



The Strategy of Sports Tourism Management to Promote Tourist Attractions of Taihang Mountain Grand Canyon in Shanxi

Lida Hao¹, Kanit Kheovichai², and Vichit Imarom³

¹ Ph.D Student, Faculty of Education, Silpakorn University, Thailand

² Professor, Faculty of Education, Silpakorn University, Thailand

³ Lecturer, Faculty of Education, Silpakorn University, Thailand

E-mail: haolida16@gmail.com, ORCID ID: <https://orcid.org/0009-0003-5109-4764>

E-mail: KHEOVICHAI_K@SU.AC.TH, ORCID ID: <https://orcid.org/0009-0007-2817-8731>

E-mail: IMAROM_V@SU.AC.TH, ORCID ID: <https://orcid.org/0009-0001-0625-8067>

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Abstract

Background and Aim: At present, in the era of mass sports tourism, tourism development in the Taihang Mountains is facing many challenges, such as ecological environmental protection pressure, lagging in the transformation and upgrading of tourism products, tourist attraction isolated development, and an imperfect regional coordination mechanism. The research aims of this paper are (1) To study and analysis the current situation of the sports tourism management in Taihang Mountain Grand Canyon in Shanxi.; (2) To develop the strategy of sports tourism management to promote tourist attractions of Taihang Mountain Grand Canyon in Shanxi; (3) To validate the feasibility of the strategy of the sports tourism management to promote tourist attractions of Taihang Mountain Grand Canyon in Shanxi.

Materials and Methods: This study adopts the R&D research method, which collects data through the questionnaire survey method and interview method. The main research tools applied to this study are a questionnaire and an interview form. According to Taihang Mountain Grand Canyon, which holds a 2023 year-end thank-you party, the total number of domestic tourists is approximately 2.5 million, and the number of key informants is around 500. The author first used simple random sampling to conducted a questionnaire survey on 400 tourists traveling to the Shanxi Taihang Grand Canyon Tourist Attractions to collect relevant quantitative data, and then Purposive sampling was used to interview 10 key informants, including the Huguang County Culture and Tourism Bureau (3 people), Huguang County Tourism Company staff (3 people), and tourist attraction managers and related staff (4 people), to collect relevant qualitative data. The author then carried out descriptive statistical analysis (Mean, S.D.) on the quantitative data, content analysis on the qualitative data, a SWOT analysis to integrate the quantitative and qualitative data, a TOWS matrix to suggest pertinent strategies, and a Connoisseurship session with nine experts to evaluate the strategies.

Results: The results of the study found that (1) The current situation of sports tourism management the tourist attractions of Taihang Mountain Grand Canyon in Shanxi has 10 strengths, 8 weaknesses, 8 opportunities and 7 threats, and there is still a lot of space that can be further developed and optimised; (2) in response to the results of the analysis of the current situation of sports tourism management the tourist attractions of Taihang Mountain Grand Canyon in Shanxi, this study proposes 8 SO strategies, 7 ST strategies, 8 WO strategies, and 7 WT strategies in order to improve the high-quality development of the tourist attractions of Taihang Mountain Grand Canyon in Shanxi; and (3) The experts who participated in the connoisseurship agreed that these strategies have high feasibility and are in line with the current development needs of the tourist attractions of Taihang Mountain Grand Canyon in Shanxi, except that a few of them should be merged, and finally there are 4 SO strategies, 4 ST strategies, 4 WO strategies and 4 WT strategies.

Conclusion: Generally, this study combines the natural resources and ecological environment of the sports tourism attractions of Taihang Mountain Grand Canyon in Shanxi, and proposes a diversified development path, especially in terms of sports tourism innovation, smart management, brand building, and the introduction of professional talents. It not only considers the existing tourism resources, but also makes full use of the government's policy support and smart management to create a unique sports tourism brand and form a distinctive brand IP. Future research can further explore the feasibility and cost-effectiveness of these strategies in implementation, and provide more practical suggestions for the development of sports tourism attractions of Taihang Mountain Grand Canyon in Shanxi.

Keywords: Strategy; Sports Tourism; Sports Tourism Management; Tourist Attraction; Taihang Mountain Grand Canyon in Shanxi

Introduction

With the arrival of the era of mass sports tourism, tourism consumption is becoming more popular, demand is becoming more quality-oriented, and the industry is becoming more modernized. Tourist





attractions of Taihang Mountain Grand Canyon in Shanxi have ushered in unprecedented development opportunities. However, with the increasing number of tourists, the tourist attractions face multiple problems such as increased reception pressure, severe ecological protection challenges, lagging transformation and upgrading of tourism products, weak industrial linkage, poor traffic organization, and insufficient management and coordination mechanisms.

In recent years, the state and local governments have issued several policies to support the development of Taihang Mountain tourism, including the Taihang Mountain Tourism Development Plan (2020-2035) (Council, 2020), the "14th Five-Year Plan" Tourism Development Plan, the Shanxi Province's Implementation Opinions on Promoting the High-quality Development of the Cultural and Tourism Industry (Council, 2022), and the Changzhi City's "14th Five-Year Plan" Cultural and Tourism Development Plan (Government, 2022), all of which emphasize ecological priority, green development, and "sports + tourism" integration and innovation, and propose to create a high-quality, all-regional, branded, and multi-point linkage tourism development pattern.

