts Industry Development Plan (2019–2025), and Beijing's Implementation Plan for the National Fitness Strategy reveals strong national and municipal emphasis on integrating traditional sports like martial arts into modern sports industries. These policies collectively underscore four strategic priorities: (1) improving public fitness infrastructure and promoting widespread participation to enhance national health; (2) fostering cross-sector integration of sports with education, technology, tourism, and health to cultivate a diversified sports consumption market; (3) preserving and innovating traditional disciplines such as martial arts by building globally recognized events and cultural symbols; and (4) positioning cities like Beijing as international sports hubs to enhance global competitiveness and cultural influence. Together, these frameworks create a favorable policy environment, guiding commercial martial arts gyms toward sustainable development through cultural preservation, industry innovation, market expansion, and international engagement.

2. Sustainable Development Concept for Commercial Martial Arts Gyms

The sustainable development of commercial martial arts gyms emphasizes preserving the essence of Chinese martial arts while addressing modern societal demands through innovative management and diversified operations. Aligning with national and local policies, gyms should leverage policy incentives to optimize resource allocation and market positioning (PRC Government, 2020). Emphasis should be placed on cultural depth and curriculum innovation, integrating fitness, youth education, and community engagement to enhance customer perceived value and brand loyalty (Yoo, 2020). Digital transformation and hybrid business models are also essential for long-term competitiveness. This study confirms, through survey and empirical analysis, that policy support, cultural heritage, refined management, and diversified income streams significantly contribute to sustainable development.

3. Theoretical Framework of Sustainable Development for Commercial Martial Arts Gyms

The sustainable development theory of commercial martial arts gyms refers to a systematic framework aimed at long-term operational stability by integrating cultural, economic, social, and environmental dimensions. It seeks to meet current and future consumer needs while simultaneously enhancing economic returns, social impact, and cultural value. At the macro level, sustainability is influenced by multiple external factors, including policy regulations, socio-cultural dynamics, economic conditions, technological advancement, and environmental responsibility.

4. Key Factors Affecting the Sustainable Development of Commercial Martial Arts Gyms in Beijing

To systematically identify the core drivers of sustainable development for Beijing's commercial martial arts gyms, this study synthesizes existing literature and theoretical insights to highlight five critical factors: policy support, cultural heritage, operational management, diversified revenue streams, and customer perceived value. These interrelated elements collectively form the strategic foundation for achieving long-term, stable growth.

5. Related Research

Existing studies on the sustainable development of commercial martial arts gyms focus on balancing traditional cultural preservation with modern market demands, while

enhancing profitability, operational efficiency, and customer loyalty. Key drivers identified include policy support, cultural value reinforcement, digital transformation, diversified revenue, and customer experience optimization. For instance, Zhang (2022) emphasizes that sustainable growth requires maintaining cultural core values alongside innovative business models that integrate online-offline courses, events, and cultural promotion to meet evolving consumer needs.

4 RESEARCH METHODOLOGY

This study explores the factors affecting the sustainable development of commercial martial arts halls in Beijing using a mixed-methods design that integrates qualitative and quantitative approaches, with data analyzed in three steps:

Step 1: A qualitative investigation, this study selected 15 respondents for interviews and systematically analyzed the current status of sustainable development of commercial martial arts gyms in Beijing, China.

Step 2: A quantitative analysis was performed to examine positive influencing factors, collecting 360 valid questionnaires analyzed via Smart PLS to develop and test a Structural Equation Model (SEM) with thirteen hypotheses.

