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Prioritization of Attention to the Factors of Sense of Place in Jamaran Cultural Tourist Zone applying the ISM-MICMAC-TOPSIS Model

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Abstract

Tehran, the 200-year-old capital of Iran, is a young city with a complex political and social structure compared to many other cities in the country. Therefore, creating a sense of place and the formation of social relations in this metropolis has faced complexities, and the partisan and modernist view of urban planners has reduced the sense of belonging in the residents and, consequently, has reduced the vitality of this city. In the comprehensive plan for organizing and developing cultural spaces in the metropolis of Tehran, an area called the cultural zone of Tehran has been determined. The purpose of choosing this zone was to give the Tehran Space Organization an outlook for the development of cultural spaces. The boundaries of this zone are designated in accordance with the natural-historical structure of Tehran and is located in the north-south and east-west. Using the combination of three models – Interpretive Structural Modeling (ISM), Micmac, and Topsis– this paper attempted to prioritize attention towards the factors influencing the sense of place based on the views of experts and residents of Jamaran cultural tourist zone, an area located in the cultural zone of Tehran. The results of the interpretive structural modelling in 5 stages showed that the most important factor that influence the sense of place is the concept of territory. This was determined based on the first stage questionnaire of Delphi from the perspective of urban planners and design experts. Based on the output of the Micmac model, in explaining the sense of place in the cultural zone of Tehran, three categories of "drivers", "dependents" and "autonomous" was identified but there was no "linkage" factor. At the end, in order to provide suggestions and prioritize attention towards the sense of place in Jamaran cultural tourist zone, the overall result of the three models was used, and it was found that the top priorities that needs attention to enrich the sense of place in the study area, are the sense of presence, level of security, the concept of territory, and social amenity.

Keywords: Sense of Place - Jamaran Cultural Tourist Zone - ISM-MICMAC-TOPSIS Analysis.

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Introduction

The history and structure of a city is inconceivable without public spaces. Most urban theorists agree that public spaces are the key dimension of urban life (Marcus and Francis, 2015; Pamir, 2015). These spaces provide opportunities for gatherings, sociability, recreation, celebrations, and so on. What distinguishes public spaces from private spaces is that they are free of cost, can be accessed at any time, and are open for all social groups, regardless of gender, age, race, or other factors. The sense of place is actually formed by human interaction with factors in public and urban spaces. A sense of place is a dynamic bond that a person develops as a result of attachment to place, awareness of place, belonging to place, satisfaction with place, and commitment to place.

Tehran, the 200-year-old capital of Iran, is a young city with a complex political and social structure compared to many other cities in the country. Migration, difference and social polarization between the northern and southern regions of Tehran are the most important social features of this city. Therefore, it is complicated to create a sense of place and form social relations in this metropolis. In addition to this, the partisan and modernist view of urban planners has reduced the sense of belonging in the residents. Consequently, the city is no more vital (Assarzadeh, 2013). The purely physical and decorative look of urban planning has not only caused traffic congestions in the streets and urban spaces, but also deprived citizens of the opportunity to pause for a moment and have social interaction. The lack of semantic connection in design and planning has caused the citizens of Tehran to lose their sense of place. Unfortunately, in the absence of a sense of place, Tehran's identity is declining. As a counteraction, the comprehensive plan for organizing and developing cultural spaces in the metropolis of Tehran has been prepared, in which an area called the Tehran Cultural Zone is designated. The purpose of this plan is to outline a guideline for the Tehran Space Organization to develop the designated area until 2025, and the key goal of the plan is to revitalize and improve the quality of urban life. The emphasis of this plan is to give priority to the vastness and extent of cultural spaces and the physical absence of cultural activities in urban spaces. Geographically, the location of this area has been designated according to the natural-historical structure of Tehran on two main bases. One is on the north-south, which connects Qajar Tehran to the historical city of Rey and stretches from the north to Shemiranat and the foothills of Alborz. This area encompasses most of the economic, administrative and commercial activities of Tehran. The other one is on the east-west, which is located along the Enghelab Street, - the axis of the late development of the city.

Jamaran cultural tourist zone is among the 14 subzones that are included in the comprehensive plan for organizing and developing urban spaces in the metropolis of Tehran. In order to improve the sense of place in this area, it is very important to pay attention to the key factors according to the opinions of the experts and the people who live and work in this area. The priority of paying attention to the indicators of the sense of place allows urban designers and planners to implement their plans and projects with a closer look on this matter. What has been done in previous studies was simply explaining the factors of the sense of place that have not necessarily had an executive aspect. Therefore, it is necessary to prioritize the execution of these factors based on the analytical models and opinions of experts and residents. In this regard, the key purpose of this study was to prioritize attention to the factors of the sense of place in in Jamaran cultural tourist zone applying a combination of the results of interpretive structural model, Micmac and TOPSIS based on the perspectives of urban experts and residents.

