

Identifying and leveling the effective factors on the development of heritage sports tourism based on Interpretive Structural Modeling Approach (ISM)

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| Article Info | Abstract |
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| <p>Original Article</p> <p>Article history:</p> <p>Received: 22 July 2020</p> <p>Revised: 29 July 2020</p> <p>Accepted: 1 August 2020</p> <p>Published online: 1 January 2021</p> <p>Keywords:</p> <p>heritage sports tourism, interpretive structural modeling (ISM), political and legal factors, rule of law, tourism.</p> | <p>Background: Sport heritage is increasingly being recognized as a potent instigator of tourism. The convergence of heritage, sport and tourism involves many different and diverse fields, including sport tourism, heritage tourism, sport management.</p> <p>Aim: The purpose of this study was to identify the effective factors on the development of heritage sports tourism with an interpretive structural modeling approach (ISM).</p> <p>Materials and Methods: The present research is applied, qualitative and analytical in terms of nature and purpose, data retrieval, and data analysis method, respectively based on interpretive structural modeling. Data collection tools in this study were library studies, interview and questionnaire based on interpretive structural modeling. In order to identify the factors affecting the development of heritage sports tourism, with the collective agreement of experts and reviewing the research literature, 16 factors affecting the development of heritage sports tourism were identified.</p> <p>Results: According to the third step of the ISM method, the effective factors on the development of heritage sports tourism were classified into 7 levels and the political and governmental dimensions along with the rule of law were at the lowest level of the model (seventh level); these are prioritized in terms of implementation over other dimensions. As a result, officials and managers in the field of tourism and sports tourism should pay special attention to these dimensions in order to provide the ground for the emergence and realization of other dimensions at higher levels of the model. Finally, based on the analysis matrix of influence and dependence, it was determined that the political and governmental dimensions, rule of law, management and supportive factors are among the influence factors; economic dimensions, socio-cultural factors, infrastructure and welfare services, education and research, specialized human resources, technology, heritage sports tourism attractions, heritage, marketing and information and international relations are among the linking factors; and the dimensions of safety and security, complementary attractions and sporting events are among the dependent factors in this research.</p> <p>Conclusion: According to the results of the model, for the development of heritage sports tourism, there must be a serious determination. In this regard, the policies of a nation must be progressive, and in the first step, government with a decisive role must provide the infrastructure.</p> |

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1. Introduction

Today, with the prosperity and expansion of the tourism industry worldwide, an increasing number of developing countries have realized the importance and role of the tourism industry in the comprehensive development of societies [1, 2]. As a civilization phenomenon, this industry has many economic, social, cultural and environmental impacts that have become one of the most dynamic human economic activities in the present era. Also, with the development of technology, information technology and transportation, the tourism industry has become one of the strongest and largest industries in the world, so it has been called the invisible economy [3, 4, 5, 6]. Lifestyle management in leisure, the need for cultural development, dialogue between nations, income and employment resulting from activities of tourism exchanges, the importance of preserving cultural heritage, creating national convergence and cultural diplomacy are some of the capabilities of the tourism industry which have considered the invisible power of this field in the sustainable growth and development of countries. For this reason, government officials in different parts of the world are trying to provide the opportunity to benefit from its positive dimensions by providing and valuing tourism attractions in areas with the potential for tourism development [7].

Iran, with its rich natural and environmental resources and the use of historical, civilization and cultural support of several thousand years has a special potential for the development of the tourism industry. In terms of the flourishing of these functions, it has not been able to place a significant position in the international tourism market [8, 9]. The development of

the tourism industry in a country or region requires the use of creativity in order to transform and develop the elements and activities that contribute to its dynamism [10, 11]. Creativity in tourism can be designed and implemented by paying attention to the cultural and historical capacities of the people of each region and the existing cultural and historical heritage. Iran provides cultural diversity and various subcultures, rich historical background and local works of art and original handicrafts and diverse historical, cultural and sports heritage which need to be promoted [12, 13]. Increasing international growth of interest in tourism destinations has led to the emergence of more types of tourism such as heritage, cultural, religious, health, rural, urban and sports tourism [14]. Tourists decide to travel because of different motives [15]; heritage and destination culture can be one of their main motivations for travel [1, 16].

One of the main justifications for the continuous recognition, protection, preservation and public investment in heritage is the issue of tourism. Although not every community can enjoy the world-famous tourism attractions, every community has a heritage, and with increasing repetition in presentation, legacies are used in tourism development and marketing initiatives [1, 17]. With the rapid development of the tourism industry, people's demand for heritage tourism and familiarity with ethnic culture in tourism destinations is gradually increasing and has become very popular with most tourists, and is gradually becoming a tourism fair and an important way to image enhancement of destination [18, 19]. Several tourist destinations use their cultural heritage sites and cultural traditions as a tourism attraction for tourism

development [17, 20, 21]. Tourists are attracted to destinations that have local rituals, celebrations and customs, beliefs, history, food, culture, sports and more [22, 23, 24]. The forms and types of heritage attractions have become more diverse in recent years, and popular culture experiences have become part of the heritage tourism mix. Likewise, the desire of tourists to experience and not just observe cultural heritage is increasing [25]. As the role of food and cuisine in heritage tourism is evident [26], sport is increasingly becoming an important part of heritage tourism. In particular, it is advancing in terms of creating tourism destinations and marketing sports heritage experiences for tourists seeking to interact and integrate with sports cultures and sports history [27]. In fact, it can be argued that sports heritage has become part of a community culture in many tourism destinations, along with other cultural attractions. Likewise, while tourists seek to mingle with authentic displays of sports culture [28] and also, participating in sports heritage activities and events [29], sport has taken a more prominent role in heritage tourism. According to Timothy (2018), people who travel for sporting purposes may be involved in heritage tourism at the same time [25].