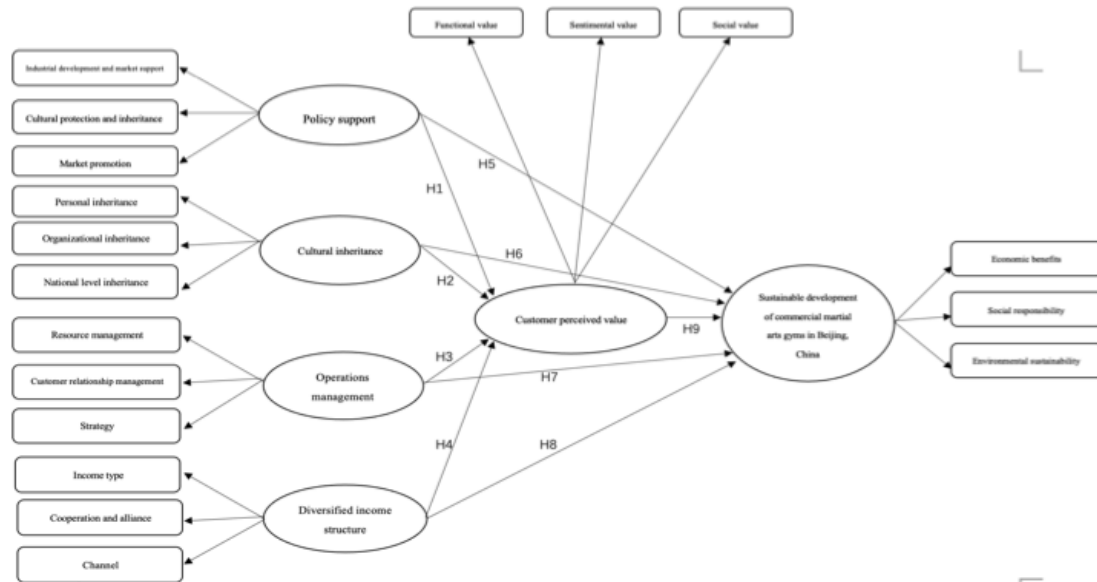
Step 3: To qualitative methods were re-employed. focus group discussions with 13 experts to find a sustainable development approach for commercial martial arts gyms In Beijing, China.

This integrated research design balances theory and practice, and combines qualitative and quantitative insights, offering strong academic support for advancing the sustainable development of commercial martial arts halls in Beijing.

4.1 Research conceptual framework

Figure 1

Conceptual model constructed by researchers



This study takes policy support, cultural heritage, operation management and diversified income structure as independent variables, customer perceived value as mediating variable, and the sustainable development of commercial martial arts halls in Beijing, China as dependent variable, and systematically constructs a framework of core factors affecting their development. Based on a detailed literature review and research objectives, a conceptual model of the sustainable development of commercial martial arts halls in Beijing, China was designed and presented in a graphical way.

This conceptual model comprehensively reveals the basic hypothetical relationship between the four key elements of policy support, cultural heritage, operation management and diversified income structure and the sustainable development of commercial martial arts halls in Beijing, and clearly points out that customer perceived value plays a mediating role between the four core elements and sustainable development. The specific hypothetical relationship is as follows:

H1 Policy support has a positive impact on customer perceived value

H2 Cultural heritage has a positive impact on customer perceived value

H3 Operation management has a positive impact on customer perceived value

H4 Diversified income structure has a positive impact on customer perceived value

H5 Policy support has a positive impact on the sustainable development of commercial martial arts gyms in Beijing, China

H6 Cultural heritage has a positive impact on the sustainable development of commercial martial arts gyms in Beijing, China

H7 Operation management has a positive impact on the sustainable development of commercial martial arts gyms in Beijing, China

H8 Diversified income structure has a positive impact on the sustainable development of commercial martial arts gyms in Beijing, China

H9 Customer perceived value has a positive impact on the sustainable development of commercial martial arts gyms in Beijing, China

H10 Customer perceived value mediates the impact of policy support and the sustainable development of commercial martial arts gyms in Beijing, China

H11 Customer perceived value mediates the impact of cultural heritage and the sustainable development of commercial martial arts gyms in Beijing, China

H12 Customer perceived value mediates the impact of operation management and the sustainable development of commercial martial arts gyms in Beijing, China

H13 Customer perceived value mediates the impact of diversified income structure and the sustainable development of commercial martial arts gyms in Beijing, China.