Literature Review and Theoretical Background

Sense of place is a multifaceted and multidisciplinary concept that has different definitions at different levels. It is often considered as a positive and powerful concept, which encompasses people's attachment and their connection to the place they live –an emotional bond that is called by some theorists as the structure of feeling (Arefi, 1999). The sense of place is a catalyst

that transforms an environment into a place that is a living organism rather than an object. This experience of having this emotional attachment has been gained through a series of reciprocal adaptations over the years. Therefore, relationships between people and places need special stability. The environment acquires these characteristics through the combination of natural and human order (Falahat, 2006).

The concept of belonging and attachment to place was not considered in the studies conducted on the sense of place, sense of belonging, spatial attachment, and the relationship between man and environment, before the 90's. However, a wide range of studies is available after this decade. In various fields such as geography, sociology and landscape architecture, researchers tried to measure the relationship between place and person and its consequences in human behavior. In this regard, concepts such as attachment to place (Manzo, 2003), social attachment, sense of place (Tuan, 1974), social solidarity, dependence on place (Williams, 1995), place identity (Proshansky, 1978), and belonging (Tuan, 1980) are explained. Having emotional ties with the place of living has been always essential in the human history and culture. However, it was not until the mid-1990s that behavioral scientists systematically examined human-space communication (Manzo & Wright, 2017).

Among the most important studies of this field, we can refer to Lalli's research in 1992, which deals with issues related to the sense of place and explains their relationship with urban identity while conducting comprehensive discussions on place identity (Lalli, 1992).

Brown et al. investigated place attachment in communities designed based on the modern urbanization movement (Brown et al., 2004). Gustafson studied the power of stimulation and enrichment of the sense of belonging and spatial attachment with a sociological approach in 2006 (Gustafson, 2006). In 2010, Hernandez presented and evaluated the sense of belonging and attachment to place by presenting a conceptual framework consisting of human, process, and place (Hernandez et al., 2010). In a survey conducted in Poland and Ukraine, Luwivca distinguishes between traditional attachment (inherited place) and active attachment (discovered place) (Lewivca, 2011). Some experts believe that the sense of place includes three components: place identity, place attachment and place dependence (Jorgensen & Stedman, 2006). Cremona considers the characteristics of successful public places that lead to feelings and attachment to the place to have comfort and mental image, accessibility and continuity, variety of activities, and sociability (Carmona, 2010). According to Schultz, the sense of place is found in places that have a distinct personality and the environmental character is made of tangible things that have materials, shape, texture, color, scale, diversity, perspective and prominence (Shultz, 2011).

In general, the components and factors affecting the formation and enrichment of the sense of place can be classified into three areas: functional activity (behavioral); physical form; and emotional perception (emotional). The area of functional activity, which emphasizes the role of social factors in shaping the sense of belonging to a place, includes various aspects of presence, participation, social interaction, and social support in the environment, society, and local communities. The area of physical form summarizes how physical components affect the sense of belonging, the use of environmental strategies to reduce crime, the right quality and density, and the conscious design of the environment. The area of emotional perception is effective on the perceptual quality of the architectural space and ultimately the formation and promotion of the sense of place by creating mental and perceptual images. In this regard, we first selected the physical scope to extract the analytical model of the research and studied the physical criteria for measuring the sense of place. In this paper, the formal and aesthetic features of the physical factor of the sense of place are dealt with under the title of physical aesthetics factor; the functional and behavioral characteristics under the title of physical functional factor; and the semantic and perceptual features under the title of

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semantic physical factor, and after that sub-criteria of each factor were determined. Table 1 shows the components, indicators and criteria of the sense of place.

Factors of the Sense of Place	Theorists	Effective Indicators
Semantic perception	(Yan Zhu, 1999), (Fritz Steele, 1981), (Panther, 1991), (John Lang, 1987), (Salusan, 2002).	Peacefulness Sense of presence The extent of emotional involvement The degree of the sense of belonging The level of security
Functional	(Pimia, 2005), (Kermuna, 1991), (Jacobs, 1961), (Panther, 1991). Cross, 2001).	The concept of territory The amount of attention paid to leisure time The rate of satisfaction The extent to which needs are met The extent of emotional involvement
Physical	(Fritz Steele, 1981), (Basim Salim, 2002), (Tavasoli, 2007), (Pirnia, 2005).	The degree of attachment The rate of access to facilities The rate of satisfaction with urban walls The rate of designation The degree of physical confinement Definition of spatial contrast