Heritage sports tourism overlaps with two major sectors of tourism, namely heritage tourism and sports tourism [30, 31, 32]. Many forms of heritage sports tourism are growing, including visiting museums, stadium tours, and participating in a heritage-based sporting event [33, 34]. Tourist interests in sports heritage show that sport is recognized as a genuine form of culture, and tourism destinations are increasingly interested in promoting this heritage as a way to attract tourists as well as creating a particular cultural attraction

[34]. Similarly, many tourism destinations and organizations provide a variety of attractions and experiences for the sports heritage market [17, 35]. However, heritage sports tourism, as mentioned by Ramshaw and Gammon (2015), has become more diverse, linking the tourist to a variety of potential sports heritage attractions [27]. Heritage sports tourism includes experiences such as immigration travel [36] and roots tourism (genealogical tourism) [37]. Despite the important role that sports seem to play in the development of tourism, sports heritage has long been marginalized or neglected as a source of tourism. For example, Cronin and Higgins (2011) argue that in addition to the important role that sports play in Irish heritage, tourists can also enjoy this form of Irish heritage [38]. Exercise is overlooked as part of the country's heritage tourism program. Sports heritage attractions can often be planned as part of a community tourism development or can be turned into a commodity as a sports heritage experience in response to tourist demand. Sports, similar to other forms of heritage, are created from a variety of sources, including culture, history, nostalgia, memories, myths, and traditions, which may be used to establish roots or traditions creating or modifying identities, or even requiring economic or social rehabilitation.

However, attracting and retaining tourists to sports heritage attractions have become increasingly challenging. In particular, sports heritage attractions and heritage attractions in general are increasing significantly. According to Vong and Ung (2012), four factors related to heritage sports tourism, including history and culture, facilities and services in cultural sites, interpretation of heritage and heritage attractions, influence heritage tourism [39].

Also, socio-cultural factors [40, 41, 42, 43, 44], managerial factors [41, 45, 46, 47], infrastructure [41, 44, 45, 47, 48], advertising and information [41, 45, 49], tourism attractions [45], sporting events [17, 47, 50], education [41, 43], economic factor, government policies and local laws and regulations [41, 45] and safety and security [41] include the effective factors on the development of tourism in different communities. Therefore, identifying and understanding the effective factors on the development of heritage sports tourism in different regions and recognizing the types of consumers of sports heritage, their place, motivations, behavior, perceptions and experiences to better manage the destination and determine the relevant strategies are essential [51]. For this reason, the destination of heritage sports tourism should be analyzed; there is a great variety of places and variables that affect each type of tourist [52].

Iran is full of cultural and historical attractions in the field of sports such as wrestling and zurkhaneh, wrestling and hundreds of other local and indigenous sports that are a manifestation of the culture of each region and are registered as national and international sports heritage. Preservation, revival, introduction and presentation of values hidden in Iran's cultural heritage at the national and international levels to maintain and promote the cultural identity of society, as well as increasing domestic tourism and achieving an appropriate share of foreign tourism markets need to identify these capabilities and new attractions and introduce them to visitors. Competition in the tourism market and its development requires the use of innovative methods and the introduction of lesser-known attractions to domestic and foreign tourists. Iran has an acceptable

potential to create new tourism markets in the field of sports heritage. Given that Iran has various capabilities and potentials of heritage sports tourism, and in this form of tourism, tangible and intangible elements of sports heritage are introduced to tourists, Iran can become a heritage sport tourism priority to many tourists, while maintaining the principles of sustainable development of sports tourism. Therefore, a realistic and practical strategy based on scientific, cultural, economic and political attitudes is necessary to be able to effectively use sports tourism based on Iran's sports heritage and provide opportunities for the growth and development of sports and tourism with the appropriate conditions and atmosphere. Researchers in the present study pursue two goals: identifying the effective factors on the development of heritage sports tourism, and leveling the effective factors on the development of heritage sports tourism based on interpretive structural modeling approach (ISM).

2. Materials and Methods

The present research is applied qualitative and analytical in terms of nature and purpose, data retrieval, and data analysis method, respectively, being done based on interpretive structural modeling. Data collection tools were library studies, interview and questionnaire based on interpretive structural modeling. The statistical population of the study includes managers and officials of the General Directorate of Cultural Heritage, Tourism and Handicrafts, experts in the field of tourism, sports tourism and heritage, managers and staff of travel and tourism agencies, managers and experts of the Ministry of Sports and Youth and General Departments of Sports and the youth of the provinces and researchers who were active in the field of

sports tourism and sports heritage.