5 RESEARCH RESULTS

1) The Current Status of Sustainable Development of Commercial Martial Arts Halls in Beijing, China

Beijing's martial arts industry is growing with rising health awareness and policy support, but uneven resources, low youth participation, and modern fitness competition hinder sustainable progress.

1. Market demand is growing with rising health awareness, but youth engagement remains low and student demographics are imbalanced.

2. Teaching Quality and Teaching Staff. Top-tier gyms offer structured, culturally enriched programs, while smaller gyms struggle with instructor shortages and uneven teaching quality.
 3. Technology and Facility Development. Digital adoption and facility upgrades are advancing, yet progress is uneven, with some gyms lacking sufficient investment.
 4. Brand Building and Market Competitiveness. Brand visibility improves through events and cultural initiatives, but traditional martial arts face strong competition from modern fitness and combat sports.
 5. Policy Support. Government subsidies and policy initiatives strongly support industry growth and sustainability.
 6. Issues and Challenges. High rental costs, talent shortages, weak innovation, and unclear market positioning continue to hinder long-term sustainable development.
- 2) Analyze the positive factors affecting the sustainable development of commercial martial arts gyms in Beijing, China.

(2.1) Descriptive analysis

This study sorted and analyzed the basic information of the respondents, describing the overall distribution of the sample in terms of gender, educational background, age, nature of work, years of work, and time involved in commercial martial arts.

5.1 Reliability analysis

Table 1

Reliability testing

Variable	Dimension	Dimensional reliability	Variable reliability
Policy support	Industrial development and policy support	0.821	0.930
	Cultural Preservation and inheritance	0.851	
	Market promotion	0.847	
Cultural inheritance	Personal heritage	0.859	0.940
	Organizational inheritance	0.873	
	National level inheritance	0.863	
	Resource management	0.845	0.934

Operations Management	Customer relationship management	0.864	
	Strategy	0.860	
	Income type	0.867	
Diversified income structure	Cooperation and alliance	0.837	0.935
	Channel	0.888	
Customer Perceived Value	Functional value	0.838	
	Sentimental Value	0.840	0.934
	Social values	0.873	
Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	Economic benefits	0.849	
	Social responsibility	0.849	
	Environmental sustainability	0.880	0.933

Cronbach's alpha coefficient is used as the reliability evaluation index of the scale. The reliability of the six variables and 18 dimensions of policy support, cultural heritage, operation management, diversified income structure, customer perceived value and sustainable development is above 0.8, and the reliability of the dimensions to which each variable belongs is also above 0.8. Therefore, the overall data results are relatively stable and have high reliability. The correlation (CITC) index of each item with the total is higher than 0.4, and the reliability (CAID) after deleting the item is not higher than the reliability of the corresponding variable. Therefore, there is a certain correlation between each item and the variable, and all items can be retained for subsequent analysis.

5.2 Effectiveness Analysis

Table 2

Validation Factor AVE and CR Index Values

Validity	CR	AVE
Policy support	0.931	0.507
Cultural inheritance	0.941	0.544
Channel	0.891	0.692
Cultural Preservation and inheritance	0.852	0.628
Cooperation and alliance	0.837	0.606
Customer relationship management	0.866	0.649
Diversified income structure	0.936	0.525
Economic benefits	0.851	0.625
Customer Perceived Value	0.934	0.520
Environmental sustainability	0.880	0.676
Functional value	0.838	0.606
Operations Management	0.935	0.520

Validity	CR	AVE
Industrial development and policy support	0.822	0.583
Income type	0.868	0.653
Market promotion	0.849	0.621
National level inheritance	0.866	0.647
Organizational inheritance	0.873	0.663
Personal heritage	0.861	0.639
Resource management	0.846	0.618
Strategy	0.861	0.641
Sentimental Value	0.841	0.611
Social values	0.875	0.665
Social responsibility	0.852	0.626
Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.933	0.516

The test results show that the comprehensive reliability CR of the six variables and their dimensions in this survey is higher than 0.7, and the average variance extracted AVE is higher than 0.5, indicating that the variables and dimensions have strong aggregation.