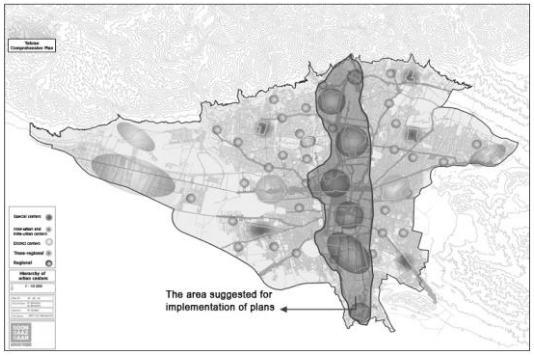
T1. Factors and criteria of the sense of place (Source: Authors).

Introducing the Study Area

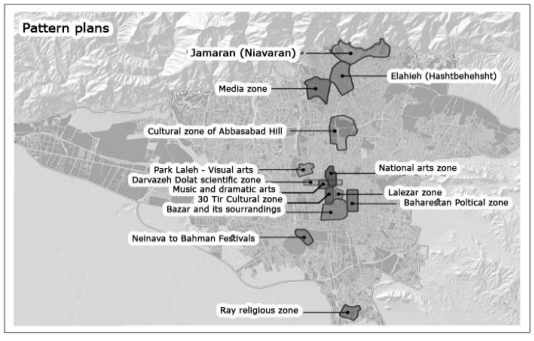
The cultural area of Tehran is not specified in the upstream plans and documents of the country. All study documents of Tehran, which are about 150 documents, were examined to identify the cultural area. The most important document in the city of Tehran that identifies the cultural zone is the Development Plan of Cultural Spaces. This plan is based on the strategic-structural plan of Tehran and the zoning system. The central part of Tehran is located between the two historical zones of Rey in the south and Shemiranat in the north and is the result of the city's expansion during the Safavid, Qajar and contemporary periods. This part is stretched from the northern resorts (in Shemiranat) along Vali-e-Asr and Shariati streets between the river of Darabad valley (Sayad Shirazi, Imam Ali and Khavaran highways) and Darakeh (Chamran, Navab, Tondgouyan highways) up to the urban area of Shahr-e-Ray. It is divided into northern, central and southern zones. Based on the following map and the strategic-structural plan of Tehran, there are 7 zones in the comprehensive plan of Tehran as follows:

- Tajrish Recreation Center (Tajrish Square, Ghadmagah Salehieh)
- Tehran Media-Art Center (International Exhibition Center)
- Tehran Socio-Cultural Center (Abbasabad and Mosalla hills)
- New Activity Center of Tehran (with the focus on the University of Tehran)
- Commercial-Historical Center (Tehran Bazaar and surrounding areas)
- World Economy Center (with focus on Rahahan and Ghaleh Morghi)
- Rey historical-religious center (with focus on the shrine of Abdul Azim Hassani)

The establishment of these seven centers in the middle area and along the north-south includes the most important and prominent areas and centers of activity in Tehran and increases the appropriate and very high capabilities for the establishment and development of cultural spaces in the area and sub-zones and the cultural zone of Jamaran.



F1. Hierarchy of urban centers and the cultural zone of Tehran (Source: Tehran Strategic Structural Plan).



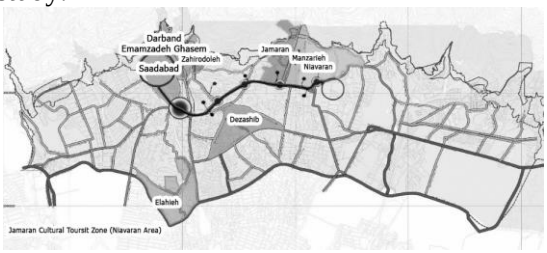
F2. Subzones of the comprehensive plan (Source: Tehran Cultural Plan for Organization and Development).

Accordingly, the model plans for the cultural development of the city, which consists of 14 cultural tourist zones of Jamaran, including Niavaran and its surroundings, connects Saadabad complex and Niavaran Museum Palace with a length of about 5 km. The following capabilities and potentials are effective factors in determining this area as a model plan for organizing and developing cultural spaces:

- Location of Jamaran village-neighborhood in this area, which has two cultural values for development: First, it is one of the old neighborhoods of Shemiran, constructed from the very beginning of Tehran's development as the capital, and second, after the Islamic Revolution, it was the refuge of the late leader of the revolution, Imam Khomeini, which contains many memories of his speeches in Hosseinieh Jamaran in the days of the imposed war and the mourning ceremony of Ashura, the ceremony of Eid prayers and meetings with domestic and foreign politicians. The recollection of these memories in the form of revival and cultural organization will play an important role in relation to the values of the Islamic Revolution.
- The presence of two rich cultural complexes of Saadabad center and Niavaran Museum are the main potentials of cultural development of this area.
- The powerful presence of Dr. Bahonar's St., Shahrdari St., and Saadabad St. in the spatial structure of the region
- Kuhsaran in its north and its strong connection with this area and other main aeras such as Valiasr Street, Shariati Street and Pasdaran Street
- The connection of this area with the old and valuable areas of Darband, Bagh Shater, Imamzadeh Ghasem and Jamaran.
- Presence of cultural, historical, religious and educational lands in urban scale such as cultural centers and museums

Research Method

This research falls into the category of exploratory research in the sense that according to the characteristics of the metropolis of Tehran classifies and prioritize the components of the sense of place from physical, economic, social and similar perspective. Moreover, due to the overlap of different types of research, it can be included in the category of single case study and field study.



F3. Jamaran Cultural Tourist Zone (Source: Comprehensive Plan for developing cultural spaces).

In this study, using interpretive-structural analysis, causal relationships between the components of the sense of place in the study area are determined and then the intensity of relationships between variables is calculated using Micmac software. In the next step, in order to determine the status of each of the components in the cultural-tourist zone of Jamaran, the TOPSIS model is used. Finally, in order to prioritize the components of the sense of place from the results of the ISM-Micmac-TOPSIS combination, the status of different criteria is determined. The following figure shows the analysis process and methods used in the research.

In order to measure the causal relationships between the indicators and criteria affecting the sense of place in the study area, the two-stage Delphi method has been used to collect information in this section. In the first stage, a questionnaire based on interpretive-structural analysis was given to the experts in a non-parametric way to determine the type of relationships. This stage was done using purposive sampling, which continued until the experts did not differ much and a consensus was reached. The interpretive structural modeling (ISM) that is proposed by Warfield is an appropriate technique for creating and understanding the relationships between the elements of a complex system. This methodology examines the order and direction of complex relationships between the elements of a system. In other words, it is a tool in which a set of different and interrelated elements are structured in a systematic and comprehensive pattern (Warfield, 1974). In fact, ISM is a

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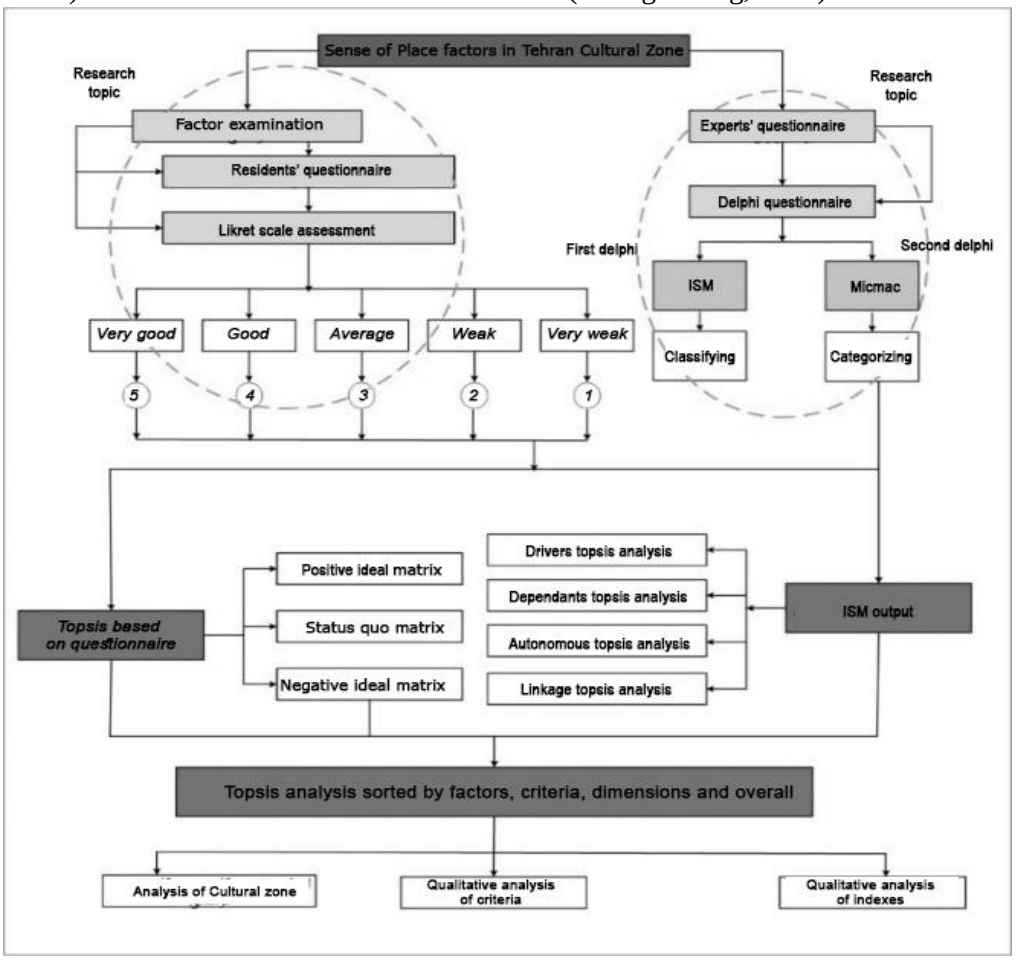
methodology for creating and understanding the relationships between the elements of a complex system (Huang and Tzeng, 2005) and is an interactive process in which a set of different and interrelated elements go into a comprehensive systematic structuring model. (Rahnamay Roudposhti and Tajmir Riahi, 2014).