As a typical resource-based region, the tourism industry has become an important tool for poverty alleviation and economic transformation in the tourist attractions of Taihang Mountain Grand Canyon in Shanxi. Therefore, researching the development strategy of the sports tourism tourist attractions of Taihang Mountain Grand Canyon will not only help improve the core competitiveness of the tourist attractions and tourist satisfaction, but also provide decision-making references for local governments, cultural tourism departments, tourist attractions operators, etc. It has important practical value and theoretical significance for sports tourism, eco-tourism, regional economy, cultural heritage, and other fields.

Research Objectives

1. To study and analyze the current situation of the sports tourism management in Taihang Mountain Grand Canyon in Shanxi.
2. To develop the strategy of sports tourism management to promote the tourist attractions of Taihang Mountain Grand Canyon in Shanxi.
3. To validate the feasibility of the strategy of sports tourism management to promote the tourist attractions of Taihang Mountain Grand Canyon in Shanxi.

Literature review

To develop the strategy of sports tourism management to promote tourist attractions of Taihang Mountain Grand Canyon in Shanxi, the author mainly researched the following related theories:

1. Theories of sports tourism management

Don Anthony wrote an article for the British Association of Sports and Leisure Centers entitled Sport and Tourism. This article, while only briefly reviewing the role of sporting activities in holiday tourism, is the earliest literature in human history to describe the interconnections between sport and tourism (Anthony, 1966). Previous work by Weed, M., & Bull, C. identified a number of factors that may influence the link between sport and tourism ideology, government policy, organizational structure, organizational culture, and key employees (Weed & Bull, 1997). Gibson H J. develops an objective and logical account of years of sports tourism research, classifying sports tourism into three types: active sports tourism, which refers to people who travel to participate in sports; event sports tourism, which refers to people who travel to watch sporting events; and nostalgic sports tourism, which includes visits to sports museums, famous stadiums, sports-themed cruises, etc (Gibson, 1998).

Tourism organizations are highly dependent on the strategic and correct use of information systems and their knowledge-based applications. Some researchers consider information systems, especially information technology (IT) and its flexibility, as an enabler to achieve the desired competitive advantage and as a key support for operational and strategic business decisions (Al Azmi et al., 2012; Alenezi & Tarhini, 2013).





Green and Jones (2005), in the article “Serious leisure, social identity and sport tourism”, marketing sporting events requires an understanding of who potential sports visitors are, what types of services are available, and what they expect to get out of the experience. Staying in touch with the marketplace requires regular assessment of customers, their needs, and relevant competitors in the environment. Just as any business must first determine its competitive environment, the organization planning a sporting event must determine who its appropriate audience is and what services and goods the audience seeks. Marketing is fundamentally a process of providing these offerings to meet identified needs.

ALdmour et al. (2011) in the article “The role of sports events in the revitalization of touristic movement from the perspective of the tourist ”, The study used a well-designed questionnaire to collect data and information and to understand the trends and perspectives of the study sample, and the results showed that the existing sports events do not help to stimulate the development of sports tourism in Jordan, the governmental legislations and existing regulations do not help to stimulate the development of sports tourism in Jordan, and the existing advertisements do not help to stimulate the development of sports tourism in Jordan, and the study recommended that stakeholders pay more attention to providing tourists with tournaments and sports activities, but not in terms of quantity and quality, and the study recommends that the relevant institutions enact and develop legislation and laws that deal with sports tourism.

2. Theory of strategy

The essence of strategy lies in choosing activities to carry out differently, or differently from competitors. There are three different sources of strategic location, which are not mutually exclusive and often overlap. First, positioning can be based on producing a subset of an industry's products or services. The second basis for positioning is to satisfy a particular group. A company can outperform its competitors only if it establishes a differentiation that it can maintain. Most or all of the needs of a customer group. The third basis of positioning is the segmentation of customers who can be reached in different ways. Strategy is the creation of a unique and valuable positioning that involves a set of different activities. The essence of strategy is choosing activities that are different from those of competitors. Strategy can be based on customer needs, customer accessibility, or the diversity of a company's products or services. Strategic positioning sets the rules for trade-offs and defines how individual activities will be configured and integrated. Looking at strategy through the lens of a system of activities only provides a clearer understanding of why organizational structures, systems, and processes need to be relevant to strategy. In turn, aligning organizational structures with strategy makes complementarities easier to achieve and contributes to sustainability (Porter, 1996).

Zhang Zheng et al. analyzed the tourism industry using new media means to carry out tourism marketing exploration and practice, and continue to deepen. The scenic spot tourism new media marketing weaknesses, around the carrying capacity, characteristics of the project, marketing concepts and collaboration pattern and other four aspects of the main issues, targeted to improve the basic support, the positioning of the market, innovative marketing methods, co-ordination of all parties to improve the enhancement of the strategy for tourist attractions with the help of new media to enhance the scenic area's reputation and marketing accuracy to provide ideas (Zheng et al., 2022).