Table 3

Heterotrait-Monotrait Ratio (HTMT)

	Policy support	Cultural inheritance	Diversified income structure	Customer Perceived Value	Operations Management	Sustainable Development of Commercial Martial Arts Gyms in Beijing, China
Policy support						
Cultural inheritance	0.390					
Diversified income structure	0.351	0.349				
Customer Perceived Value	0.480	0.537	0.475			
Operations Management	0.383	0.345	0.281	0.447		
Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.506	0.556	0.485	0.676	0.499	

In the measurement model analysis of six variables, namely, policy support, cultural heritage, operational optimization, diversified income structure, customer perceived value, and sustainable development, the HTMT parameters between the

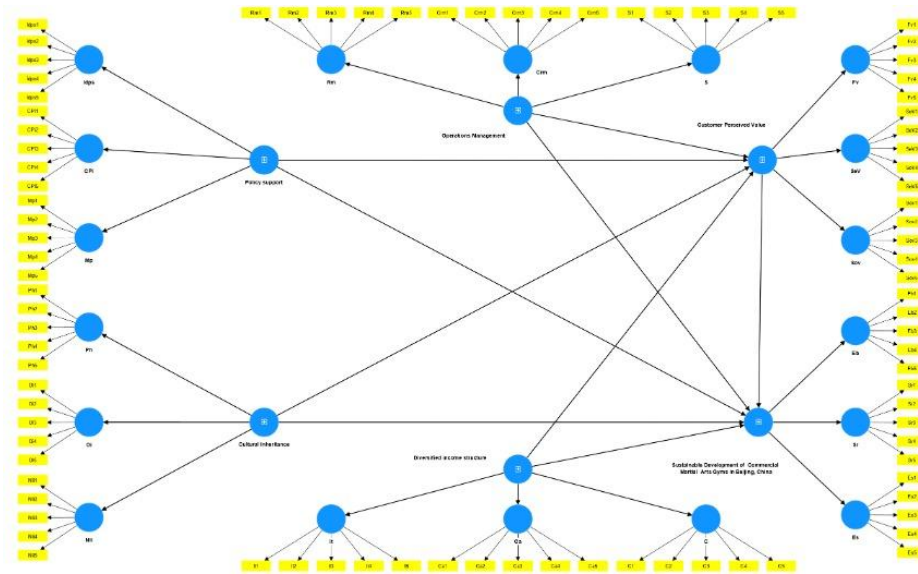
variables were all lower than 0.9, meeting the standard requirement of being lower than 0.9, indicating that the variables we constructed have good discriminant validity.

5.3 Structural equation model

This study used SmartPLS4.0 to establish a path model and imported the collected 360 sample data into it. The path model estimation diagram is shown in Figure 2.

Figure 2

Schematic diagram of the structural model



Source: Constructed by the researcher

Table 4

Variable Interpretation Rate

	R-square	R-square adjusted	Result
C	0.802	0.801	High
CPI	0.846	0.846	High
Ca	0.810	0.809	High
Crm	0.844	0.844	High
Eb	0.825	0.825	High
CPV	0.421	0.414	medium
Es	0.762	0.761	High
Fv	0.839	0.839	High
Idps	0.850	0.850	High
It	0.814	0.813	High
Mp	0.795	0.794	High
Nli	0.798	0.797	High

	R-square	R-square adjusted	Result
Oi	0.842	0.841	High
Ph	0.874	0.874	High
Rm	0.843	0.842	High
S	0.770	0.769	High
SeV	0.857	0.857	High
Sov	0.794	0.794	High
Sr	0.826	0.826	High
SDCMAG	0.527	0.520	medium

The calculation results show that the predictive explanatory power of the four independent variables and one mediating variable in the model for the dependent variable is 0.527, which is higher than 0.33 and belongs to the medium or above level of explanatory power. The predictive explanatory power of the four independent variables in the model for the mediating variable is 0.421, which is higher than 0.33 and belongs to the medium or above level of explanatory power.