This model helps to identify the interrelationships of variables and is a good way to analyze the effect of one variable on other variables (Agarwal et al, 2007). It can also prioritize and classify the elements of a system, which helps managers and policymakers to better implement their plans (Huang & Ong, 2015).



F4. Research analysis process (Source: Authors).

Given that the specific weights in the ISM model fluctuates between zero and one on a nominal scale, this model can only determine the presence or absence of a relationship between two variables or indicators, but is unable to determine the intensity of the relationship between the two variables. Therefore, Micmac analysis is used to determine the type of relationship of variables. The purpose of Micmac analysis is to study and analyze the driving forces and dependent forces of variables (Bagherinejad et al., 2012). In this analysis, variables are divided into four general categories. The first category includes autonomous variables. These variables have a weak dependent force as well as a weak driving force. The variables that fall into this category act almost separately from the whole system. These variables have little effect on other variables. In fact, the relationship between these variables and other variables is very limited

and insignificant. The second category includes those dependent variables that have a weak driving force, yet have a higher dependent force than other obstacles. The third category includes those linkage variables that have a strong driving force as well as a strong dependent force. These variables are in fact barriers that are unstable in the sense that taking any action on these barriers, in addition to directly affecting other barriers, can also affect the barrier itself in the form of feedback from other barriers. The fourth category includes those independent variables that have a strong driving force but their dependent force is weak (Bagherinejad et al., 2012: 36).

Based on the data collected from residents and users of space, each of the indicators is evaluated using the TOPSIS model in the process described below.

Discussion and Analysis Results

In this study, by examining different literature on the sense of place in Iran and the world, indicators and components were extracted. In order to analyze the variables of the sense of place and considering the multiplicity of intervening and effective criteria and indicators that have causal relationships, it is necessary to study and analyze these relationships. One of the appropriate tools for this purpose is to use the method of structural interpretive analysis, the steps of which are described below.

Step 1: Name the variables

In order to facilitate the work and ease in completing and distributing the questionnaires, first the research variables are labeled from D1 to D16.

Factor	Label	Factor	Label
Peacefulness	D1	Meeting the needs	D9
Presence	D2	Feelings involvement	D10
Emotional involvement	D3	Attachment	D11
Sense of belonging	D4	Amenities	D12
Security	D5	Satisfaction with urban walls	D13
Territory	D6	Designation	D14
Leisure time	D7	Physical privacy	D15
Satisfaction	D8	Spatial contrast	D16

T2. Labelling the effective factors of the sense of place (source: authors).

Step Two: Expert Survey

The Delphi questionnaire is used for higher accuracy in interpretive-structural analysis inputs. The case sample selected in this study, which is the cultural area of Tehran, was discussed with 50 experts about cooperation to measure the binary relationships between the indicators, and finally 39 people agreed to cooperate in completing the Delphi questionnaire. These experts were generally municipal experts and managers, as well as urban experts and specialists. After distributing and completing the questionnaires, the obtained data were entered in Micmac software and its reliability level was measured, among which 24 questionnaires had acceptable as reliable. According to the standard of using the opinions of experts in social research, this number seems acceptable.

In the next step, in order to summarize the experts' opinions, for each of the binary relations, the nominal index was used to enter the data into the model. In some relations, it was observed that there is no mode. Another was added to the previous 24 acceptable questionnaires and preliminary data were provided to form a structural self-interaction matrix based on the opinions of 30 experts.