3. Theory of SWOT analysis and TOWS Matrix

Among the enterprise strategic decision-making methods, the most representative method is the SWOT analysis method. It was first proposed by Andrews of Harvard Business School in his book "Concepts of Corporate Strategy" in 1971. This method has been widely used in strategic decision analysis, market strategy, personal design, and other fields, showing its powerful functions (Ansoff & Andrews, 1987).

The SWOT model has a wide range of applications, and there are many models derived from its basic principles. Domestic and foreign scholars have made a series of improvements to the traditional SWOT model through various quantitative methods based on the original SWOT model. A.A.Thompson.Jr and



A.J.Strickland proposed a strategic clustering model based on the Boston Matrix and combined with SWOT analysis (Kurttila et al., 2000).

The SWOT analysis method was used to compare and quantify the strengths (S) and weaknesses (W), opportunities (O), and threats (T) of the outdoor sports tourism and leisure industry. The results show that the outdoor sports tourism and leisure industry has significant advantages on the one hand, but there are also many limiting factors; on the other hand, it is also in a situation where opportunities and threats coexist. Based on this, it is proposed that reasonable planning should be made, characteristics should be highlighted, and infrastructure should be improved; ecological protection should be strengthened, management and security service systems should be strengthened and improved; resource advantages should be integrated, and complementary advantages should be brought into play, and coordinated development should be achieved, to provide a reference for the development of the mountain outdoor sports tourism and leisure industry (Youfu et al., 2013; Zhenjing et al., 2023).

The TOWS analysis model is based on SWOT analysis, and the TOWS analysis procedure is as follows: the first step, environmental review, including two aspects, namely, the analysis of the external environment of tourism development and the analysis of the internal environment. In the second step, according to the degree of priority or influence, the above factors are ranked, and a TOWS matrix is constructed to conduct a comprehensive correspondence analysis to form four types of potential strategic choices, SO strategy: focusing on the consideration of the advantageous factors and opportunity factors of the regional tourism system, to try to maximize the favorable impacts of both, and WT strategy: focusing on the consideration of the disadvantageous factors and threatening factors of the regional tourism system, to try to maximize the unfavorable impacts of both. WO strategy: focuses on the weaknesses and opportunities of the regional tourism system, with the aim of minimizing the negative impacts of the former and maximizing the positive impacts of the latter. ST strategy: focuses on the strengths and threats of the regional tourism system, with the aim of maximizing the positive impacts of the former and minimizing the negative impacts of the latter. In the third step, priority strategies are selected. The TOWS analysis determines the key factors by means of an expert group's assessment, thus avoiding one-sided opinions of individual experts and reducing the risks of the tourism decisions in question (Caiqin et al., 2013; Zhi & Hong, 2007).

Conceptual Framework

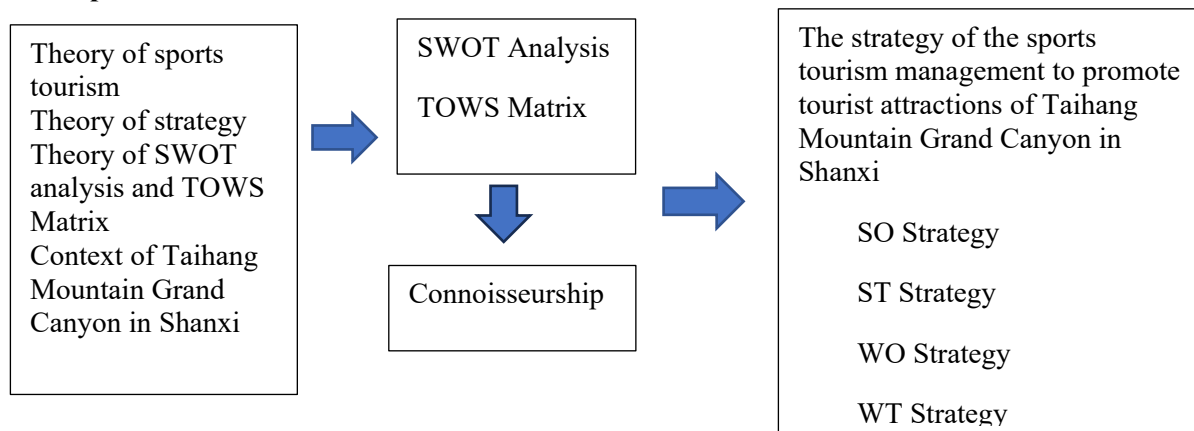


Figure 1 Conceptual Framework

Methodology

1. Research methods



This study uses the research methodology of R&D, in which qualitative data are mainly collected through the documentary analysis method and interview method, and quantitative data are mainly collected through the inquiry method.

(1) Questionnaire survey method

It is mainly used to study the tourists' basic information, tourist sports tourism situation, and the current situation of sports tourism management at tourist attractions Taihang Mountain and Grand Canyon in Shanxi.