Table 5

Variable prediction determination coefficient

Regression path	f-square	Result
Policy support→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.031	small
Cultural inheritance→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.059	small
Diversified income structure→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.037	small
Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.132	small
Operations Management→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.050	small
Policy support→Customer Perceived Value	0.052	small
Cultural inheritance→Customer Perceived Value	0.119	small
Diversified income structure→Customer Perceived Value	0.078	small
Operations Management→Customer Perceived Value	0.051	small

The calculation results show that the determination coefficient of the four independent variables and one mediating variable in the model on the dependent variable is not less than 0.02. The determination coefficient of the four independent variables in the model on the mediating variable is not less than 0.02, indicating that the prediction performance of the model is good.

Table 6*Correlation value analysis of predictive ability*

	SSO	Residual Sum of Squares (SSE)	Q ² (=1-SSE/SSO)	Result
Policy support	1080	395.452	0.634	large
Cultural inheritance	1080	407.251	0.623	large
Operations Management	1080	452.223	0.581	large
Diversified income structure	1080	429.797	0.602	large
Customer Perceived Value	1080	409.156	0.621	large

The calculation results show that the prediction Q² of policy support for the sustainable development of the dependent variable is 0.634, the prediction Q² of cultural heritage for the sustainable development of the dependent variable is 0.623, the prediction Q² of operation management for the sustainable development of the dependent variable is 0.581, the prediction Q² of diversified income structure for the sustainable development of the dependent variable is 0.602, and the prediction Q² of customer perceived value for the sustainable development of the dependent variable is 0.621.

Table 7*Hypothesis Testing (1) Direct effect test*

Regression path	β	T	P	95%CI	
				Lower	Upper
Cultural inheritance→Customer Perceived Value	0.295	4.642	0.000	0.172	0.421
Cultural inheritance→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.199	2.812	0.005	0.058	0.337
Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.328	3.982	0.000	0.181	0.499
Diversified income structure→Customer Perceived Value	0.234	3.621	0.000	0.111	0.365
Diversified income structure→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.150	3.285	0.001	0.058	0.237
Operations Management→Customer Perceived Value	0.189	4.030	0.000	0.093	0.280
Operations Management→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.175	3.538	0.000	0.076	0.268
Policy support→Customer Perceived Value	0.197	3.047	0.002	0.070	0.324

Policy support→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.141	2.407	0.016	0.024	0.254
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The data show that the path coefficient of cultural heritage on customer perceived value is 0.295 ($T=4.642$, $P=0.0$, the confidence interval [0.172, 0.421] does not include 0), indicating that cultural heritage has a significant positive impact on customer perceived value, that is, the higher the level of cultural heritage, the higher the customer's perceived value of the martial arts hall. Similarly, the path coefficient of cultural heritage on the sustainable development of commercial martial arts halls in Beijing is 0.199 ($T=2.812$, $P=0.005$, the confidence interval [0.058, 0.337] does not include 0), indicating that it also has a significant positive effect on sustainable development. The path coefficient of customer perceived value on the sustainable development of martial arts halls is 0.328 ($T=3.982$, $P=0.0$, the confidence interval [0.181, 0.499] does not include 0), indicating that improving customer perceived value can significantly promote the sustainable development of martial arts halls. The path coefficient of diversified income structure on customer perceived value is 0.234 ($T=3.621$, $P=0.0$, the confidence interval [0.111, 0.365] does not include 0), and the path coefficient on sustainable development is 0.15 ($T=3.285$, $P=0.001$, the confidence interval [0.058, 0.237] does not include 0), both showing significant positive effects, that is, the more diversified the income source, the more it can improve customer perceived value and enhance the sustainable development ability of the martial arts hall. The path coefficient of operation management on customer perceived value is 0.189 ($T=4.03$, $P=0.0$, the confidence interval [0.093, 0.28] does not include 0), and the path coefficient on sustainable development is 0.175 ($T=3.538$, $P=0.0$, the confidence interval [0.076, 0.268] does not include 0), which also shows a significant positive relationship, indicating that the improvement of operation management level can simultaneously promote customer perceived value and the sustainable development of the martial arts hall. Finally, the path coefficient of policy support on customer perceived value is 0.197 ($T=3.047$, $P=0.002$, the confidence interval [0.07, 0.324] does not include 0), and the path coefficient on sustainable development is 0.141 ($T=2.407$, $P=0.016$, the confidence interval [0.024, 0.254] does not include 0), which also reached a significant level, indicating that the more sufficient the policy support, the higher the customer perceived value and the sustainable development level of the martial arts hall.

