

Original Research Article

# The Effect of the Components of Sensory Richness on Creating a Sense of Place Attachment

## A Comparative Study between Traditional Bazaars and Modern Shopping Malls\*

Seyedeh Maryam Mojtavavi

*Department of Architecture, South Tehran Branch, Islamic Azad University, Tehran, Iran.*

Ghasem Motalebi\*\*

*Associate Professor, School of Architecture, College of Fine Arts, University of Tehran, Iran.*

Hadi Ghoddusi Far

*Assistant Professor, Department of Architecture, South Tehran Branch, Islamic Azad University,  
Tehran, Iran.*

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**Abstract** | Place experiences can enhance a sense of place attachment in viewers by evoking positive feelings and engaging their senses. In doing so, such experiences can contribute to the stability of commercial centers. Therefore, the experience of loyal customers is critical to the sustainability of marketplaces and commercial centers. The primary goal of this study is to compare the effects of sensory experiences (visual, tactile, auditory, gustatory and olfactory) on the development of pleasant feelings and a sense of place attachment in traditional Bazaars and modern shopping malls. For this purpose, this study aims at examining different aspects of sensory richness in the literature. It also scrutinizes the influence of sensory richness on place attachment. The research conceptual model was developed. Then, using the sensory technique, the index points in the samples were then selected using the sensory walking technique, and the degree of involvement of the five senses in each point was examined using sensory notations. Finally, the links between sensory richness, perceptual indicators, and place attachment were scrutinized using a questionnaire. The results demonstrated a significant relationship between the positive sensory components and the perception component in samples. Among the perceptual indicators, contentment and memorability were effective in both traditional Bazaars and modern shopping malls attachments. The findings of this study demonstrate the importance of the identity index in traditional Bazaars, but this index has been overlooked in modern shopping malls. Furthermore, the security index has received much attention in modern shopping malls. However, this index was overlooked in traditional Bazaars. Finally, given that the sense of place attachment at Tajrish Bazaar is higher than that at Palladium shopping mall, it can be stated that the indicators of memorability, identity and satisfaction influence the development and promotion of attachment to commercial centers.

**Keywords** | *Five senses, Sensory richness, Place attachment, Tajrish Bazaar, Palladium shopping mall.*

**Introduction** | The traditional Bazaars and modern shopping malls of any city are important economic and commercial indicators. These centers have a profound influence on urban life and can generate various sensory experiences with sensory richness (Matteucci, 2017). In this process, the senses work as stimulating components

influencing the behavior and mood of the space. Despite the lack of consensus on the concept of place attachment, several studies have shown that happy emotions have a significant impact on place attachment (Hosany, Prayag, Van Der Veen, Huang, & Deesilatham, 2017; Io, 2018; Yan & Halpenny, 2019). Based on this, the current study aims to clarify how sensory experiences in traditional Bazaars and

\*\*Corresponding author: +989122790179, motalebi@ut.ac.ir

modern shopping malls generate favorable sensations and, as a result, deepen visitors' connection with that specific place. Visitors to the commercial centers are typically seeking a range of experiences such as purchasing, strolling, having fun, mingling and engaging with others, eating and drinking, and relaxing. Place experiences emerge as a result of a variety of sensory perceptions from the destination environment. Perceptions have the power to elicit emotions, develop recognition, and establish connections. Special issues in the surroundings contribute to special sensory richness. In addition, such experiences are tied to users' motivation and activity in the environment. Different studies have been conducted to investigate the effects of experiences in eliciting good emotions, improving users' satisfaction, shaping memories, promoting consumer loyalty, and also developing a sense of place attachment (Kastenholz, Eus'ebio & Carneiro, 2018). Attachment to commercial centers is usually associated with their features and facilities, the frequency of visits, and the time spent during each visit. In addition, increasing interactions between businesses and people and buying goods and products play a significant role in creating an attachment (ibid.). In the current situation, in designing and implementing most commercial centers, an economic approach has been adopted and the psychology of the environment has been ignored. This has resulted in commercial centers that prioritize economic factors over environmental factors. Therefore, given the importance of sensory richness, perception, attachment to place, and customer loyalty, it seems to be necessary to examine the relationship between these concepts. The current research aims to identify and prioritize the various sensory perceptions of humans and to investigate the extent to which these senses influence creating place attachment and how they do that. Therefore, this study attempts to answer the following questions:

- To what extent have the five senses been involved in the traditional Bazaar and modern shopping mall of the study?
- To what extent does the positive stimulation of the senses contribute to strengthening perceptual indicators in the case studies of this study?
- In the studied cases, what is the relationship between the perceptual indicators and place attachment?

## Review of Literature

Previous research has examined the experiences of customers in commercial spaces. Some researchers have investigated the dimensions of sensory experiences and their links with arousal and memorability, while others have investigated the sensory issues of consumers' experiences in commercial environments and their connections with certain motivations and behaviors. The most relevant study, entitled "Developing attachment by sensory enrichment and creating emotions through experiences in rural tourism"

was carried out by Kestholz, Marcus, and Carneiro (2020). The study indicated that good sensory experiences in rural environments promote attachment. Positive emotions and sensory stimulation can have a variety of effects, including pleasure and relaxation. According to the findings of this study, pleasure is mostly associated with visual, auditory, and olfactory senses. They are of special importance in creating relaxation of the senses of sight and smell. Also, a study close to this issue can be found in the book entitled "Responsive Environments", written by Yan Bentley et al. (Bentley, Alcock, Murrain, McGlynn & Smith, 2018). The authors of this book examined the role of the senses in creating sensory richness. Shahcheraghi (2009) also examined sensory perceptions in the environment from different perspectives and highlighted the necessity of paying attention to all the senses, both visual and non-visual, in the environment, which is known as the quality of sensory richness. Creating such a quality in the environment can enhance the ability and quality of the environment which evokes reflection, self-assessment, self-evaluation, and self-improvement. Samadi et al. (Samadi, Sattarzadeh & Balilan Asl, 2020) reported that the appropriate response to the different dimensions of the sensory system in historical Bazaars created a multi-sensory environment while maintaining the interference of the sensory domain and the visual landscape played the greatest role in the perception of the environment. Kestenholz et al. (Kastenholz, Eus'ebio & Carneiro, 2018) argue that the experience of being in a market is defined by the memories that a customer has with the market and by their interaction with the market. Psychological research shows that a strong attachment to a market is triggered by memories that establish a relationship between the market and individuals. Camp on -Cerro et al. (Camp'on-Cerro, Hern'andez-Mogoll'on & Alves, 2017) believes that in markets and other commercial centers, loyal customers are very important for the survival of businesses. Therefore, place attachment will ensure the stability of such spaces and is one of their most valuable assets. Recent findings in psychology show that people who have a lot of attachment to others want to be more loyal to their friends and partners and make sacrifices to ensure and support this relationship. Chun-lin (2010) states that in the marketing literature, attachment and a sense of belonging strongly affect the behavior of customers. Many experts, including Marques (2018) and Yan and Halpenny (2019), believe that visitors develop attachment to destinations by a variety of processes that may be grouped into three moments: pre-trip imagination, by associating destination image to values and identities; on-site experience, by attributing to the place the positive affect felt during the experience; post-trip recollection of memorable experiences. During the visit, the sensorial experience is fundamental to elicit the appraisal processes that lead to positive emotions. commercial centers can influence the experiences and

memories of customers and enhance the amount of profit by creating loyal customers. Chebat and Michon (2003) believe that customer experience is defined as a set of physical and non-physical interactions between the customer and the commercial center. In general, the creation of pleasant conditions (such as a pleasant smell in the environment) in shopping environments is associated with service delivery and causes a positive reaction from the customer towards that place and creates a positive experience for the customer. Hume and Mort (2010) found that repurchase intention was influenced by customer satisfaction and the intervention of perceived value. However, to the knowledge of the authors of this study, the effect of sensory richness on place attachment in the commercial center has not been analyzed so far. Therefore, the present study contributes to the literature by examining the effects of sensory experiences (visual, tactile, auditory, olfactory, and gustatory senses) on positive emotions, arousal conditions, and place attachment in Bazaars and shopping malls.