(2) Interview method

Interviews were conducted with key informants, including staff of the Huguan County Culture and Tourism Bureau, staff of the Huguan County Tourism Company, heads of tourist attractions, and relevant staff, to further understand the development status of sports tourism management at tourist attractions Taihang Mountain and Grand Canyon in Shanxi.

2. Population and sample of the study

2.1 Population

The total number of tourists to the Shanxi Taihang Grand Canyon tourist attractions, including domestic tourists, is 2.5 million, according to the Shanxi Taihang Grand Canyon Annual Report. The total number of key informant providers is about 5 hundred according to the 2023 Shanxi Taihang Grand Canyon Annual Report. (Canyon, 2024)

2.2 Sample

Simple random sampling was used, and 400 tourists were sampled according to Krejcie and Morgan (1970). (Krejcie&Morgan, 1970)

Used purposive sampling, 10 key informant providers are interviewed, including the 3 people from Huguan County Cultural and Tourism Bureau, 3 staff members of Huguan County tourism company, and 4 tourist attraction managers and related staff.

3. Research Tools

3.1 Questionnaire

The "Survey on the Current Situation of Sports Tourism Management in Taihang Mountain Grand Canyon, Shanxi" was developed through literature review, expert consultation, and pilot testing. The development process included: reviewing relevant theories and literature; drafting the questionnaire and revising it based on advisor feedback; conducting IOC testing by three experts (IOC = 0.66–1.00); revising based on expert opinions; pilot testing with 30 tourists (Cronbach's $\alpha = 0.898$); conducting a main survey with 400 tourists using simple random sampling in Baquanxia.

3.2 Interview Form

The "Interview Outline on Sports Tourism Strategy in Taihang Mountain Grand Canyon" was designed based on theoretical frameworks and expert input. Its development process included: designing questions based on management issues; revision by the thesis advisor; IOC testing by three experts (IOC = 0.66–1.00); refinement based on expert feedback; conducting semi-structured interviews with 10 experts using snowball sampling, including both on-site and online formats, with interviewees selected for diversity in background.

4. Data collection

4.1 Questionnaire Survey

The researchers explained the samples involved in the research project and formulated the "Survey Questionnaire on the Current Situation of Sports Tourism of Taihang Mountain Grand Canyon in Shanxi," so as to obtain permission to fill in the questionnaire. The researchers distributed questionnaires in Baquanxia, Taihang Mountain Grand Canyon in Shanxi, and collected the questionnaires. The completed questionnaires were checked, and the data from the valid questionnaires were analyzed.

4.2 Interview

(1) Analyze the strategy of sports tourism to promote the tourist attractions of Taihang Mountain Grand Canyon in Shanxi.



(2) Set up the qualifications of the structured interview subjects of sports tourism management personnel;

(3) To select qualified interviewees, the researchers invited the interviewees who volunteered to participate in the interview to be screened.

(4) Conduct interviews according to the steps.

5. Data analysis

(1) For the data collected using the interview form, the data will be analyzed mainly by content analysis.

(2) For the data collected using questionnaires, the data will be analyzed mainly by statistical methods.

(3) After a preliminary analysis of the data collected from the questionnaires and interviews, the author will use SWOT analysis to analyze the results of these data to identify the strengths, weaknesses, opportunities, and threats in the current situation of the sports tourism management of the tourist attractions Taihang Mountain and Grand Canyon in Shanxi to lay a good foundation for developing strategies.

Results

1. Results of the current situation of the sports tourism management of the tourist attractions of the Taihang Mountain Grand Canyon in Shanxi

In general, the Taihang Mountain Grand Canyon in Shanxi is rich in natural resources, but these resources are not fully utilized at present, and the sports tourism management tourist attractions of the Taihang Mountain Grand Canyon in Shanxi need to be further improved. This is mainly reflected in the following aspects:

(1) The situation of sports tourism tourists

The ratio of male(53.8%) to female(46.2%) tourists who travel to Taihang Mountain Grand Canyon in Shanxi Province is basically equal. The proportion of tourists under the age of 60% is higher than that of tourists over the age of 60, and mainly came from within Shanxi Province, accounting for 63% of the total. Tourists engaged in a variety of occupations, with the highest proportion of freelancers accounting for 38%. Most tourists have a monthly income between RMB 0 and 4,000, accounting for 51%, and the number of tourists with specialized education is the highest, accounting for 37.3%. Most tourists are aware that sports tourism accounts for 65.3%. Most tourists participate in sports tourism for physical exercise and leisure, accounting for 19.7% and 18.2%. Most tourists participate in sports tourism 1-2 times a year, accounting for 68.7%. Tourists have a wide range of choices in participating in sports tourism activities. The number of tourists who choose outdoor hiking, mountaineering, cycling, rafting, rock climbing, and other types of activities is basically similar. The most popular form of travel is self-driving, accounting for 37%. 38.8% of the total number of tourists mainly learn about the sports tourism information of the Taihang Mountain Grand Canyon in Shanxi through recommendations from relatives and friends, followed by social media, accounting for 29.2%.