In summary, all the paths of the model are statistically significant, fully reflecting the factors such as cultural heritage, diversified income structure, operation management and policy support, and significantly promoting the sustainable development of Beijing's commercial martial arts halls by improving customer perceived value.

Table 8

Hypothesis Testing (2) Test of mediation effect

Regression path	Effect size	T	P	95%CI	
				Lower	Upper
Cultural inheritance→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.097	2.906	0.004	0.042	0.172
Policy support→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.065	2.031	0.042	0.017	0.140
Operations Management→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.062	2.565	0.010	0.024	0.118
Diversified income structure→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China	0.077	2.634	0.008	0.030	0.144

The test results of the Bootstrap method show that in the path "Cultural inheritance→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China", the mediating effect of customer perceived value is 0.097 (T=2.906, P=0.004, the confidence interval [0.042, 0.172] does not cross 0), indicating that customer perceived value plays a significant mediating role in the process of cultural inheritance affecting the sustainable development of martial arts gyms. Similarly, in the path "Policy support→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China", the mediating effect is 0.065 (T=2.031, P=0.042, the confidence interval [0.017, 0.14] does not include 0), indicating that customer perceived value is also an important mediator of policy support to promote sustainable development. In addition, the mediating effect of the path "Operations Management→Customer Perceived Value→Sustainable Development of Commercial Martial Arts Gyms in Beijing, China" is 0.062 (T=2.565, P=0.01, the confidence interval [0.024,0.118] does not include 0), and the mediating effect of the path "Diversified income structure→Customer Perceived Value→Sustainable Development

of Commercial Martial Arts Gyms in Beijing, China" is 0.077 ($T=2.634$, $P=0.008$, the confidence interval $[0.03,0.144]$ does not include 0). These two paths also show that customer perceived value plays a key mediating role in the impact of operations management and diversified income structure on sustainable development.

In summary, customer perceived value shows a significant mediating effect in the process of the main factors acting on the sustainable development of commercial martial arts gyms in Beijing.

According to the above indicators, it can be concluded that the path described in this hypothesis is significant, proving that the hypothesis is established. This shows that hypotheses H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, and H13 have been verified, and the four independent variables and one mediating variable in this study have a significant positive impact on the dependent variable.

3) A sustainable development approach for commercial martial arts gyms In Beijing, China.

In order to clarify and verify the strategic direction of sustainable development of commercial martial arts gyms in Beijing, qualitative research was conducted again. Researchers developed an outline of development directions, organized focus group discussions, explored feasibility and appropriateness, and determined the future path.