In the first step, by studying theories, models, approaches and the use of library resources, Internet search and databases of valid domestic and foreign electronic journals, the effective factors on the development of heritage sports tourism were identified. In the continuation of this section, using in-depth, semi-structured interviews, the statistical sample was asked to answer the interview questions about the factors influencing the development of heritage sports tourism. It is worth mentioning that sampling in this part of the research was purposeful. Fifteen people from the research community were selected as the research sample in this section according to their education, experiences and previous familiarity with the research topic. In this section, participation by individuals was completely free and they were assured that their response would remain confidential.

Semi-structured and interactive-participatory methods were used to conduct interviews and collect data. The number of interviews continued until the theoretical saturation was reached. People were also interviewed in person, through meetings and virtual networks. Researchers initially interviewed participants in the study in person; but then, due to the prevalence of coronavirus and adherence to health protocols, researchers communicated with people through virtual networks and using various applications they conducted the interview process. Interview times ranged from 35 to 70 min. Finally, after the interviews, the information in the form of text was implemented and finalized. Then, a comprehensive list of factors affecting the development of heritage sports tourism based on the library studies section and in-depth, semi-structured interviews was

identified. Based on that, semi-structured questionnaires of the first stage of Delphi were designed and participants in the research were asked to identify important factors and effective indicators of the development of heritage sports tourism. Other possible dimensions and indicators were added to the list; the result of this step was the identification of 73 indicators who were classified into a subset of 16 dimensions (factors), according to theoretical considerations. Then, according to the results of the preliminary questionnaire, the second stage questionnaire (Delphi) was designed based on a five-point Likert scale to achieve a consensus of opinions on effective indicators. Questionnaire options were considered such as very high (with a score of 5), high (with a score of 4), medium (with a score of 3), low (with a score of 2), and very low (with a score of 1). Research participants were asked to rate each indicator.

Then, in order to combine the views and prioritize the final indicators in each dimension, through EXCEL software, arithmetic mean and geometric mean, effective indicators were selected in order of importance. This means that those indices that scored higher than the arithmetic and geometric mean of the total answers to the questionnaire (for each subject) were selected, respectively. And some indicators that had an arithmetic or geometric mean lower than the total mean were removed from the selection process.

The result of this stage is the identification of 73 indicators in a subset of 16 factors including management, economic factors, political and governmental factors, cultural and social factors, rule of law, infrastructure and welfare services, safety and security,

education and research, support factors, human resources specialists, technology, heritage sports tourism attractions, complementary attractions, sporting events, marketing and information and international communications.

Following this step, the Interpretive Structural Modeling (ISM) was implemented. First, the way the factors relate to each other was determined for instance which factors lead to the other, which factors are affected by other ones, which factors are two-way communication and which ones are unrelated. Then, these scores were included in the table in the form of numbers zero and one. In the next step, indirect correlations of factors were also

included in the table. Finally, factors leveling was performed and the number of factors levels and factors of each level were determined and the final interpretive structural model of the effective factors on the development of heritage sports tourism was obtained.

It should be noted that among the statistical population of the study, 30 people were purposefully considered as a research sample to answer the interpretive structural questionnaire. Also, the diagram of penetration power and dependence of interpretive structural components were determined through the Micmac analysis method. Figure 1 shows the steps of data collection in an interpretive structural way.

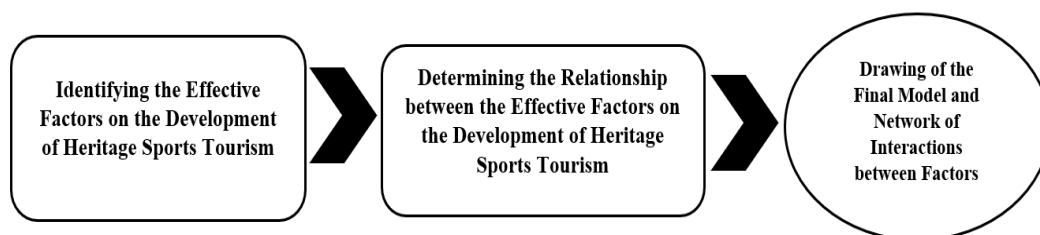


Figure 1. Steps to perform Interpretive Structural Modeling Method (ISM)

3. Findings

The research findings in order to identify the effective factors on the development of heritage sports tourism in three steps by interpretive structural method are as follows.

Step 1.1. Identify the effective factors on the development of heritage sports tourism.

In this study, in order to identify the effective factors on the development of heritage sports tourism, first referring to the sources in the literature and the background of research on the factors affecting the development of heritage sports tourism, factors in the form of dimensions and indicators affecting each dimension which were more comprehensive and general, were identified. Then the dimensions and

indicators based on the Delphi method were provided to the research sample in the Delphi section in several stages. Finally, with the collective agreement of experts, a total of 73 indicators were identified in a subset of 16 dimensions (Table 1).