Step 3: Formation of structural self-interaction matrix

After summarizing the opinions of experts and experts based on the index, the final self-interaction matrix is compiled from a summary of 30 structural self-interaction matrices obtained from experts. The concept of relationships between variables in this matrix is as follows:

V = If i affects j.

O = If there is no relationship between i and j.

X= if I affects j and j affects i

If there are no relationships between I and j variables

Step 4: Form the achievement matrix

Access matrix, the relationships between the variables derived from the Structural self-interaction matrix in binary and in the zero and one state converts these calculations through conditionals, the following is obtained:

- If the relationship between the two variables is V; Then (i, j) = 1 and (j, i) = 0
- If the relationship between the two variables is A; Then (i, j) = 0 and (j, i) = 1
- If the relationship between the two variables

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is X; Then (i, j) = 1 and (j, i) = 1
- If the relationship between the two variables is O; Then (i, j) = 0 and (j, i) = 0

Based on this, the access matrix described in Table 4.

Emotional involvement	Presence	Peacefulness	Label	Factor
D_3	D_2	D_1		
v	o		D_1	Peacefulness
o			D_2	Presence
			D_3	Emotional involvement

T3. Structural self-interaction matrix summarized.

Emotional involvement	Presence	Peacefulness	Label	Factor
D_3	D_2	D_1		
1	1	1	D_1	Peacefulness
1	1	1	D_2	Presence
1	1	1	D_3	Emotional involvement

T4. Access matrix summarized.

Step 5: Level the components of the sense of place

In this step, after calculating the access matrix of the set of input factors, the set of output factors and common elements are identified. The input set for an index includes the index itself and other indicators that affect it, and the output set includes the index itself and other indicators that are affected by it. Therefore, the set of common elements includes those elements that are in both the input set and the output set.

In order to prepare the input data, the results of the experts' opinions in the structural self-interaction matrix were returned to them after summarization. In cases where there is a relationship between two variables (the cell in question is assigned the number one), the intensity of this relationship should be determined based on the following concepts.

Number 0 = no effect
Number 1 = weak relationship
Number 2 = average relationship
Number 3 = Strong relationship

According to the direct relationships between variables, which are an intertwined network of reciprocal relationships, Micmac software divides the indicators in the Cartesian coordinate system into four categories, which are categorized as follows:

The first category: indicators that are located in the area of a coordinate axis. These indicators have high impact as well as high dependence and can be said to be "linkage variables" that establish a relationship between influential variables and affected variables. Among the indicators of sense of place in the cultural space, we do not see a linkage variable.

The second category: variables that are located in the second area of the coordinate axis that have high impact and low influence. These indicators can be called "effective indicators" or "drivers".

Third category: variables that are located in the third region of the coordinate axis. These indicators have poor impact and have a limited relationship with other variables and indicators that can be called "autonomous variables". It is very difficult to influence these indicators due to limited communication with other variables within the system, and to correct them, you should think about things outside the system or improve the level of the index and its limited communication.

Fourth category: This category includes variables that are located in the fourth area of the coordinates that have high dependence and low impact. These variables can be called "dependent variables".

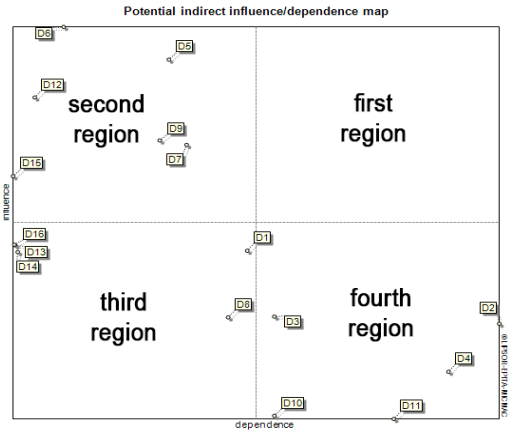
The status of each index according to the previous graph and table is as described in the table below.

In order to assess the current situation of the components of sense of place in the cultural tourist zone of Jamaran in each of the indicators of sense of place, a questionnaire was distributed and completed among the residents and users of that zone. These questionnaires are set for accurate evaluation based on a five-point Likert scale, in which the number 1 indicates a very weak condition, the number 2 indicates a weak condition, the number 3 indicates an average condition, the number 4 indicates a good condition and the number 5 indicates a very good condition. In order to assess the status of sense of place indexes in this zone, using Cochran's formula and with an error level of 0.1, the sample size of 96 people was determined. Therefore, this number of

questionnaires were obtained from residents and users of the space of this area. The following are the various steps to evaluate the status of sense of place indicators in this area in the form of the following tables.