(2) Strengths of sports tourism attractions management

The current strengths of sports tourism management of Taihang Mountain Grand Canyon in Shanxi are mainly expressed in 10 aspects: S1. With abundant natural resources and diverse terrain and landforms, it attracts outdoor sports enthusiasts; S2. With a superior ecological environment, fresh air, and distinct four seasons, it is suitable for carrying out year-round sports tourism activities; S3. With a profound cultural heritage, it can be integrated into sports tourism products to enhance tourists' immersive experience; S4. Improved transportation conditions and gradual improvement of infrastructure; S5. The number of basic service staff is sufficient, with the ability to provide tourist services and safety management; S6. The scenic area management system is gradually improving, with division of labor management to enhance overall operational efficiency; S7. The scenic area has strengthened the construction of its safety management system, S8. The scenic area has developed multiple sports tourism projects and has a certain foundation in





sports tourism; S9. Strictly control the tourist carrying capacity, encourage tourists to adopt green travel methods, and reduce carbon emissions; S10. Develop a smart tourism management system.

(3) Weaknesses of sports tourism management: the tourist attractions

The weaknesses of the situation of Sports Tourism management, the tourist attractions of Taihang Mountain Grand Canyon in Shanxi are mainly expressed in 8 aspects: W1. Sports tourism facilities are not yet perfect and cannot meet the needs of the high-end sports tourism market; W2. Sports tourism products are single and lack innovation; W3. Insufficient influence of sports tourism brands; W4. Seasonal factors have a significant impact, with some outdoor sports tourism projects being restricted and winter foot traffic decreasing; W5. Lack of professional sports tourism management talents; W6. The level of specialization in sports tourism operation and management is insufficient, and the market-oriented operation capability of sports events is inadequate; W7. During peak passenger flow periods, tourist attractions may face a shortage of service personnel, which affects the tourist experience; W8. The staff training system is not perfect.

(4) Opportunities for sports tourism management of the tourist attractions

The opportunities of the situation of Sports Tourism management, the tourist attractions of Taihang Mountain Grand Canyon in Shanxi are mainly expressed in 8 aspects: O1. National policies support the development of sports tourism and the promotion of comprehensive tourism strategies, which provide policy support and development opportunities for the Taihang Mountain Grand Canyon in Shanxi; O2. The demand for the sports tourism market is growing, and in the post-pandemic era, health tourism, in-depth tourism, self-driving tourism, adventure tourism, etc., have become new hotspots; O3. The rise of platforms such as short videos, live streaming, and self-media has enabled tourist attractions to increase the exposure of sports tourism through social media promotion; O4. The scenic area can introduce national sports events to enhance its influence in the outdoor sports circle; O5. Digital management improves work efficiency and attracts more high-level sports tourism management talents through market-oriented means; O6. Expand the surrounding industries of sports tourism, create distinctive sports and cultural festivals, attract a wider audience, and enhance tourists' stay time; O7. Develop night sports tourism, including night cross-country running, camping exploration, camping barbecue + starry sky cinema, providing a relaxed social environment to attract young tourists; O8. Optimize management mechanisms, improve operational efficiency, create sports tourism IP, and form long-term brand effects.

(5) Threats to the sports tourism management of the tourist attractions

The threats to the situation of Sports Tourism management at the tourist attractions of Taihang Mountain Grand Canyon in Shanxi are mainly expressed in 7 aspects: T1. With intensified competition and the attraction of other destinations, surrounding provinces and cities are also vigorously developing sports tourism. How to create their characteristics and improve market competitiveness has become a challenge; T2. While developing sports tourism projects, avoid excessive development that may cause damage to natural resources; T3. Risk of weather and geological disasters: natural disasters such as rainstorms, mountain torrents, and landslides are likely to occur in summer, and tourism activities may be affected in winter due to snow blocking; T4. The tourism market is affected by external factors, and sudden public health emergencies may lead to a significant decrease in tourist numbers. T5. Security risks and emergencies may lead to legal and public opinion pressure on the management; T6. Sports tourism professionals may face competitive pressure, leading to a shortage of professionals; T7. The tourism industry is subject to seasonal fluctuations, with some staff members leaving during the off-season, requiring continuous recruitment and training of new personnel, which affects management stability.