## Theoretical Framework

This research draws upon the theory that attachment to a place begins with the process of sensory perception. The environment includes physical, functional, and social components as perceptual objects. Perceiving the environment and receiving sensory data are realized through the five senses. The result of this process is the sensory perception of the environment. The mind cognitively and emotionally reacts to the data received through the senses (Arnheim, 2011), which creates a feeling of place attachment. Accordingly, in this section, the components of this process are explained as a theoretical framework.

### • Place

The term *Makan* is a form of the noun, derived from *Kun*, meaning “to be” and in the absolute sense of “place”, and being itself, means “the existence of being” and “having existence”. Another meaning of being is “to become” and “to happen” (Dehkhoda, 1994). *Mekan*, in this sense, is a place for the flow of events and happenings to live (Heidari Hamedani, 2019, 51). In a practical sense, the meaning of a place is defined in relation to human activities. In this case, “place” is a cultural concept used to explain the quality of the relationship between man and his environment. In this case, the term “place” is a cultural concept explaining the quality of human relationships with their environment (Stevenson, 2010). The supporters of the positivist view of the science of environmental psychology argue that the relationship between man and the environment creates a “sense of place” to various degrees, and man understands different degrees of the sense of place: 1-placelessness, 2-awareness of place; 3-belonging to the place, 4-attachment to the place, 5-dependence on the place, 6-intervention in the place, 7-sacrifice in preserving the place, 8-place identity, 9-unity

with the place, and 10-spirit of the place (Shahcheraghi & Bandarabad, 2019, 273).

### • Place attachment

In 1969, John Bowlby introduced the attachment theory (Safarzadeh Khoshabi & Abu Hamzeh, 2019, 34). According to this theory, attachment is a universal bond that occurs in all humans. This suggests that attachment bonds have an impact on people (ibid., 32). Place attachment, or people’s positive attachment to a certain place, is an important component of the human-environment relationship and demonstrates a proper form of human experience (Lee & Yoon, 2022, 5). According to Manzo, what creates meaning is not the place itself but rather the “experience in place” (Manzo, 2005). The term “place attachment” refers to an emotional bond or connection that exists between people and certain places. The sense of belonging and place attachment is a higher level of attachment that plays a decisive role in every event and space for the benefit and continuation of human presence in the place (Pirbabaei & Sajadzadeh, 2011, 4). Place attachment is a multidimensional structure comprised of several factors. For example, Taylor et al. (Taylor, Gottfredson & Brower, 1985) identified two aspects of physical dependence: physical dependence and social dependence. According to Williams and Wisk (2003), there are two degrees of spatial dependence and spatial identity. Kyle et al. (Kyle, Graefe, Manning & Bacon, 2004) investigated spatial dependence, spatial identity, and social relationships. Identification, lack of resources, and social relationships (Scopelliti & Tiberio, 2010). Lewicka (2011) distinguishes three factors: place heredity, place relativity, and place exploration. Raymond et al. (Raymond, Brown & Weber, 2010) developed a five-dimensional model.

In the previous research by Mojtabavi et al. (Mojtabavi, Motalebi & Ghoddusi Far, 2022), it was shown that the physical, functional, social, individual, and time components create a place attachment through the perceptual component. After examining the indicators of the perceptual components, we selected security, memorability, identity, and satisfaction. From their results, Figure 1 can be developed. Since the perceptual component serves as an interface in the process of creating place attachment, it will be explained further.

### - Perception

Perception is one of the main functions of the mind through which we connect with the world, acquire information, interact with the world, and, based on that information, we consciously or unconsciously adjust our decisions and actions (Searle, 2004, 259). In classical philosophy, according to the wisdom of Sinai, perception is formed through the five senses when they are connected to the environment. In this view, how each sense works and the relationship of the sensory powers with each other have been fully explained. In this intellectual platform, sensory perception is only

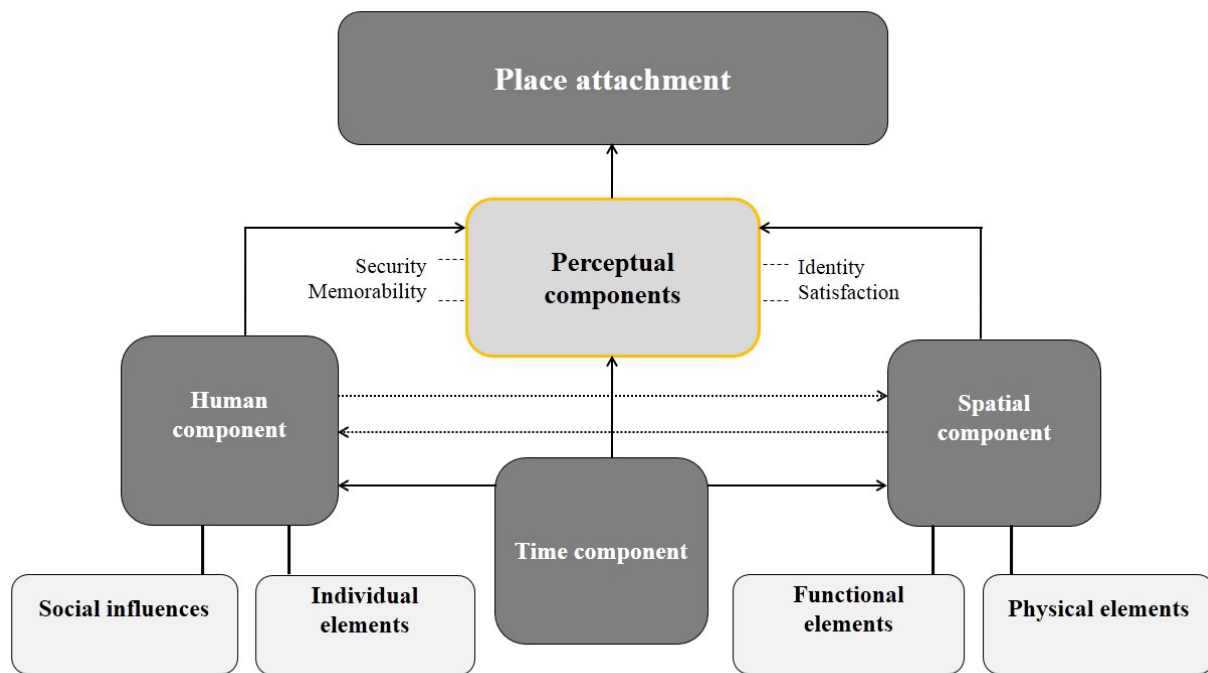


Fig. 1. Effective factors contributing to creating place attachment. Source: Authors adopted from Mojtavavi et al., 2022.