Level	Common elements	Input	Output	Label	Factor
Third	D1 ,D2,D3,D5,D7,D8,D9	D1,D2,D3,D5,D6,D7,D8,D9,D12, D13,D14,D15,D16	D1 ,D2,D3,D4,D5,D7,D8,D9,D10	D_1	Peacefulness
First	D1 ,D2,D3,D4,D5,D11	D1,D2,D3,D4,D5,D6,D7,D8,D9,D 10,D11,D12,D13,D14,D15,D16	D1 ,D2,D3,D4,D5,D11	D_2	Presence
Second	D1,D2,D3,D4,D7,D8, D10	D1,D2,D3,D4,D5,D6,D7,D8,D9,D 10,D12,D13,D14,D15,D16	D1 ,D2,D3,D4,D7,D8,D10,D11	D_3	Emotional involvement
First	D2,D3,D4,D10,D11	D1,D2,D3,D4,D6,D7,D8,D9,D10, D11,D12,D13,D14	D2,D3,D4,D10,D11	D_4	Sense of belonging
Fourth	D1 ,D2,D5,D6,D7,D12	D1 ,D2,D5,D6,D7,D12,D14,D15	D1,D2,D3,D5,D6,D7,D8,D9,D11, D12	D_5	Security
Sixth	D5,D6,D9	D5,D6,D9	D1,D2,D3,D4,D5,D6,D7,D9,D10, D11,D12,D14	D_6	Territory
Second	D1, D3, D5, D7, D8, D9	D1 ,D3,D5,D6,D7,D8,D9,D12	D1 ,D2,D3,D4,D5,D7,D8,D9,D11	D_7	Leisure time
Second	D1 ,D3,D7,D8,D10	D1,D3,D5,D7,D8,D9,D10,D12,D1 3,D14,D16	D1 ,D2,D3,D4,D7,D8,D10,D11	D_8	Satisfaction
Third	D1 ,D6,D7,D9	D1,D5,D6,D7,D9,D12,D13,D15,D 16	D1 ,D2,D3,D4,D6,D7,D8,D9,D10,D11	D_9	Meeting needs
Second	D3,D4,D8,D10	D1,D3,D4,D6,D8,D9,D10,D12,D1 3,D14,D15,D16	D2,D3,D4,D8,D10,D11	D_{10}	Feelings involvement
First	D2,D4,D11	D2,D3,D4,D5,D6,D7,D8,D9,D10, D11,D12,D13,D14,D15,D16	D2,D4,D11	D_{11}	Attachment
Fourth	D5,D12	D5,D6,D12	D1,D2,D3,D4,D5,D7,D8,D9,D10, D11,D12	D_{12}	Amenities
Fourth	D13	D13,D14,D15,D16	D1,D2,D3,D4,D8,D9,D10,D11,D1 3	D_{13}	Satisfaction with urban walls
Fifth	D14,D16	D6,D14,D16	D1,D2,D3,D4,D5,D8,D10,D11,D1 3,D14,D16	D_{14}	Designation
Fifth	D15,D16	D15,D16	D1,D2,D3,D5,D9,D10,D11,D13,D 15,D16	D_{15}	Physical privacy
Fifth	D14,D15,D16	D14,D15,D16	D1,D2,D3,D8,D9,D10,D11,D13,D 14,D15,D16	D_{16}	Spatial contrast

T5. The set of inputs, outputs, and common elements and the classification of each of the variables.



F5. Map of the direct impact or influence of variables (Source: Authors).

F6. Graph of indirect impact or influence of variables (Source: Authors).

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Factor	Label	Type
Peacefulness	D1	Dependent
Presence	D2	Dependent
Emotional involvement	D3	Dependent
Sense of belonging	D4	Dependent
Security	D5	Driver
Territory	D6	Driver
Leisure time	D7	Driver
Satisfaction	D8	Autonomous
Meeting the needs	D9	Driver
Feelings involvement	D10	Dependent
Attachment	D11	Dependent
Amenities	D12	Driver
Satisfaction with urban walls	D13	Autonomous
Designation	D14	Autonomous
Physical privacy	D15	Driver
Spatial contrast	D16	Autonomous

T6. Type of variables based on direct and indirect relationship matrix.

Factor	Ideal minimum	Status quo	Ideal maximum
Peacefulness	96	402	480
Presence	96	170	480
Emotional involvement	96	355	480
Sense of belonging	96	345	480
Security	96	328	480
Territory	96	267	480
Leisure time	96	411	480
Satisfaction	96	371	480
Meeting the needs	96	369	480
Feelings involvement	96	321	480
Attachment	96	338	480
Amenities	96	247	480
Satisfaction with urban walls	96	421	480
Designation	96	310	480
Physical privacy	96	369	480
Spatial contrast	96	345	480

T7. Calculation of current and maximum status numbers where the minimum is ideal for each indicator.