Next, to determine the type of correlation between the effective factors on the development of heritage sports tourism, the second step of the interpretive structural modeling method has been used. At this stage, the relationships between the effective factors on heritage sports tourism were analyzed through interpretive structural modeling and the use of the conceptual relationship as "lead". That is, "two-by-two" comparisons are made by experts in a table between the row dimension and the column dimension. The

result is written as symbols at the intersection of rows and columns. If the row factor can be the background of the column factor, the symbol is V; if there is a two-way relationship between the row factor and the column, the symbol is X. If the column factor can be the background of the row factor, the symbol is A. If there are no rows or columns, the symbol O is used in this conceptual relation.

Table 1. The effective factors on the development of heritage sports tourism

| No | Dimensions |
|----|-------------------------------------|
| 1 | Management |
| 2 | Economic factors |
| 3 | Political and governmental factors |
| 4 | Socio-cultural factors |
| 5 | Rule of law |
| 6 | Infrastructure and welfare services |
| 7 | Safety and security |
| 8 | Education and research |
| 9 | Supporting factors |
| 10 | Specialized human resources |
| 11 | Technology |
| 12 | Heritage sports tourism attractions |
| 13 | Complementary attractions |
| 14 | Sports events |
| 15 | Marketing and information |
| 16 | International communications |

Step 1.2. Formation of Structural Self-Interaction Matrix (SSIM).

Structural self-interaction matrix is composed of factors affecting the development of heritage sports tourism and their comparison using four modes of conceptual relationships. This matrix has been completed in the form of questions by executive and scientific experts in the field of tourism, sports tourism and heritage. The information obtained from the questions in this section was summarized based on interpretive structural modeling (Table 2).

Step 2.1. Determine the relationship between the effective factors on the development of heritage sports tourism.

To perform this first step, questions were designed that are shaped like Table 3. In this way, 9 selected factors were

mentioned in the first row and column of the table and the respondents were asked to specify the type of dimensions in pairs according to the introduced symbols (V, A, X, O). In this way, the most common responses (mode) were selected. In fact, the logic of interpretive structural modeling corresponds to non-parametric methods and operates on the basis of fashion in frequencies. Finally, the final structural self-interaction matrix was formed based on the relationships seen in Table 2.

Step 2.2. Received matrix.

The resulting matrix is obtained by converting the structural self-interaction matrix into a two-value matrix (0 and 1). To extract the received matrix, the number 1 in each row should replace the X and V symbols and the 0 should replace the A and O symbols in its structural interaction matrix. After converting all the rows, the result is called the initial received matrix (Table 3).

After receiving the initial matrix, the secondary relations existing between the dimensions were checked; that is, after the initial received matrix was obtained, its internal consistency was also examined. For example, if the variable "a" leads to the variable "b" and the variable "b" also leads to the variable "c", the variable "a" should also lead to the variable "c"; and if this was not the case in the received matrix, the matrix must be modified with the relationships directly between the dimensions; when it is not mentioned in the table, they should be replaced. At this stage, with the consensus of experts, the relationship between other factors was adjusted and if there was an indirect relationship between the factors, it was considered at this stage and the final changes were made in the table scores.

Identifying and leveling the effective factors on the development of heritage sports tourism based on ISM

Table 2. Self-interaction matrix of the effective factors on the development of heritage sports tourism (SSIM)

| Factors | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| 1 | | V | A | X | X | V | V | X | X | X | V | V | V | V | V | V |
| 2 | | | A | X | X | V | V | X | A | V | V | V | V | V | V | X |
| 3 | | | | X | X | V | V | V | V | V | V | V | V | V | V | V |
| 4 | | | | | A | A | V | X | A | X | X | V | V | V | V | X |
| 5 | | | | | | V | V | X | V | X | V | V | V | V | V | V |
| 6 | | | | | | | V | X | A | A | X | X | V | V | V | V |
| 7 | | | | | | | | A | A | A | A | A | X | V | O | V |
| 8 | | | | | | | | | A | X | X | V | V | V | V | V |
| 9 | | | | | | | | | | V | V | V | V | V | X | V |
| 10 | | | | | | | | | | | V | V | V | V | V | V |
| 11 | | | | | | | | | | | | V | V | V | V | V |
| 12 | | | | | | | | | | | | | V | X | V | V |
| 13 | | | | | | | | | | | | | | X | X | X |
| 14 | | | | | | | | | | | | | | | X | X |
| 15 | | | | | | | | | | | | | | | | X |
| 16 | | | | | | | | | | | | | | | | |

Table 3. Primary received matrix of the effective factors on the development of heritage sports tourism

| Factors | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 4 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 6 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |
| 8 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 9 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 10 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 11 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 12 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 16 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |

By identifying the secondary relationships, the modified received matrix was obtained; then, the modified table was provided to the experts and with the consensus of the experts, the relationship between other factors affecting the development of heritage sports tourism was examined. If there was an indirect relationship between the dimensions, it was considered at this stage. The results are presented in Table 4. In Table 5, the penetration column is obtained from the row sum and the dependency column (follower) is obtained from the column sum. In other words, although the column of influence and the dependency row are derived from the algebraic sum, each of the numbers (1) in the column of the table indicates the dependence of one dimension on the other one [53].

Step 3.1. Determining relationships and leveling dimensions.