2. Result of strategies of the sports tourism management to promote tourist attractions in the Taihang Mountains Grand Canyon in Shanxi

Using the TOWS Matrix technique, the author proposed a series of strategies in order to enhance the attractiveness of the sports tourism tourist attractions in the Taihang Mountains Grand Canyon in Shanxi. These strategies include 8 SO strategies, 7 ST strategies, 8 WO strategies, and 7 WT strategies. The details are as follows:



	Strengths (S)	Weaknesses (W)
Opportunities (O)	<p>SO1: Relying on rich natural resources and a superior ecological environment, and with the support of national policies, we will create a model area for whole-area tourism integrating sports experience, cultural tourism, and nature exploration.</p> <p>SO2: Utilize sufficient service personnel and gradually improve the management system, and strengthen the construction of the safety management system to enhance the service quality and safety guarantee.</p> <p>SO3: Relying on continuously improving transportation conditions, sufficient service personnel, and a gradually improving management system. Carry out online publicity and interactive marketing.</p> <p>SO4: Comprehensively utilize natural resources and ecological advantages, strengthen safety management, and support the intelligent management system. Construct a fully digitalized, high-standard platform for hosting the event.</p> <p>SO5: Based on the developed sports tourism programs and strict control of visitor capacity, attract high-end talents to participate in the operation and promote green, low-carbon, and efficient operation of tourist attractions.</p> <p>SO6: Expand sports tourism peripheral industries, create special sports and cultural festivals, enhance visitor satisfaction, and prolong the stay of tourists.</p> <p>SO7: Ensure the safety and efficient operation of night activities, and improve the overall experience and market competitiveness of night sports tourism activities.</p> <p>SO8: Comprehensively build an efficient and intelligent management system, and through continuous optimization of the management mechanism and operational efficiency, create a unique sports tourism brand and form a long-term brand effect.</p>	<p>WO1: Aiming at the problems of imperfect facilities and single products, accelerate the renovation of facilities and enrich the types of sports tourism with the support of national policies.</p> <p>WO2: Given the seasonal influence and other problems, the scenic spot should take advantage of the development of in-depth tours and other products to balance the distribution of tourists between the peak season and the off-season.</p> <p>WO3: Attract professional sports tourism management talents through self-media platform promotion, and improve the market-oriented operation level of events and activities.</p> <p>WO4: Aiming at the imperfect sports tourism facilities and other problems, take the opportunity of introducing national sports events to create a high-end image of the scenic spot through the events.</p> <p>WO5: Upgrade the hardware facilities, enrich the product line, strengthen the brand construction, and optimize the operation and management by using the digital platform.</p> <p>WO6: Aiming at the disadvantages of large seasonal influence and shortage of service personnel during the peak period, the scenic spot can plan sports and cultural festival activities with seasonal characteristics.</p> <p>WO7: The scenic spot can utilize the night sports tourism project as a platform to attract and cultivate professional talents by enhancing the professional management level of night events and activities.</p> <p>WO8: Combining the disadvantages, the scenic spot should synchronize its efforts in upgrading facilities, product innovation, brand promotion, seasonal operation, human resource allocation, and training.</p>
Threats (T)	<p>ST1: Relying on natural resources and the ecological environment, create differentiated sports tourism experiences and form unique tourist attractions.</p> <p>ST2: Formulate a coordinated development plan for the whole region to enhance the attractiveness of the scenic spot while strictly controlling the</p>	<p>WT1: Upgrade facilities and enrich product content in response to imperfect sports tourism facilities, lack of innovation in single products, and insufficient brand influence.</p> <p>WT2: In response to the decline of passenger flow in winter, etc., the tourist</p>
	Strengths (S)	Weaknesses (W)
Threats (T)	development intensity and protecting the natural ecology.	Attractions will upgrade their services while ensuring that the construction of new





ST3: Establish an efficient emergency rescue and disaster warning mechanism, respond quickly to emergencies such as rainstorms, and safeguard the safety of tourists and employees.

ST4: Build an all-around intelligent tourism system, from facility upgrading, management optimization, to safety monitoring, and formulate long-term prevention, control, and operation recovery strategies.

ST5: Strengthen safety standards and risk control in project planning and operation to reduce the probability of safety accidents.

ST6: Utilize the advantages of the ecological environment, etc., to create a high-end sports tourism destination integrating leisure, experience, and convenience.

ST7: Establish a stable employee incentive and training mechanism to enhance the sense of belonging of employees and reduce the risk of off-season turnover.

projects or facilities is in line with the ecological carrying capacity.

WT3: The tourist attractions build a perfect disaster emergency training and talent reserve mechanism to ensure safe and stable operation.

WT4: The scenic spot should build online talent training and a remote management mechanism to ensure that when an emergency public health event occurs, it can stabilize market expectations.

WT5: The scenic spot should formulate strict safety norms and emergency plans to reduce the probability of safety accidents.

WT6: Adopt temporary recruitment, outsourcing cooperation, or sharing of talents by partner organizations to ensure that operational needs can be met in both peak and off-season.

WT7: Launch an “all-season” marketing and service strategy to attract and stabilize core staff through innovative programs and brand promotion.

3. Result of the evaluation of strategies of the sports tourism management to improve tourist attractions of Taihang Mountain Grand Canyon in Shanxi

Overall, the nine experts agreed that the overall feasibility of the strategy is high, which is in line with the current situation of the sports tourism management in the Taihang Mountain Grand Canyon in Shanxi and can also meet the needs of the future development of sports tourism in Taihang Mountain Grand Canyon in Shanxi, and that the SO strategy, the ST strategy, the WO strategy, and the WT strategy need to be adjusted and improved. The final strategies after adjustment and modification according to experts' suggestions are as follows:

(1) SO, Strategies

SO1: Relying on natural resources, ecological environment, cultural heritage, and transportation improvement, and with the support of national policies, create a model area for whole-area tourism integrating sports experience, cultural tourism, and nature exploration, and increase visitor participation through social media and online/offline interactive marketing.