one type of perception (Amin Khandaghi, 2022, 27-35). After receiving sensory data and completing the process of sensory perception, there are two responses from the brain to the sensory information (Pautz, 2021). The first response is cognitive and it causes deletion, addition, or change in viewers' beliefs (John, 2005, 417). The second response is emotional and causes a desire or lack of desire for something (Carroll, 2012, 26-30). To explain this process, it should be stated that the only way for humans to perceive the environment is through their senses. There are many perceptions, some of which have a cognitive aspect (such as that this commercial center is affordable), and some of these perceptions have an emotional aspect (such as the pleasant sense of being in the commercial center). It is possible to consider a type of perception that is both cognitive and emotional at the same time. The human mind responds to both types of these perceptions. The cognitive response results in the removal, addition, or change of a belief in the mind. An emotional response is a desire or dislikes for an external element. If we name cognitive response insight and emotional reaction as dispositions, and the behavior resulting from these two will be action, the process of creating place attachment is explained as Fig. 2.

When one goes to commercial centers, he has different sensory perceptions. In fact, Bazaars are the context where the viewer is faced with an abundance of sound, touch, smell, taste, and, most importantly, the imagery of place (Fuchs, 2021, 18). The quantity and quality of sensory stimulation may be different at each point, and according to this amount,

sensory reception is stronger or weaker. This is analyzed in the findings section. In this analysis, it is clear which point of the Bazaar is more important in terms of sensory reception or receiving a stronger sense. This is the beginning of the mental perception process. Based on what has been said, a visitor to the Bazaar is expected to have different perceptions shaped based on the five senses. In the face of this data, the visitor's mind has a cognitive response (insight) and an emotional response (disposition), and as a result of these responses, it reaches a behavioral response (action). Let's assume that in Bazaar A, the obtained insight is "this Bazaar is affordable" and the tendency is "it is pleasant to be in this Bazaar." The result of these two actions is "visiting and buying from Bazaar A." However, the greater the sensory involvement in the A Bazaar means more sensory data and more sensory response, which results in more insight, tendency, and action. The more sensory organs that are aroused in the perception of space, the greater the effect of the space would be, and the more thorough understanding of the space would be gained, and the probability of its attractiveness, impact, and memorability would grow. As a result, living in a multi-sensory environment and being exposed to stimuli contributes to human understanding and perception (Sarmadi, Shahcheraghi & Karimifard, 2020, 34). Sensory richness appears to be a higher sensory involvement in the Bazaar, which leads to stronger cognitive and emotional responses. In other words, sensory richness is both an insight and a Bazaar trend. The upshot of stronger insight and disposition is a type of perceptual belonging to



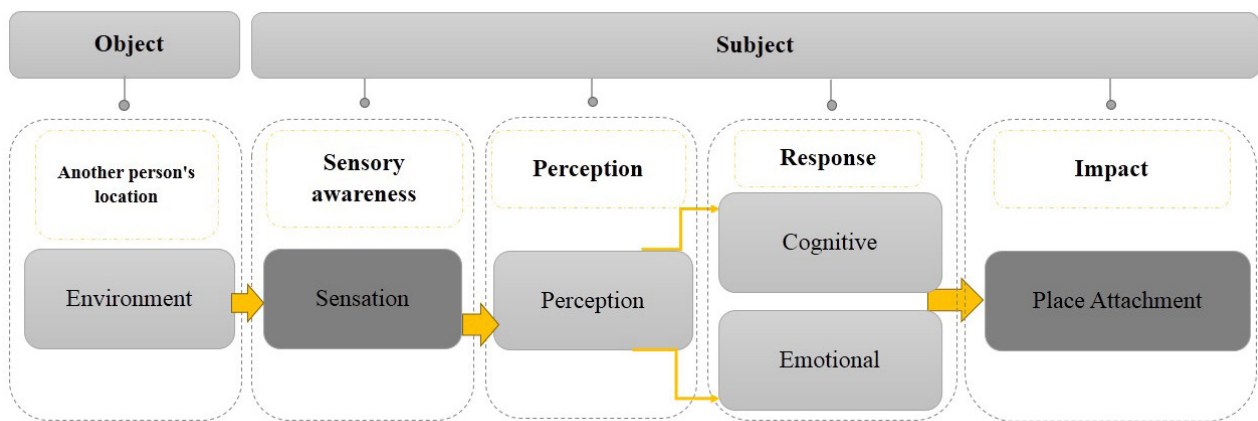


Fig. 2. Conceptual framework. Source: Authors.

space or place, which is referred to as place attachment. This procedure demonstrates how attachment occurs.

## Research Method

This is mixed-method research with a practical purpose. To identify the various dimensions of sensory richness and understand how it affects the sense of place attachment, we examined the literature and the theoretical framework using the library method. After identifying the two existing ways of examining sensory richness, the findings were analyzed to collect sensory perceptions and scrutinize the advantages of each method in advancing the research. Then a conceptual model was developed to measure the effect of sensory richness on place attachment. The model was further tested on samples from this study in the analysis section. Two samples included Tajrish Bazaar and Palladium shopping mall. The reasons for choosing case samples are as follows: First, both commercial centers are located in the same district of Tehran municipality. Second, Tajrish Bazaar is one of the most important and popular traditional Bazaars in Tehran, and Palladium shopping mall is one of the most important and popular contemporary commercial centers in Tehran. For the above-mentioned reasons, the two mentioned samples were included and examined regarding the sensory richness and its effect on creating attachment to the place in the commercial center. To identify and prioritize sensory perceptions in each sample, a combination of two methods, "Sensory Walk" and "Sensory Notation," were used. In the first phase, the method of sensory walking was used to identify the index points of the commercial center environment, which makes it possible to compare different sensory stimuli or the same feeling in different places (Sarmadi et al., 2020, 10). Index points are the points that have the most sensory diversity, and their level of sensory richness is higher than other spaces. This method was proposed for the first time in the 1960s as a

tool to evaluate the physical and cognitive aspects of space, and its roots go back to approaches to understanding the daily human experience. Walking and engaging with the environment leads to its overall perception (Van den Brink, Bruns, Tobi & Bell, 2017, 182). Researchers such as Schultz (2014) also investigated seven participants' perceptions of the urban landscape of Hamburg, Germany using this method. The selection of index points in each of the samples was based on the analysis and summation of the views of the participants about the sensory walk. Each participant chose three points with the highest level of sensory involvement in each sample, and then common points in the view of the participants were selected as index points. In the second phase of the research, sensory notations were taken to measure the level of sensory stimulation in each of the index points extracted from the first phase. Lucas and Romis developed this method in 2008 to understand how different human sensory experiences overlap in built environments. To collect sensory notations, radar diagrams are used to record sensory experiences in the space and time of the research (Erwine, 2016, 208). This method has been used in domestic and foreign research projects, including the England Landscape Project (Aletta & Xiao, 2018, 197) and the Golshahr Karaj Project (Sedaghat, 2017). To take sensory notation, each participant completed a diagram including the type and quality of sensory involvement at each point. After determining the level of sensory perception in each sample, the quantitative and qualitative comparisons of sensory richness in the index points of the two samples were carried out. The research process is presented in Figure 3. In the third phase, the indicators related to the perceptual component (Fig. 2) of the index points of the samples were evaluated on a questionnaire by seven architects and urban planning experts present in the first and second phases. A 5-point Likert scale questionnaire including 12 questions was