To determine the relationships and level of the dimensions, a set of outputs and a set of inputs must be extracted for each dimension of the received matrix. The set of outputs includes the dimension itself and the dimensions that are affected by it. The set of inputs includes the dimension itself and the set of dimensions that affect it. Then the set of two-way relations of each dimension is recognized; that is, the number of dimensions that are repeated in the two sets of input and output. Dimensions are graded based on the resulting sets. Typically, dimensions that have the same output set and two-way relationship set constitute the top-level dimensions of the hierarchy.

Table 4. Modified received matrix with the degree of penetration and dependence

| Factors | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Power of influence |
|----------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------|
| 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 15 |
| 2 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 |
| 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 16 |
| 4 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 14 |
| 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 16 |
| 6 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | *1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 4 |
| 8 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 14 |
| 9 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 14 |
| 10 | 1 | 0 | *1 | 1 | 1 | 1 | 1 | 1 | *1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 15 |
| 11 | 0 | 0 | 0 | 1 | *1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| 12 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | *1 | 0 | 0 | *1 | 1 | 1 | 1 | 1 | 1 | 9 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 5 |
| 14 | 0 | 0 | 0 | 0 | 0 | *1 | *1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 7 |
| 15 | *1 | *1 | 0 | *1 | 0 | *1 | *1 | *1 | 1 | *1 | *1 | *1 | 1 | 1 | 1 | 1 | 14 |
| 16 | 0 | 1 | *1 | 1 | 0 | *1 | *1 | *1 | 0 | *1 | *1 | *1 | 1 | 1 | 1 | 1 | 13 |
| Degree of dependence | 8 | 9 | 5 | 12 | 8 | 13 | 16 | 13 | 6 | 11 | 13 | 15 | 16 | 16 | 15 | 16 | |

Table 5. Determining the relationships and levels of the effective factors on entrepreneurship development in sports tourism in Iran

| No | Dimensions | Input set | Output set | Common set | Level |
|----|-------------------------------------|--|--|----------------------------------|-------|
| 1 | Management | 1,3,4,5,8,9,10,15 | 1,2,4,5,6,7,8,9,10,11,12,13,14,15,16 | 1,4,5,8,9,10,15 | 6 |
| 2 | Economic factors | 1,2,3,4,5,8,9,15 | 2,4,5,6,7,8,10,11,12,13,14,15,16 | 2,4,5,8,15 | 5 |
| 3 | Political and governmental factors | 3,4,5,10,16 | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 3,4,5,10,16 | 7 |
| 4 | Socio-cultural factors | 1,2,3,4,5,6,8,9,10,11,15,16 | 1,2,3,4,5,7,8,10,11,12,13,14,15,16 | 1,2,3,4,5,8,10,11,15,16 | 3 |
| 5 | Rule of law | 1,2,3,4,5,8,10,11 | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 1,2,3,4,5,8,10,11 | |
| 6 | Infrastructure and welfare services | 1,2,3,5,6,8,9,10,11,12,14,15,16 | 4,6,7,8,10,11,12,13,14,15,16 | 6,8,10,11,12,14,15,16 | 4 |
| 7 | Safety and security | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 7,13,14,16 | 7,13,14,16 | 1 |
| 8 | Education and research | 1,2,3,4,5,6,8,9,10,11,12,15,16 | 1,2,4,5,6,7,8,10,11,12,13,14,15,16 | 1,2,4,5,6,8,10,11,12,15,16 | 2 |
| 9 | Supporting factors | 1,3,5,9,10,15 | 1,2,4,6,7,8,9,10,11,12,13,14,15,16 | 1,9,10,15 | 6 |
| 10 | Specialized human resources | 1,2,3,4,5,6,8,9,10,15,16 | 1,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 1,3,4,5,6,8,9,10,15,16 | 3 |
| 11 | Technology | 1,2,3,4,5,6,8,9,10,11,12,15,16 | 4,5,6,7,8,11,12,13,14,15,16 | 4,5,6,8,11,12,15,16 | 2 |
| 12 | Heritage sports tourism attractions | 1,2,3,4,5,6,8,9,10,11,12,14,15,16 | 6,7,8,11,12,13,14,15,16 | 6,8,11,12,14,15,16 | 7 |
| 13 | Complementary attractions | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 7,13,14,15,16 | 7,13,14,15,16 | 1 |
| 14 | Sports events | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 6,7,12,13,14,15,16 | 6,7,12,13,14,15,16 | 1 |
| 15 | Marketing and information | 1,2,3,4,5,6,8,9,10,11,12,13,14,15,16 | 1,2,4,6,7,8,9,10,11,12,13,14,15,16 | 1,2,4,6,8,9,10,11,12,13,14,15,16 | 2 |
| 16 | International communications | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 | 2,3,4,6,7,8,10,11,12,13,14,15,16 | 2,3,4,6,7,8,10,11,12,13,14,15,16 | 1 |

In other words, if the sharing of the output set and the input set (common set) are equal to the output set, it is at the highest level in the ISM hierarchy. Therefore, the dimensions of the upper surface will not be the source of any other dimension. Once the upper level is defined, it is separated from the other dimensions. Then, the next levels are determined by an identical process [53]. The results for the factors affecting the development of heritage sports tourism are presented in Table 5. It should be noted that to prevent the table from lengthening, the

dimensions are indicated by the numbers 1 to 9, respectively.