SO2: Ensure safe and efficient operation of daytime and nighttime activities by utilizing adequate service staff, a well-established management system, and a safety management system to enhance the overall experience of tourists and market competitiveness, and to meet the demand for high-quality services against the backdrop of growing market demand.

SO3: Relying on transportation improvement, service personnel and management system, and with the help of social media and digital platforms, it realizes online and offline linkage, attracts high-end talents, promotes green, low-carbon and high-efficiency operation of tourist attractions, and at the same time enhances the ability of hosting events and helps tourist attractions to upgrade their brands.

SO4: Sports tourism peripheral industry, to create a unique sports and cultural festival, and optimize the operation with the intelligent tourism management system, to improve the management efficiency of the tournament and cultural festival, to enhance visitor satisfaction, adhesion, and length of stay, and ultimately to form a unique sports tourism brand, to achieve long-term brand effect.

(2) ST strategies:



ST1: Relying on rich natural resources, superior ecological environment, profound cultural heritage, and improved transportation conditions, create a differentiated sports tourism experience, form unique scenic features, and enhance the comprehensive competitiveness of the scenic area, thus effectively countering the competition from the surrounding area and attracting and retaining high-level professionals.

ST2: Integrate natural resources and ecological advantages, developed sports tourism projects and intelligent management systems, formulate a coordinated development plan for the whole region, strictly control the development intensity and protect the natural ecology while enhancing the attractiveness of the scenic spot, and strengthen the safety standards and risk control in project planning and operation to reduce the probability of safety accidents and the legal disputes and negative public opinion arising from the accidents.

ST3: Relying on sufficient service personnel, a gradually improved management system, and strengthened safety management construction, establish an efficient emergency rescue and disaster warning mechanism to quickly respond to emergencies such as torrential rains, flash floods, landslides, and heavy snowfall etc. Meanwhile, build an all-round intelligent tourism system, from facility upgrading, management optimization to safety monitoring, and formulate a long-term preventive, control, and operation restoration strategy to safeguard tourists' and staff's safety, to maintain long-term competitiveness.

ST4: By utilizing sufficient service personnel and a gradually improved management system, combined with strengthening the construction of a safety management system, a stable employee incentive and training mechanism will be established to enhance employee sense of belonging, reduce the risk of off-season turnover, and ensure the continuity and stability of scenic area operations.

(3) WO Strategies:

WO1: Relying on national policy support, promote cooperation between the government and enterprises, accelerate the transformation of high-end facilities, enrich the variety of sports tourism products, enhance the brand influence, and shape the high-end image of the scenic spot by introducing national sports events.

WO2: Aiming at the problems of high seasonal influence, declining passenger flow in winter and shortage of service personnel during peak seasons, the scenic spot should plan sports and cultural festival activities with seasonal characteristics, and at the same time optimize manpower scheduling, launch in-depth tours, self-driving tours and other products to achieve balance between off-peak and peak seasons, and improve the overall operational efficiency.

WO3: Through social media and digital platforms, publicize the scenic spot's improvement results in talent introduction, professional training, and operation management, attract and cultivate professionals by combining with nighttime sports tourism projects, enhance the market-oriented operation level of events and activities, and gradually improve the operation and training system.

WO4: Enhance management efficiency through comprehensive digital transformation, achieve all-round management optimization from facility upgrading, product innovation, brand promotion, seasonal operation, human resource allocation and training, etc., and create a sports tourism IP with sustainable competitiveness.

(1) WT Strategies:

WT1: Relying on digital transformation and innovative design, upgrading sports tourism facilities, enriching product content, and reducing the probability of safety accidents through the formulation of strict safety norms and emergency plans, combined with third-party safety certification and risk assessment systems, to create a differentiated competitive advantage and improve brand influence.

WT2: Combined with strict environmental development standards and a flexible human resources scheduling mechanism, the scenic spot can control passenger flow and improve service efficiency while ensuring that the construction of new projects or facilities is in line with the ecological carrying capacity, preventing over-development, and reducing management risks by meeting operational needs through temporary hiring, outsourcing cooperation, or sharing talents.





WT3: Construct a perfect disaster emergency training and talent reserve mechanism, organize regular simulation drills and emergency response training to improve the rapid response capability of employees in the face of natural disasters such as heavy rain, flash floods, landslides, heavy snowfall and public health emergencies, and at the same time, conduct remote training and management with the help of a digital platform to ensure that the operation and management team can quickly adjust their strategies and stabilize market expectations when emergencies occur.

WT4: Faced with problems such as insufficient facilities, single products, low brand influence, and declining seasonal passenger flow, tourist attractions should rely on digital management methods, integrate online and offline resources, launch an "all-season" marketing and service strategy, attract and stabilize core employees through innovative projects and brand promotion, and reduce talent turnover caused by market fluctuations.