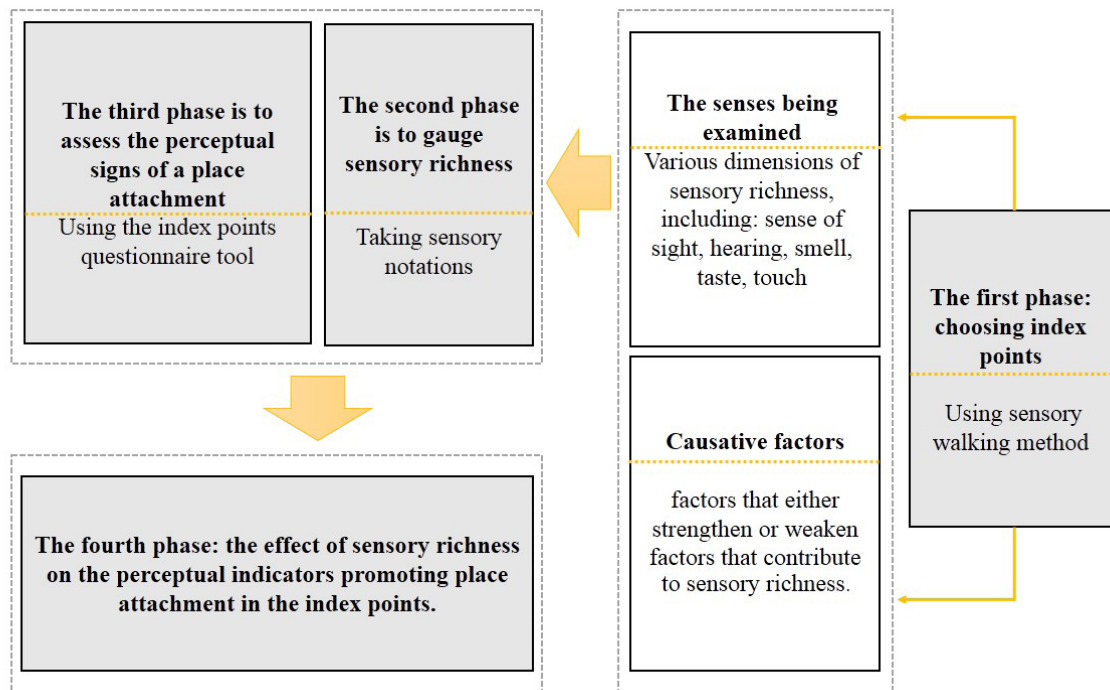


Fig. 3. Research process. Source: Authors.

developed by the authors of the study. The face validity of the questionnaire was confirmed by five experts in the relevant field, and its reliability was estimated based on Cronbach's alpha. This value was 0.78.

## Research Area

To measure the level of sensory richness and compare it in traditional Bazaars and modern shopping malls, we selected the study area in the district of Tehran. Tajrish Bazaar as an example of traditional Bazaars and Palladium shopping mall as an example of contemporary commercial centers were selected as the samples in this research. Tajrish Bazaar has a history of 150 years and, due to its special features such as diverse uses, architectural style, and sense of vitality, it has attracted domestic and foreign tourists (Documents and Research Center, Faculty of Architecture and Urban Planning, Shahid Beheshti University, 1999). Palladium has a more modern structure than other shopping centers in Iran. Many famous Iranian and foreign brands have branches in Palladium. For this reason, it is known as a shopping center with famous brands (Kazemi & Amir Ebrahimi, 2017, 317).

## Research Findings

Based on the findings of this research in the section on theoretical foundation, sensory richness can be tracked through five different senses. In this research, to compare the effect of sensory richness in creating a sense of place attachment in traditional Bazaars and modern shopping malls, field surveys were conducted following reviewing

the literature. In the first step, the sensory index points were determined by the sensory walk method, and then in the second step, the necessary data was collected through the sensory notation method.

### • Results of the sensory walking

The field survey was used to identify sensory stimulation points. First, each sample was examined by the authors and a specific path was chosen for the research. The main path includes the index points of each sample. In the next step, based on previous research (Hamburg Sensory Walk Project, Germany) (Van den Brink, Bruns, Tobi & Bell, 2017, 179-194), a group of researchers consisting of seven people (master's degree students in architecture) was made to accompany each sample and check the level of sensory richness (visual, tactile, auditory, gustatory, and olfactory) in three significant sensory points in the path of each sample (Fig. 4). During the walk, semi-structured interviews were conducted with the participants of this field study, and the sensory stimuli that stimulated the senses of these people at each point were identified. The data relating to the interviews can be found in Tables 2 & 3. The selection of three sensory index points in each of the samples was determined through group discussion and exchanging ideas: Fig. 5 show the index points at Tajrish Bazaar; Figs 6 show the index points at Palladium shopping mall.

### • Results of sensory notations

After determining the sensory index points through the sensory walking method, we analyzed the level of involvement of the five senses in two samples using



Fig. 4. From right to left: Index points in Tajrish Bazaar, Index points Palladium shopping mall & Index points in Palladium shopping mall. Photo: Seyed Maryam Mojtavavi, 2021.

sensory notations. At this stage, after scoring each sense in the mentioned points, by connecting the points on each diagram, a yellow area was obtained. The area of the yellow surface at each point is related to the amount of sensory richness. Due to the presence of 5 senses, the circles of the sensory diagram were from 1 to 5, and 5 lines, which are the same senses obtained from theoretical foundations, cut through the circles. The results of surveys including sensory stimuli and sensory diagrams at Tajrish Bazaar are presented in Table 1, and the results obtained from Palladium shopping mall are given in Table 2. Comparing the two samples shows that the visual sense in the Palladium shopping mall is the first priority, with the highest score, and mainly the sensory stimulus, including the variety of colors and textures on multiple levels. After visual, olfactory has been ranked second. The auditory sense is the third priority. The fourth rank is the sense of taste, and the variety of food products in key points is primarily the stimulus of the sense of taste. Since the trading activity is ongoing in the commercial centers, it is not far from the expectation that the kinesthetic sense is also involved. The sensory stimulus of touch is associated with the variety of products in the commercial space. The comparison of hearing sense scores in the two samples showed that this sense was more triggered at Tajrish Bazaar due to limited space and crowds. In general, the priority of the five senses in the two examples was as follows:

At Tajrish Bazaar, following the visual and auditory, the

olfactory sense is more involved, and then the senses of tactile and gustatory are triggered respectively.