According to Table 5 and the leveling of the effective factors on the development of heritage sports tourism, the factors affecting the development of heritage sports tourism were classified into 7 levels, which show the interrelationships and influence between the dimensions and the relationship of dimensions of different levels.

Step 3.2. Drawing the model and network

of interactions of the effective factors on the development of heritage sports tourism.

Then, the third step of the ISM method was used to draw a model and level the effective factors on the development of heritage sports tourism. In this step, the network of interactions between the

dimensions of the research can be plotted as a model. For this purpose, first the dimensions according to their level and data of Table 5 (determination of relationships and their level) were drawn from top to bottom (Figure 2).

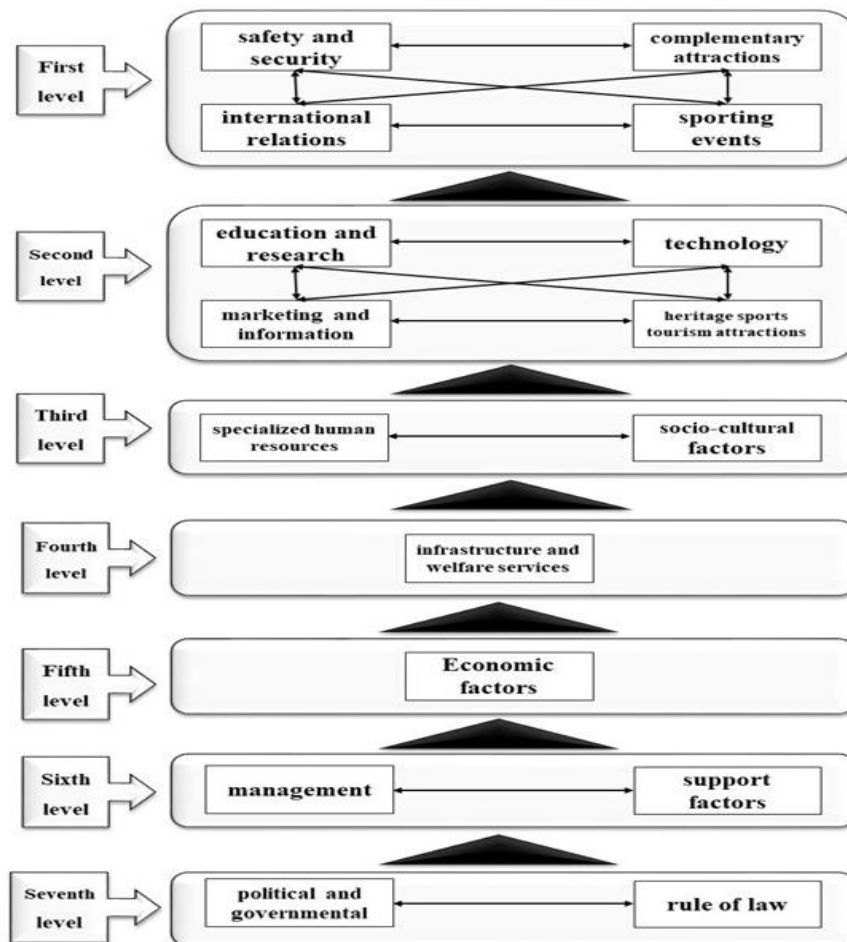


Figure 2. Interpretive structural model of the effective factors on the development of heritage sports tourism

As can be seen in Figure 2, the effective factors on the development of heritage sports tourism are classified into 7 levels. The dimensions of safety and security, complementary attractions, sporting events and international relations are in the first level. In the second level, there are dimensions of education and research, technology, sports tourism attractions, heritage and marketing and information. Socio-cultural dimensions and specialized

human resources are in the third level. The fourth level are infrastructure and welfare services. Economic dimension is in the fifth level; in the sixth level, there are dimensions of management and support factors. Finally, the political and governmental dimensions, along with the rule of law, are at the lowest level of the model (seventh level) which are the first priority compared to other dimensions and act as the foundation stone of the model. As

a result, officials and managers in the field of tourism and sports tourism should pay special attention to these dimensions in order to provide the ground for the emergence and realization of other dimensions at higher levels of the model.

In the next step, the competition analysis matrix was presented. The purpose of matrix analysis is to analyze the conductivity and dependency of the variables. The first cluster contains criteria that have poor conductivity and dependence. These variables are almost separated from the system because they have poor connections to the system. Dependent variables are in the second cluster, which have poor conductivity but high dependency. In the third cluster are the link criteria that have both the power to lead and the power to depend. These variables are non-static because, any change in them can affect the system. The fourth cluster includes independent criteria that have high conductivity along with low dependency [54].

According to Tables 6 and 7, penetration power-dependence final matrix using Micmac method, eventually, the political and governmental dimensions (No. 3), rule of law (No. 5), management (No. 1) and supporting factors (No. 9) are among influential factors; economic dimensions (No. 2), socio-cultural factors (No. 4), infrastructure and welfare services (No. 6), education and research (No. 8), specialized human resources (No. 10), technology (No. 11), heritage sports tourism attractions (No.