Discussion

Compared with previous studies, this study has achieved high consistency in most areas, especially in the ecological environment, tourist demand, and infrastructure optimization, but there are also conflicts with previous research results in some areas, which is mainly due to the specific resource advantages and policy background of Taihang Mountain Grand Canyon in Shanxi.

(1) Discussion of SO strategy

The SO1 strategy is highly consistent with the views in Xiaoyu and Hai (2024). Both emphasize that policy support, resource integration, and industrial synergy are the key paths to promoting the development of all-region sports tourism. The SO2 strategy is consistent with the research viewpoints of Zhenzhong and Chao (2024), who pointed out in the SWOT analysis that talent structure and service capabilities are bottlenecks that restrict the transformation of sports tourism resources. On this basis, the response measures of the Taihang Mountain Scenic Area are targeted and operational. The SO3 strategy is theoretically supported by the "intelligent management and event-driven" model proposed by Wei and Miao (2024). The SO4 strategy is consistent with the idea of "combining culture and sports + management optimization" proposed by Liwen et al. (2023) in the study of mountain tourism development in Liupanshui, emphasizing that cultural and tourism festivals are an important means to increase tourist stickiness.

(2) Discussion of ST strategy

The ST1 strategy is consistent with the view of Bo (2024) in his study of sports tourism consumer behavior, that "the difference in tourist attractions is the primary factor affecting tourists' choices." The ST2 strategy is consistent with the perspective of "ecological protection and risk prevention and control" in the SWOT analysis of Hainan sports tourism by Tao et al. (2024). The article points out that coastal projects must find a balance between development rhythm and ecological capacity. The ST3 strategy can refer to the emphasis on "emergency response and safety control" in the design of ice and snow tourism routes by Long et al. (2023). The ST4 strategy emphasizes the humanization and long-term nature of management, which is consistent with the problem of "high staff turnover and poor stability" identified by Manye et al. (2019) in their research on the development of Guizhou sports tourism.

(3) Discussion of WO strategy

The WO1 strategy is consistent with the view of Yuhong and Fei (2023): large-scale events are an important means to promote the rapid rise of tourist cities. The WO2 strategy is consistent with the research of Wanlin and Yan (2019) on the impact of seasonal fluctuations on sports tourism in Shaanxi. The WO3 strategy echoes the viewpoint of "using content dissemination and talent operation as dual-wheel drive" proposed by Ming (2024). The WO4 strategy is consistent with the research of Maolin and Jialin (2024), which states that "digitalization is the core path to promote management modernization".

(4) Discussion of WT strategy

The WT1 strategy is consistent with the idea of "risk system + digital platform integration," emphasizing





by Tao et al. (2024). The WT2 strategy is consistent with Manye et al. (2019) discussion of the “coordination between human mobility and ecological protection” in Guizhou sports tourism, emphasizing that ecological development cannot be achieved at the expense of the environment. The WT3 strategy is consistent with the “drill + remote management” mechanism for ice and snow tourism proposed by Long et al. (2023). This strategy proposes to build a flexible response mechanism through emergency drills, remote training, and talent reserves to ensure that there is no panic when facing natural disasters and public health emergencies. The WT4 strategy is consistent with Bo's (2024) view that “a stable service team is the key to maintaining experience consistency”. This study emphasizes the need to retain core employees through “motivation + culture + responsibility” and to create an internal driving force for the stable operation of tourist attractions through brand and product innovation.

Conclusion

Generally, this study combines the natural resources and ecological environment of the sports tourism attractions of Taihang Mountain Grand Canyon in Shanxi, and proposes a diversified development path, especially in terms of sports tourism innovation, smart management, brand building, and the introduction of professional talents. It not only considers the existing tourism resources, but also makes full use of the government's policy support and smart management to create a unique sports tourism brand and form a distinctive brand IP. Future research can further explore the feasibility and cost-effectiveness of these strategies in implementation, and provide more practical suggestions for the development of sports tourism attractions of Taihang Mountain Grand Canyon in Shanxi.

Recommendation

1. Recommendations for applying the results of the study

- (1) Strategy implementation should be based on tourist surveys, accurately matching tourist preferences, and avoiding blind imitation or homogeneous development of all attractions.
- (2) When promoting the construction of sports tourism facilities and the development of new projects, the ecological carrying capacity should be strictly evaluated to avoid over-development that damages original natural resources and ensure green and sustainable development.
- (3) It is recommended that the Cultural and Tourism Bureau and tourist attractions jointly build a project evaluation mechanism to conduct phased evaluations of implemented strategies and timely adjust optimization plans based on tourist feedback, market performance, and operational results.

2. Recommendations for further research

- (1) This study is based on data from a phased survey, and it is recommended that future research establish a long-term, continuous data monitoring system to enhance the scientific validity and strategic foresight of policy formulation.
- (2) Future studies may undertake comparative evaluations of regional sports tourism competitiveness, drawing lessons from best practices and identifying developmental gaps to formulate targeted strategies that elevate the market positioning of the Taihang Grand Canyon.

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