An important point is the proximity of all senses at Tajrish Bazaar. However, in Palladium shopping mall, the priority of the senses included visual, tactile, auditory, gustatory, and olfactory. The priority was ranked. 'Visual' was reported to have the highest rank while 'Tactile' was ranked have the lowest. At the Palladium shopping center, there is a significant difference between the scores on the sense of sight and other senses. The difference in the average score of senses in the examined samples was significant. This shows that the sensory richness at Tajrish Bazaar is higher than at Palladium shopping mall. By examining the area created by connecting the points on each diagram in these three points, we could compare the levels of sensory richness of the points. We found that the painted area in the index points at the Tajrish Bazaar will be in the following order, from highest to lowest, by comparing the area of the painted surfaces of the points shown in Table 1. As can be seen in Table 1, sensory richness in point number 2 is associated with the variety of goods, especially fruits, and rich color variety, leading to the maximum stimulation of the visual and olfactory senses, and at point 3, the visual sense has the highest sensory richness due to the presence of a variety of activities, variety of hawkers and the diversity of landscapes, and in point number 1, that is, Raste Bazaar<sup>1</sup>, the highest sensory richness is assigned to the auditory and visual senses. This is associated with the narrowness of the path, the presence of various stalls, and a large number of people.





Fig. 5. From left to right: Raste Bazaar with a variety of stores, Tajrish Tajrish, fruit and vegetable Bazaar & The scene at the end of the Tajrish Bazaar. Photo: Seyede Maryam Mojtabavi, 2021.



Fig. 6. From left to right: : Lobby located on the ground floor A of Palladium, Coffee shop located on the ground floor A of Palladium & New food court located on the 3rd floor of Palladium. Photo: Seyede Maryam Mojtabavi, 2021.

Table. 1. Registration of different dimensions of sensory richness in Tajrish bazaar index points. Source: Authors.

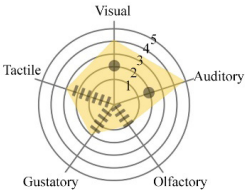
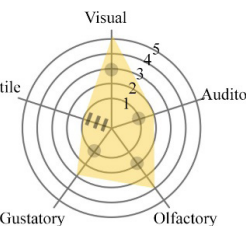
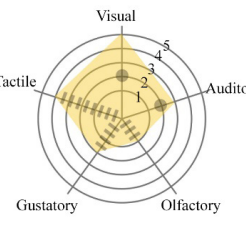
Index points	Visual sensory richness	Audio sensory richness	Olfactory sensory richness	Gustatory Sensory richness	Tactile sensory richness	A sensory Diagram
1- Raste Bazaar shops with a variety of stores	A variety of products. A variety of colors. Visual disturbance. lighting through the ceiling, The abundance of physical signs.	The voices of interlocutors. Merchants' voices. Live musical performance audio.	Various smells along the way, including Sohan, Gaz, pickles, herbs, etc.	Various smells along the way, including those of hot Sohan, Gaz, pickles, herbs, etc.	The abundance of activities. the presence of hawkers. the narrowness of the path.	
2- Tajrish Tekyieh (fruit and vegetable Bazaar)	A variety of fruits, colors, and visitors, a large visual selection of things a range of textures, the possibility for touching objects and commodities, and the stark contrast between light and dark	Hearing voices of customers and companies dealing, pricing, haggling, conversing, making conversations	The aroma of all fruits and vegetables, herbs, and liver food.	Combination of gustatory sense with other senses, such as olfactory	Crowds and congestion, the presence of people, a variety of foods and goods	
3-Bazaar's final scenes (between the Bazaar and the entrance of Imamzadeh Tajrish	visual variety of the things available, various details and visual components, the ambiance within the Bazaar and the stark contrast between light and dark	Natural sounds such as water, wind, birds (including colored chicken voices), musicians, pilgrims, and adān, "call to prayer".	The aroma of several foods, including olives, corn, Samanu, and ash.	Tasting Products. Selling coconuts and coconut water on wheels by hawkers.	A variety of goods with various textures, touching a wide range of goods, and rain, snow, etc	



Table 2. Registration of different dimensions of sensory richness in the index points of Palladium shopping mall. Source: Authors.

Index points	Visual sensory richness	Audio sensory richness	Olfactory sensory richness	Gustatory Sensory richness	Tactile sensory richness	A sensory Diagram
1- Lobby located on the ground floor A	A variety of colors, forms, and materials. design features in the space's form and body. the possibility of seeing space, the existence of visually proportioned walls	The presence of music in the area (a piano is in the lobby) The possibility of identifying an area with sound in it. the presence of sounds at the reception. The occurrence of conversational exchanges	The presence of pleasing odors in the environment.	-	Polished materials. Wide paths, no chance of colliding. Impossibility of touching the goods.	
2- Coffee shop located on the ground floor A of Palladium,	Utilizing the rhythm of the ceiling, the play of light and shadow, and the plant as a dividing factor	The presence of background noise (voice of customers) The sound of music in a room	The use of plants to divide zones; the existence of distinctive background aromas in the environment (such as the aroma of coffee)	The ability to supply food and beverages	The possibility of understanding touch-related factors - Using a variety of textures and materials	
3- A new food court located on the 3rd floor of Palladium	Ceiling tempo, chosen hues, and components for amazing staging	The voices of all people. The buyers	The smell of fried potatoes and quick food	Combining the olfactory sensory with the Gustatory or taste	The accessibility of a range of furniture, the presence of green components	

Table 3. One-sample t-test result of sensory richness, perceptual component, and sense of attachment at Tajrish Bazaar. Source: Authors.

Component	Indicator	Point 1		Point 2		Point 3	
		Mean	STD	Mean	STD	Mean	STD
Sensory richness	Visual	4.14	0.69	4.85	0.37	4.71	0.48
	Auditory	4.57	0.53	2.71	0.95	3.28	0.48
	Olfactory	1.28	0.48	4.28	0.48	2.00	0.81
	Gustatory	1.85	0.69	3.71	0.95	2.71	0.75
	Tactile	2.71	0.75	1.71	0.75	2.85	0.69
Perceptual components	Identity	3.85	0.69	4.71	0.48	3.42	0.78
	Satisfaction	3.14	0.69	4.42	0.53	4.85	0.37
	Security	2.14	0.69	3.57	0.53	2.85	0.69
	Memorability	4.71	0.48	4.57	0.78	4.71	0.48
A sense of place attachment		4.14	0.69	4.85	0.37	4.42	0.78

At Palladium shopping mall, points 3, 2, and 1 have the most sensory richness respectively. Point number 1, the main food court of Palladium, has caused the maximum stimulation of the gustatory sense through the presence of various food stalls. It can be said that the olfactory and

visual senses also stimulate the gustatory sense at this point. At Point 2, Viona cafe has stimulated the olfactory caused by coffee brew. This has been reinforced by the use of natural wood materials for furniture and the use of plants, which create privacy in the coffee shop space.

This has also led to a conflict between the visual and tactile senses. Point 3 or the lobby, has also involved the visual sense more than other senses through the creation of spatial openings and attention to materials, lighting, and spatial proportions, but overall it has created the least amount of sensory richness. Comparing the overlap of the painted areas of all three points (see Fig. 7) in each sample shows that, qualitatively speaking, the painted surface at Tajrish Bazaar is much larger than at Palladium shopping mall. This again means that the sensory richness at Tajrish Bazaar is much stronger than that at Palladium shopping mall.