12), marketing and information (No. 15) and international communications (No. 16) are among linking factors; and dimensions of safety and security (No. 7), complementary attractions (No. 13)) and sports events (No. 14) are among the dependent factors in this study.

4. Discussion and Conclusion

Sports, along with recent popular cultures, has a special relationship with heritage. Sport has a strong and lasting connection with the contemporary past, because it has created important moments, helped to create important places and spaces, and become part of the collective memory and lasting moments, many of which remain in the living memory of individuals and are constantly in communication and associated with different occasions [34]. Therefore, the purpose of this study was to identify and level the factors affecting the development of heritage sports tourism. The findings of the interpretive structural model showed that the development of heritage sports tourism is at seven levels. This result is important because each dimension has a specific range of priority and importance, and serious distinctions must be made between them because the high number of levels proves it.

As stated in the findings section, low levels are more important in the interpretive structural model and act as the foundation of high dimensions and they are an executive priority.

Table 6. Total acquisition, dependency power and dimensional guidance

| Factors | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Influence power | 15 | 13 | 16 | 14 | 16 | 11 | 4 | 14 | 14 | 15 | 11 | 9 | 5 | 7 | 14 | 13 |
| Dependence degree | 8 | 9 | 5 | 12 | 8 | 13 | 16 | 13 | 6 | 11 | 13 | 15 | 16 | 16 | 15 | 16 |

Table 7. Penetration power-dependence final matrix using Micmac method

| | | | | | | | | | | | | | | | | | | |
|-------------------|----|----------------------------|---|---|---|---|---|---|---|----|----|----------|----|----|----|------------|------------|--|
| Influence Power | 16 | Influence | | | | 3 | | | 5 | | | | | | | Connective | | |
| | 15 | | | | | | | 1 | | | 10 | | | | | | | |
| | 14 | | | | | 9 | | | | | 4 | 8 | | | 15 | | | |
| | 13 | | | | | | | | 2 | | | | | | | 16 | | |
| | 12 | | | | | | | | | | | | | | | | | |
| | 11 | | | | | | | | | | | 6, 11 | | | | | | |
| | 10 | | | | | | | | | | | | | | | | | |
| | 9 | | | | | | | | | | | | | | 12 | | | |
| | 8 | | | | | | | | | | | | | | | | | |
| | 7 | | | | | | | | | | | | | | | 14 | | |
| | 6 | | | | | | | | | | | | | | | | | |
| | 5 | | | | | | | | | | | | | | | 13 | | |
| | 4 | | | | | | | | | | | | | | | 7 | | |
| | 3 | | | | | | | | | | | | | | | | | |
| | 2 | Independent /Autonomous | | | | | | | | | | | | | | | Dependence | |
| | 1 | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | |
| Dependence Degree | | | | | | | | | | | | | | | | | | |

The findings showed that there are two components in the seventh level: First, the political and governmental component, which is at the top. It is clear that in today's complex age, national and governmental issues require sound policymaking [55, 56, 57]. It seems that none of the national economic, social, cultural, political, security and industrial dimensions can have a growing and sustainable process without policy-making [56, 58]. Accordingly, the productivity and optimal use of tourism potential of any country requires strategic and macro policy in the medium and long term. This means that the prosperity or stagnation of the tourism industry, especially the development of heritage sports tourism in any country, largely depends on the attitude of the country's major decision makers, development programs and laws and documents of that country which determine the limits and

dimensions of heritage tourism industry development in each country.

Khodabakhshzade et al. (2020) [45] and Mortezaee and Kalate Seifari (2020) [43] also mentioned political and governmental factors as an important factor in the tourism development. On the other hand, another dimension is the rule of law at the seventh level and in a way also refers to the role of policy-making, because at the macro-management levels of the country, the laws of its status and rule are explained. From this point of view, it is logical and even presents the exact scientific finding that government policies are one of the most important aspects for the development of heritage sports tourism. The research findings of Khodabakhshzade et al. (2020) [41] and Mortezaee and Kalate Seifari (2020) [45] also confirm our research findings. Since policy-making requires careful and long-term planning and also,

strong and integrated management which according to the findings, is also in the sixth level. In addition to management, supportive factors will also play a decisive role, as mentioned in the sixth level of the interpretive structural model. It is clear that just as good management can inherit beneficial effects on sports tourism, mismanagement will have a serious impact on its development, with consequences primarily for a country's economy. As can be seen, countries with a strong and civilized history have not been able to take advantage of their heritage sports tourism potential due to mismanagement, but some countries with less history and more empty civilization have been able to develop and improve their sports tourism through long-term support and management.

Razavi (2019) [47], Khodabakhshzade et al. (2020) [45], and Karimi et al. (2020) [41] have also mentioned the management factor as one of the effective factors on tourism development in communities. The most important country that can be specifically mentioned is Qatar, which with proper planning and management has been able to have a strong and powerful economy in this industry. In this regard, the existence of the economic dimension at the fifth level is also justified and interpreted. At the fourth level of the model, there is the dimension of infrastructure and welfare services, which is somewhat debatable, because on the one hand, this factor can be considered the cause of the economic dimension. However, on the other hand, this dimension has become the result of the economic dimension. Of course, it is important to mention that this is a two-way and cause-and-effect relationship. Also, it is important to note that if the economy is right, the result is good infrastructure and welfare services. At the third level, there are

two socio-cultural components and specialized human resources.