The direction of sustainable development of commercial martial arts gyms in Beijing, China can be summarized into the following five aspects. (1) Policy Support: Financial aid, venue provision, talent training, and digital transformation ease operational burdens and boost competitiveness. (2) Cultural Inheritance: Enhances brand identity, deepens community ties, and attracts students with cultural values. (3) Operational Management: Cost control, digitalization, and high-quality teaching ensure resilience and performance. (4) Diversified Income: Expanding tuition, rentals, events, and merchandise secures financial stability and reduces single-source risks. (5) Customer Perceived Value: Higher satisfaction and loyalty drive brand differentiation, market growth, and sustainable development.

6 CONCLUSION

First, Beijing's commercial martial arts sector is expanding under the influence of rising health awareness and policy support, yet challenges persist. While leading gyms deliver structured, culturally rich programs, smaller venues struggle with limited resources, uneven teaching quality, and insufficient engagement among young adults. Digitalization and branding efforts have improved visibility, but high costs, talent shortages, weak innovation, and competition from modern fitness trends continue to hinder sustainable progress.

Second, empirical analysis confirms that policy support, cultural inheritance, operations management, and income diversified each exert significant positive effects on sustainable development, both directly and indirectly through customer perceived value. The structural equation model constructed in this study demonstrates strong explanatory power and predictive validity, highlighting the central role of customer value as a mediator in driving satisfaction, loyalty, and overall competitiveness.

Third, the sustainable growth of Beijing's martial arts gyms relies on five interrelated pillars. Policy initiatives, including subsidies, venue access, and digital transformation, reduce operational pressure and enhance competitiveness. Cultural inheritance strengthens brand identity and community engagement, while efficient management and cost control ensure organizational resilience. Diversified income streams and enhanced customer perceived value collectively foster brand loyalty, market differentiation, and long-term sustainable development.

7 DISCUSSION

- 1) Policy Support → Customer Perceived Value Policy incentives such as subsidies and facility upgrade significantly enhance customers' perceived value by improving service accessibility and experience quality (Huan, 2024).
- 2) Cultural Heritage → Customer Perceived Value Integrating traditional cultural elements strengthens emotional resonance and brand identity, elevating the perceived value of martial arts gyms (Xu, 2024).

- 3) Operational Management → Customer Perceived Value Efficient service processes and quality management substantially improve functional and emotional value perception (Tsiros, 2022).
- 4) Diversified Income Structure → Customer Perceived Value Multiple revenue streams enrich customer experience, increasing functional, emotional, and convenience-based value (Park, 2024).
- 5) Policy Support → Sustainable Development Government initiatives reduce operational burdens and enhance competitiveness, supporting long-term institutional growth (Wang, J., 2023).
- 6) Cultural Heritage → Sustainable Development Cultural heritage reinforces community engagement and brand loyalty, positioning martial arts as a culturally anchored, sustainable business (Chen, 2024).
- 7) Operational Management → Sustainable Development Digital systems and structured HR practices improve institutional performance and resilience (Liu, L., 2024).
- 8) Diversified Income Structure → Sustainable Development Revenue diversification mitigates risk, strengthens financial stability, and supports innovation capacity (Li, X., 2024).
- 9) Customer Perceived Value → Sustainable Development High perceived value drives satisfaction, repurchase intent, and loyalty—core to long-term sustainability (Zhang, Y., 2024).
- 10) Policy Support → Customer Value → Sustainable Development Customer perceived value mediates the effect of policy support, amplifying its impact on institutional sustainability (Zhang, X., 2024).
- 11) Cultural Heritage → Customer Value → Sustainable Development Cultural experiences enhance perceived value, fostering brand attachment and long-term viability (Wang, Q., 2024).
- 12) Operational Management → Customer Value → Sustainable Development Refined management increases perceived service quality, translating into greater organizational sustainability (Sun, Q., 2024).

- 13) Diversified Income → Customer Value → Sustainable Development Value-rich, multi-channel business models improve perceived value and serve as a bridge to sustainable enterprise growth (Cheng, S., 2024).