In order to make suggestions and determine the priority of improving the components of the sense of place, the results of three interpretive-structural models, Micmac and TOPSIS, are used as follows:

1) Based on interpretive-structural analysis and Micmac, effective indicators are more important than other indicators, followed by linkage indicators, autonomous and dependent variables.

2) Based on the results of the TOPSIS model by indicators, the more unsuitable the status of an indicator, the better the improvement and promotion will be.

The final prioritization of the indicators is determined based on the combination of the three mentioned models. The results of this prioritization are specified in Table 10.

Factor	Distance form ideal minimum	Distance form ideal maximum
Peacefulness	306	78
Presence	74	310
Emotional involvement	259	125
Sense of belonging	249	135
Security	232	152
Territory	171	213
Leisure time	315	69
Satisfaction	275	109
Meeting the needs	273	111
Feelings involvement	225	159
Attachment	242	142
Amenities	151	233
Satisfaction with urban walls	352	59
Designation	214	170
Physical privacy	273	111
Spatial contrast	249	135

T8. Calculate the current status distance from minimum and maximum ideal states.

Factor	Distance form ideal minimum	Distance form ideal maximum
Peacefulness	306	78
Presence	74	310
Emotional involvement	259	125
Sense of belonging	249	135
Security	232	152
Territory	171	213
Leisure time	315	69
Satisfaction	275	109
Meeting the needs	273	111
Feelings involvement	225	159
Attachment	242	142
Amenities	151	233
Satisfaction with urban walls	352	59
Designation	214	170
Physical privacy	273	111
Spatial contrast	249	135

T9. Numerical calculation of TOPSIS and Qualitative analysis of its status.

According to the above table, improving the indicators of the sense of belonging and the use of facilities in order to improve the sense of place in the cultural tourist zone of Jamaran is a priority.

Conclusion

In this study, first, the field of the present study, which is the cultural zone of Tehran, was introduced, and then, using interpretive-structural analysis, causal relationships between the components of the sense of place were identified. In the next step, the intensity of the relationships between the variables was calculated using Micmac software. Then, in order to determine the status of each of the components of the sense of place in the cultural tourist zone of Jamaran, the TOPSIS model was used and then, using the ISM-Micmac-TOPSIS combined model, the

priority of paying attention to different components of sense of place in this zone was determined. The main results of the research are as follows:

- The output results of the interpretive-structural model (ISM) in 5 stages showed that the index of territory in the sixth level, the indicators of designating, physical privacy, spatial contrast in the fifth level, the indicators of security, amenities and satisfaction with urban walls at the fourth level, indicators of peacefulness and responding to needs at the third level, indicators of the emotional involvement, level of attention to leisure time, satisfaction and the level of emotional involvement at the second level and finally indicators of presence, the sense of belonging and the degree of attachment are in the first level.
- The higher the level of the index, the higher the importance of the index. The index of defining the territory as the most important component of the sense of place was determined based on the output of the Delphi first stage questionnaire from the perspective of urban planning and design experts.
- In explaining the indicators of sense of place in the cultural zone of Tehran, three categories of indicators "driver", "dependent", and "autonomous" can be identified and "linkage" index was not found.
- In order to provide suggestions and determine the priority of improving thecomponents of sense of place in the cultural tourist zone of Jamaran, the results of ISM-MICMAC and TOPSIS analysis model were used and the results are that in this zone, the indicators of presence, security, territory and the level of amenities are in priority.

Factor	Type based in ISM-MICMAC	Prioritization based on ISM-MICMAC	Type of variable based on TOPSIS	Prioritization based on TOPSIS	Final prioritization
Peacefulness	Dependent	4	Good	4	4
Presence	Dependent	4	Very weak	1	2
Emotional involvement	Dependent	4	Good	4	4
Sense of belonging	Dependent	4	Good	4	4
Security	Driver	1	Average	3	2
Territory	Driver	1	Average	3	2
Leisure time	Driver	1	Very good	5	5
Satisfaction	Autonomous	3	Good	4	4
Meeting the needs	Driver	1	Good	4	4
Feelings involvement	Dependent	4	Average	3	3
Attachment	Dependent	4	Good	4	4
Amenities	Driver	1	Weak	2	2
Satisfaction with urban walls	Autonomous	3	Very good	5	5
Designation	Autonomous	3	Average	3	3
Physical privacy	Driver	1	Good	4	4
Spatial contrast	Autonomous	3	Good	4	4

T10. Prioritization of the factors of the sense of place in the zone

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