Manpower today is a valuable and growing asset that has the power to reproduce. In fact, the quality of manpower work is comprehensive and dynamic in all developed and developing countries in the system of equipping and improving manpower and maintaining it. Human resources are defined as a set of organizational activities that take place over a period and are designed to bring about behavioral changes in employees, and the ability of human resources to achieve sustainable success [59, 60]. Human resources are obvious and undeniable in various sectors of heritage tourism. For example, efficient manpower has positive roles in providing tourists with satisfaction, providing appropriate services according to the needs of tourists, reducing costs and increasing the profitability of tourism enterprises, etc.

Socio-cultural factor is also one of the important and influential factors on the development of heritage sports tourism. Mortezaee and Kalate Seifari (2020) [43], Karimi et al. (2020) [41], Kim et al. (2015) [42] and Dayour et al. (2015) [40] have also mentioned it. At the second level of the structural and interpretive model, there are four factors of education and research, technology and technology, the attraction of heritage sports tourism and marketing and information, which are important to pay attention to the development of heritage sports tourism according to the results of the model. The results of Khodabakhshzade et al. (2020) [45], Karimi et al. (2020) [41] and Razavi (2019) [47] also confirm the results of this part of the research findings in order to develop heritage sports tourism.

Sports heritage however is increasingly being managed as a source of business and

attraction [34]. Many organizations plan sports heritage types on behalf of sports and heritage agencies, especially when a sports heritage site is selected for the transfer or when the sports anniversary is approaching or an important sporting moment is predicted. It is clear that the fields of tourism, marketing and management in sports heritage are interconnected. For example, the preservation and interpretation of sports heritage influence tourism activities and marketing initiatives, while tourism interests may influence marketing strategies and management of sports heritage resources. In addition, other areas of sports heritage typology, namely tangible immovable sports heritage, tangible movable sports heritage and intangible sports heritage, are all integrated in terms of product and service typology aspects. However, since sports heritage can easily and simply become a commodity through tourism and marketing efforts, the role and importance of this part of the typology of sports heritage is essential. In this regard, more attention should be paid to attractiveness and marketing at the second level.

Finally, according to the interpretive structural model, in the first level of the model, there are four dimensions of safety and security, complementary attractions, sporting events and international communication. These factors, as can be seen, have a complementary role and do not seem to be necessary at first glance, but they are motivating factors that their presence will make tourists more satisfied, but their absence will not cause dissatisfaction. For this reason, they are at the first and least important level.

Other results of the study include the results of correlation diffusion matrix. In this matrix, process-oriented indices are

divided into four levels according to the influence of each index on other indices and the degree of dependence of each index on other indices.

The results showed that political and governmental dimensions, rule of law, management and supportive factors are among the influential factors in the development of sports tourism that should be the executive priority of government officials and institutions. Also, economic dimensions, socio-cultural factors, infrastructure and welfare services, education and research, specialized human resources, technology, sports tourism attractions, heritage, marketing and information and international relations are among the linking factors and dimensions of safety and security, complementary attractions and sports events are among the dependent factors in this research.

Undoubtedly, sports heritage can play an important role in promoting tourism [61]. Tourists are increasingly looking for a sports heritage experience during the holidays, and tourism destinations and sports organizations provide a variety of sports heritage opportunities for tourists. Considering the effective factors on the development of heritage sports tourism and prioritizing these ones in order to determine which one should be given priority in the direction of development is one of the issues that should be paid much attention to it. Trustees and officials in the field of tourism in general and heritage sports tourism in particular, by using the levels obtained in the present study and the importance and priority of each level can provide the necessary planning for the sustainable development of sports tourism in order to implement affairs.

In general, according to the results of the model, the following suggestions are

provided. For the development of heritage sports tourism, there must be a serious determination. In this regard, the policies of a nation must be progressive, and in the first step, government with a decisive role must provide the infrastructure. Further, since the role of management is vital and one of the priority factors, it is suggested that countries that have the ability to develop heritage sports tourism, by following the example of successful countries in this industry provide the groundwork for their success with proper management. It is also recommended that infrastructure and welfare services with economic component should be considered together because each factor is developed and has a direct effect on the other dimension. Finally, it is recommended to pay more attention to the dimensions of the second and first levels in order to further develop the sports tourism industry, but before that, the previous levels should be progressive and not deterrent; otherwise, planners must follow the order of the factors. Drawing on Ramkissoon & colleagues' study, our findings will also be useful for future studies on how sports heritage can also promote place attachment [61, 62, 63, 64, 65] which has important implications for the sports tourism industry.

Conflict of interest

The authors declared no conflicts of interest.

Authors' contributions

All authors contributed to the original idea, study design.

Ethical considerations

The author has completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc.

Data availability

The dataset generated and analyzed during the current study is available from the corresponding author on reasonable request.

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