8 RECOMMENDATIONS

1) Research-Based Application Suggestions

This study developed a robust and validated questionnaire and structural model, offering a scientific tool for analyzing the sustainable development of commercial martial arts gyms in Beijing. The findings provide practical value across multiple sectors:

1. Policy Development: Offers empirical evidence for government agencies (e.g., Sports and Cultural Bureaus) to design targeted policies such as financial incentives, talent cultivation programs, and infrastructure investment.
2. Industry Strategy Formulation: Assists martial arts gym operators in optimizing operations, diversifying revenue streams, and innovating curriculum design to enhance competitiveness and resilience.
3. Cultural and Educational Integration: Supports cultural institutions, schools, and community centers in aligning traditional martial arts education with modern market demands, thereby advancing cultural transmission.
4. Investment and Market Assessment: Serves as a reference for investors and entrepreneurs to evaluate the feasibility and strategic value of martial arts ventures through data-driven tools.
5. Academic Foundation: Establishes a theoretical and methodological basis for future interdisciplinary research across fields such as sports management, cultural economics, and public policy.

2) Future Research Directions

To build upon current insights, future studies should pursue the following:

1. Geographic Expansion and Sample Diversification: Extend research to other regions in China and overseas Chinese communities to enhance generalizability and comparative understanding.

2. Micro-Level Cultural Mechanism Exploration: Examine the interplay between individual mentorship, institutional practices, and national policy in transmitting martial arts culture—particularly among youth.
3. Longitudinal and Dynamic Analysis: Shift from cross-sectional to longitudinal research to track how variables like policy support and operational efficiency influence long-term sustainability.
4. Technological Integration: Investigate how emerging technologies (e.g., AI coaching, virtual training platforms) reshape strategic development and customer value within martial arts gyms.
5. Model Differentiation by Gym Type: Analyze traditional, competitive, and fitness-focused martial arts gyms separately to uncover distinct branding, revenue, and loyalty strategies that inform sustainable growth.

REFERENCES

- Chang, S. (2021). Business Model Diversification and Customer Value Perception in Fitness and Martial Arts Industry. *Journal of Asian Sport Management*, 5(2), 43-56.
- Huan, 2024. Policy incentives such as subsidies and facility upgrades significantly enhance customers' perceived value by improving service accessibility and experience quality.
- Hwang, Y. (2021). Strategic Management in Commercial Martial Arts Gyms. *Management Review Quarterly*, 71(1), 85-97.
- Keller, K. L., & Kotler, P. (2021). *Marketing Management* (16th ed.). Pearson.
- Krause, J., & Zheng, S. (2022). Social Aspects of Martial Arts: Community and Identity. *International Journal of Martial Arts Studies*, 7(2), 45-60.
- Liu, X. (2023). Social functions and cultural transmission of martial arts. *Sports Science*, 43(1), 56–62.
- Ng, K. (2020). Digital Transformation and Service Innovation in Sports Facilities. *Asia Pacific Journal of Sports Management*, 12(1), 21-35.
- Park, 2024. Multiple revenue streams enrich customer experience, increasing functional, emotional, and convenience-based value.
- Sun, Q., 2024. Refined management increases perceived service quality, translating into greater organizational sustainability.

- Tsiros, 2022. Efficient service processes and quality management substantially improve functional and emotional value perception.
- Wang, Q. 2024. Cultural experiences enhance perceived value, fostering brand attachment and long-term viability.
- Xu, 2024. Integrating traditional cultural elements strengthens emotional resonance and brand identity, elevating the perceived value of martial arts gyms.
- Yoo, S. (2020). Martial Arts Schools as Sites of Cultural Exchange and Social Networking. *Journal of Sport and Social Issues*, 44(3), 234-250.
- Zhang, W. (2022). Innovation of business models in commercial martial arts gyms. *Sports Economy Research*, 40(2), 99–108.
- Zhang, X. (2021). Policy Support and Sustainable Development of Martial Arts Industries in China. *Chinese Journal of Sports Science*, 41(4), 13-27.

Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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