#### • Results of the questionnaire

To evaluate the sensory richness indicators, perceptual indicators, and a sense of place attachment at Tajrish Bazaar and Palladium shopping mall, we used a single sample t-test. We measured the mean and standard deviation of each of the indicators in the environment of both case samples. Since the 5-point Likert scale was used in the questionnaire and answers were ranked from 1–5. The number 3 was obtained as the middle of the answers

and the average of each index was compared with the number 3. Table 3 shows the result of a one-sample t-test at Tajrish Bazaar.

The result of the single-sample t-test at Tajrish Bazaar shows that at point 1 (a series of shops with a great variety at Tajrish Bazaar), a feeling of spaciousness has been created in the environment through the high ceiling height. The acoustic environment reflects the inner sounds of the Bazaar, including the music of traveling musicians. Verbal interactions between businessmen and customers have emerged and have positively stimulated the sense of hearing. In addition, the visual sense at this point has been caused by the presence of formal markings (variety of details, traditional tiling of the inscriptions on the heads of the cells), the shading of the ceiling in contrast to the dazzling light of the stalls, and the presence of various activities and goods, which also stimulate the visual sense. In addition, the satisfaction index has the highest average compared to other indices (Table 4). At this point, among the indices of the perceptual component, the memorability index has been ranked as the highest. In the

Fig. 7. Sensory richness at left: Palladium shopping mall and Right: Tajrish Bazaar. Source: Authors.

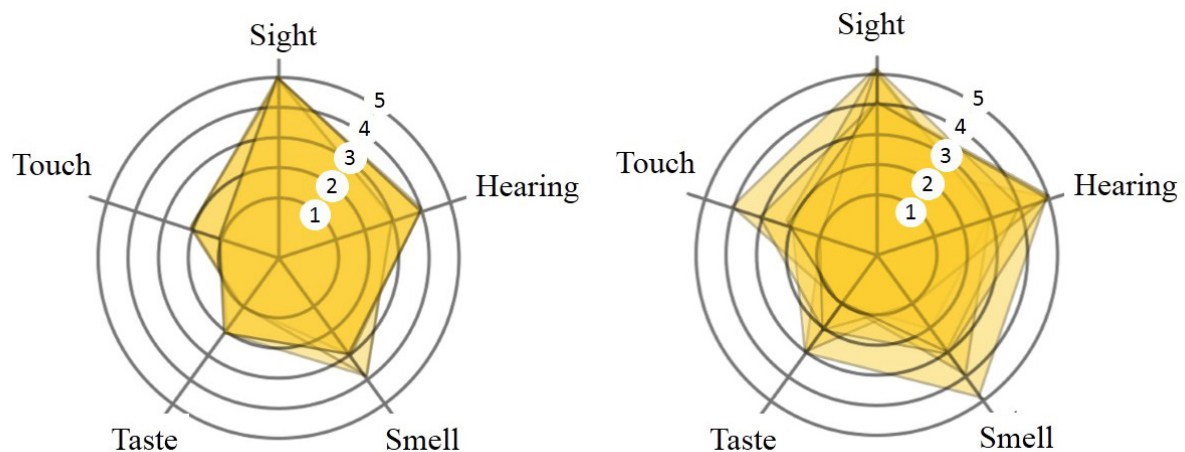


Table 4. One-sample t-test result of sensory richness, perceptual component, and sense of attachment at Palladium Shopping Mall. Source: Authors.

Component	Indicator	Point 1		Point 2		Point 3	
		Mean	STD	Mean	STD	Mean	STD
Sensory richness	Visual	4.57	0.53	3.57	0.53	3.42	0.53
	Auditory	3.42	0.53	2.57	0.78	2.28	0.48
	Olfactory	2.71	0.48	4.28	0.75	4.14	0.69
	Gustatory	1.4	0.37	3.57	0.53	4.42	0.97
	Tactile	2.14	0.37	1.71	0.75	1.42	0.53
Perceptual components	Identity	2.28	0.48	2.14	0.69	2.42	0.78
	Satisfaction	3.28	0.48	3.57	0.53	4.85	0.37
	Security	4.85	0.37	3.71	0.48	4.57	0.53
	Memorability	3.57	0.53	4.42	0.78	4.28	0.75
A sense of place attachment		3.71	0.75	3.85	0.69	4.14	0.89

two main points of Tajrish (fruit and vegetable Bazaars), the slight sense has created the most positive sensory stimulation through the variety of colors and textures, goods, and visitors, and has improved the identity index. In the third point (the end sequence of Tajrish Bazaar), the wide variety of details and visual elements and the high contrast of light and dark with the space inside the Bazaar have caused the visual sense to be stimulated, and on the other hand, the satisfaction index has the highest average compared to other indices. The result of the single-sample t-test at Palladium shopping mall shows that, at point 1 (the lobby located on the ground floor A), the visual sensory has created the most positive sensory stimulation. This is caused by the variety of design details in the form and structure of the space, the variety in color, form, and materials, and the visibility of the space. Based on what has been perceived, the security index obtained the highest mean. In point 2 (the coffee shop located on the ground floor), the presence of unique background smells in the space, such as the aroma of the coffee, has increased the stimulation of the olfactory sense. Considering that the olfactory sense is a factor in the formation of strong emotions, a memorable feeling has been ranked the highest

at this point. At point 3 (the food court located on the 3rd floor), the most sensory stimulation takes place through the sense of taste. The presence of various restaurants, fast food, and a wide space for the audience has increased the sense of satisfaction. In Table 5, the significance level (sig) for all senses is less than 0.05. Therefore, the five senses have a significant effect on perception in two cases. As can be seen in Table 6, the significance level (sig) for all the perceptual indicators except the security at Tajrish Bazaar is less than 0.05. Therefore, identity, satisfaction, and memorability have a significant effect on the sense of place attachment. However, the effect of the security on the attachment to the place at Tajrish Bazaar is not significant. The significance level (sig.) of all the perceptual indices except for the identity index at Palladium shopping mall is less than alpha 0.05, and for the identity index at Tajrish Bazaar, the significance level (sig.) is greater than alpha 0.05. Therefore, the indicators of security, satisfaction, and memorability have a significant effect on the sense of place attachment at Palladium shopping mall, but the effect of the identity index on the sense of place attachment at Tajrish Bazaar is not significant.

Table 5. The effect of the five senses on the perception of index points in case studies of this study based on the Pearson test. Source: Authors.

Component Point 1		Perception at the Tajrish Bazaar's index points			Perception at Palladium Shopping Mall's index points		
		Point 2	Point 3	Point 1	Point 2	Point 3	Point 3
Visual	Pearson Correlation	0.829	0.879	0.847	0.854	0.480	0.594
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000
Auditory	Pearson Correlation	0.754	0.685	0.831	0.389	0.403	0.503
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000
Olfactory	Pearson Correlation	0.660	0.744	0.802	0.267	0.709	0.697
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000
Gustatory	Pearson Correlation	0.480	0.665	0.733	0.209	0.653	0.780
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000
Tactile	Pearson Correlation	0.432	0.404	0.467	0.341	0.607	0.698
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000

Table 6. The impact of perceptual indicators on place attachment in samples of this study using a Pearson test. Source: Authors.

Indicators of Perceptual component Point 1		Attachment at the Tajrish Bazaar's index points			Attachment at Palladium Shopping Mall's index points		
		Point 2	Point 3	Point 1	Point 2	Point 3	Point 3
Identity	Pearson Correlation	0.714	0.839	0.633	0.287	0.358	0.365
	Sig (2-Tailed)	0.000	0.000	0.000	0.081	0.059	0.077
Satisfaction	Pearson Correlation	0.587	0.521	0.623	0.688	0.705	0.834
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000
Security	Pearson Correlation	0.261	0.314	0.276	0.856	0.749	0.721
	Sig (2-Tailed)	0.056	0.069	0.076	0.000	0.000	0.000
Memorability	Pearson Correlation	0.822	0.829	0.854	0.603	0.778	0.580
	Sig (2-Tailed)	0.000	0.000	0.000	0.000	0.000	0.000



## Conclusion

As soon as a person settles into the environment, his relationship with the space will be formed through the interaction of three spatial, individual, and social factors; he starts using his senses, and then his sensory perception is involved. This is the process of sensory perception of a place (Bazaar). During this process, the mind responds to perceived matter, including the environment, self, and others. Responses or reactions are in cognitive and emotional forms. The cognitive reaction causes a change in the visitor's beliefs, while the emotional reaction causes a desire or lack of desire for something. Both cognitive and emotional reactions affect human behavior, and place attachment is created because any kind of connection with an external object (environment, self, or other) is through sensory involvement. Sensory richness is achieved through the breadth and depth of experiences in the environment. By increasing the variety of sensory experiences for humans as space users, sensory richness causes more human pleasure and makes the environment more pleasant. Bazaars have a wide range of elements that have a high potential to create diverse, attractive, meaningful, and sensory experiences for visitors. Reviewing the research literature shows that positive sensory experiences stimulate positive emotions and will lead to an increase in place attachment. By examining and comparing the sensory richness in the traditional Bazaar of Tajrish and the Palladium shopping mall, the results of the research show that the sensory richness is well provided in the Bazaar of Tajrish, while it has emerged differently at Palladium shopping mall and the continuity of its historical development has been overlooked. A look at the traditional texture of the city and the texture of the traditional Bazaar shows that, compared to contemporary commercial centers, the traditional Bazaar has a greater ability to create this sensory involvement for visitors. This is owing to the potential of its texture in engaging several senses simultaneously. Based on the findings of the study, the priorities of active sensory power in the perception of the environment have changed due to the presence of various distinct elements existing at Tajrish Bazaar and Palladium shopping mall. Examining the cases of this study shows there is a considerable link between the positive sensory components and the perception component.

Designing such a multi-sensory environment provides the necessary tools for perception and generates and enhances environmental attributes. One of the key results of this study is the investigation of the order and priority of the relevance of senses in traditional Bazaar and modern shopping mall examples. This study found the influence of perceptual component indicators on place attachment in two samples. At Tajrish Bazaar, the priority of perceptual indicators was as follows: memorability, identity, satisfaction, and security. All indicators had a positive and direct effect on attachment, and, except for security, the relationship between all indicators was significant with regard to the attachment at Tajrish Bazaar. In the Palladium shopping mall, the perceptual indicators of security, satisfaction, memorability, and identity were effective in promoting place attachment respectively. The relationships between all four perceptual indicators and attachment in palladium were direct. Except for the identity index, the ratio of other indices with attachment is significant. It can be concluded that in commercial centers, positive sensory enrichment strengthens the perception indicators. Moreover, improving the perception indicators increases the sense of place attachment. Satisfaction and memorability indicators were jointly effective in creating a sense of attachment to traditional Bazaars and modern shopping malls. The identity index was important in traditional Bazaars, while this index was neglected in modern commercial centers. Paying attention to the security index is more colorful in modern commercial centers than in traditional Bazaars. Finally, considering that the level of place attachment at Tajrish Bazaar is higher than that at Palladium shopping mall, it can be concluded that the indicators of memorability, identity, and satisfaction play a more effective role in creating and promoting attachment to commercial centers. Place attachment at the commercial centers will entice tourists to return, and they will also recommend the location to others. It should be taken into consideration that not only a single sensory stimulus but also the interaction between all the senses create a rich sensory experience. For the audience of the commercial centers, stimulating all the senses seems to be the best strategy to increase the level of attachment and will lead to the sustainable development of commercial centers (Fig. 8).

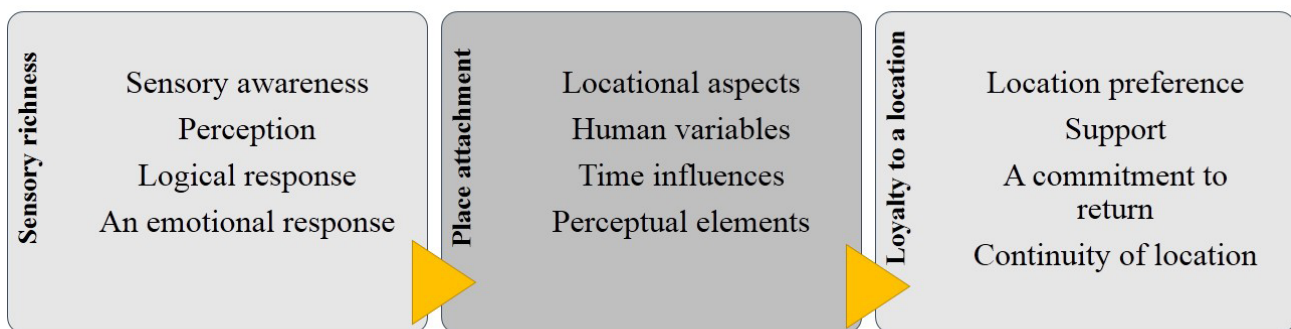


Fig 8. The connections between sensory richness, place attachment, and loyalty. Source: Authors.

## Endnote

\* This article is an excerpt taken from the doctoral thesis of Syedah Maryam Mojtavavi, entitled "An analysis of physical and social factors affecting the attachment to third places (A comparative study of Bazaars with Shopping malls)". The study was conducted

under the supervision of Dr. Ghasem Motalebi and the advisement of Dr. Hadi Qudousi Far and submitted to the Faculty of Art and Architecture of Islamic Azad University, South Tehran Branch.

1. Raste Bazaar: a row of the stores.

## Reference list

- Aletta, F. & Xiao, J. (2018). *Handbook of Research on Perception-Driven Approaches to Urban Assessment and design*. Pennsylvania: IGI Global.
- Amin Khandaghi, J. (2022). Explaining of Film Perception Using Avicenna's Perception Theory. *Journal of Recognition*, 14(1), 25-42.
- Arnheim, R. (2011). *Art and Visual Perception: A Psychology of the Creative Eye*. Berkeley: University of California Press.
- Bentley, I., Alcock, A., Murrain, P., McGlynn, S. & Smith, G. (1985). *Responsive Environments: A Manual for Designers*. London: Architectural Press, Reed Educational and Professional Publishing Ltd.
- Camp'on-Cerro, A. M., Hern'andez-Mogoll'on, J. M. & Alves, H. (2017). Sustainable improvement of competitiveness in rural tourism destinations: The quest for tourist loyalty in Spain. *Journal of Destination Marketing & Management*, 6(3), 252–266.
- Carroll, N. (2012). *Art in three dimensions* (M. Karami, Trans.). Tehran: Ghoghnoos.
- Chebat, -J.-C. & Michon, R. (2003). Impact of Ambient Odors on Mall Shoppers' Emotions, Cognition, and Spending a Test of Competitive Causal Theories. *Journal of Business Research*, 56; 529–539.
- Chun-lin, X. L. D. (2010). The Concept and Measurement of Brand Attachment. *Journal of Chongqing University of Arts and Sciences (Social Sciences Edition)*, 4(24).
- Dehkhoda, A. (1994). *Loghat name-ye Dehkhoda* [Dehkhoda dictionary]. Tehran: Rouzaneh.
- Erwine, B. (2016). *Creating Sensory Spaces: The Architecture of the Invisible*. New York: Routledge.
- Fuchs, S. (2021). *Shopping City: Transience, Consumption and the Urban in Contemporary Japan* (Unpublished Ph.D. thesis in Architecture). Faculty of Arts School of Social and Political Sciences, The University of Melbourne, Australia.
- Heidari Hamedani, N. (2019). *Mohit-e Khob, hes-e khob: Barresi-ye naghsh-e vijegi-ha-ye kalbadi-ye bana dar ijad-e hese-e makan dar faza-ha-ye amoozeshti* [Good environment, good feeling: Investigating the role of physical characteristics in creating a sense of place in educational spaces]. Tehran: Rahrovan-e Poyesh.
- Hosany, S., Prayag, G., Van Der Veen, R., Huang, S. & Deesilatham, S. (2017). Mediating effects of place attachment and satisfaction on the relationship between tourists' emotions and intention to recommend. *Journal of Travel Research*, 56(8), 1079–1093.
- Hume, M. & Mort, G. S. (2010). The consequence of appraisal emotion, service quality, perceived value and customer quality, perceived value and customer performing arts. *Journal of Services Marketing*, 24(2), 170–182.
- Io, M.-U. (2018). The relationships between positive emotions, place attachment, and place satisfaction in casino hotels. *International Journal of Hospitality & Tourism Administration*, 19(2), 167–186.
- John, E. (2005). Art and knowledge. In B. Gaut & D. McIver Lopes (eds.), *The Routledge Companion to Aesthetics* (pp. 417-429). London, Routledge.
- Kastenzholz, E., Eus'ebio, C. & Carneiro, M. J. (2018). Segmenting the rural tourist market by sustainable travel behaviour: Insights from village visitors in Portugal. *Journal of Destination Marketing & Management*, 10, 132–142.
- Kastenzholz, E., Carlos, P.M. & Carneiro, M. J. (2020). Place attachment through sensory-rich, emotion-generating place experiences in rural tourism. *Journal of Destination Marketing & Management*, 17, 100455.
- Kazemi, A. & Amir Ebrahimi, M. (2017). *Motale'e-ye ab'ad-e farhangi va ejtema'ei-ye megamal-ha va mojtama'-ha-ye bozorg-e tejari* [Studying the cultural and social dimensions of megamalls and large commercial complexes]. Tehran: Tehran Urban Planning and Research Center.
- Kyle, G., Graefe, A., Manning, R. & Bacon, J. (2004). Effects of place attachment on users' perceptions of social and environmental conditions in a natural setting. *Environmental Psychology*, 24(2), 213–225.
- Lee, J. & Yoon, E. (2022). Effects of Parent Brand Equity on Perceived Fit and Customer Behavior of Extended Brand—Focused on MICE Destination. *International Journal of Environmental Research and Public Health*, 19(8), 1–15.
- Lewicka, M. (2011). Place attachment: How far we come in the last 40 years?. *Journal of Environmental Psychology*, 31, 207–230.
- Manzo, L. C. (2005). For better or worse: exploring multiple dimensions of place meaning. *Environmental Psychology*, 25, 67–86.
- Marques, C. P. (2018). Emociones, experiencias turísticas y apegos a los destinos. In L. Cardoso, & F. Dias (Eds.), *La imagen y la promoci'on de los destinos turísticos* (pp. 153–172). Cizur Menor: Thomson Reuters Aranzadi.
- Matteucci, X. (2017). Tourists' accounts of learning and positive emotions through sensory experiences. In M. Csikszentmihalyi, S. Filep & J. Laing (Eds.), *Positive tourism* (pp. 54–67). Abingdon: Routledge.
- Mojtavavi, S.M., Motalebi, Gh. & Ghoddusi Far, H. (2022). An Analysis of Influential Factors in Developing a Sense of Place Attachment (Case Stuy: Tajrish Bazaar). *Bagh-e Nazar*, 18 (105), 33-48.
- Pautz, A. (2021). *Perception*. New York: Taylor & Francis Group.
- Pirbabaie, M. & Sajadzadeh, H. (2011). Group belonging to Place, Realization of Social Residence, in Traditional Neighborhood. *Bagh-e Nazar*, 8(16), 17-28.
- Stevenson, A. (2010). *Oxford Dictionary of English*. Oxford: Oxford University Press.
- Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Environmental Psychology*, 30, 422–434.
- Samadi, J., Sattarzadeh, D. & Balilan Asl, L. (2020). Qualitative Assessment of the Sensory Dimensions of Space in Historical Bazaars from the Users' point of view (Case Study: Qazvin Bazaar). *Bagh-e Nazar*, 16(81), 15-30.
- Safarzadeh Khoshabi, K. & Abu Hamzeh, E. (2019). *John Bowlby (Attachment theory)*. Tehran: Danjeh.
- Sarmadi, S., Shahcheraghi, A. & Karimifard, L. (2020). The Comparative Study of the Factors of Sensory Richness in the garden's transition to park in Tehran (Case Studies: Iranian Garden and Niavaran Park). *Hoviatshahr*, 14 (4), 5-18.
- Scopelliti, M. & Tiberio, L. (2010). Homesickness in University Students: The Role of Multiple Place Attachment. *Environment and Behavior*, 42(3), 335-350.

- Searle, J. R. (2004). *Mind: A Brief Introduction*. Oxford: Oxford University press.
- Schultz, H. (2014). Designing large-scale landscapes through walking. *Journal on Landscape Architecture*, 9(2), 6-15.
- Shahcheraghi, A. (2009). Analysing the Perception Process of Persian Garden's Environment, According to the Echologic Psychological Theory. *Hoviatshahr*, 3(5), 71-84.
- Shahcheraghi, A. & Bandarabad, A. (2019). *Environed in environment*. Tehran: ACECR.
- Sedaghat, Z. (2017). Assessing Sensory Richness in Urban Spaces: an Analytical Framework. *Soffeh*, 27(1), 73-88.
- Taylor, R. B., Gottfredson, S. D., & Brower, S. (1985). Attachment to place: Discriminant validity, and impacts of disorder and diversity. *Community Psychology*, 13 (5), 525-542.
- Van den Brink, A., Bruns, D., Tobi, H., & Bell, S. (2017). *Research in Landscape Architecture: Methods and Methodology*. London: Routledge.
- Williams, D.R., & Vaske, J.J. (2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science*, 49(6), 830-840.
- Yan, N. & Halpenny, E. A. (2019). Tourists' savoring of positive emotions and place attachment formation: A conceptual paper. *Tourism Geographies*, 24(2-3), 369-389.

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