Perceiving the Process of Sensory Perception Based on the Reviving the Environment Meaning and Sense of Belonging to a Place in the Qazvin Grand Bazaar

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Abstract
This research aims to understand the process of sensory perception based on bringing to life the meaning of the environment and the sense of attachment to the place in the historical market of Qazvin. The multisensory of the studied sample is evaluated at 8-20 p.m. (according to the working hours and the season). The note-taking was repeated every 2 hours. In the next step, the descriptors of the dimensions of sensory landscapes in the Qazvin Grand Bazaar were evaluated qualitatively. Each of the sensory landscapes was evaluated from the users' perceptions among the two spectrums of dominant attributes, which described the attributes and strengths/weaknesses of a stimulus in the space. It was revealed that most of the visual elements of the Qazvin Grand Bazaar were "beautiful" with equal intensity. Most of the scents in the Qazvin Grand Bazaar were perceived as attractive due to their diverse uses and classified as pleasant strong scents. The qualitative evaluation of the sounds revealed that most of the sound components were classified as weak normal and strong abnormal. Most of the strange voices described by the audience belonged to vendors. The multisensory perception of the environment and the sense of place in the Qazvin Grand Bazaar were positively and significantly correlated. As a rich environment, the Qazvin Grand Bazaar has created a pleasant atmosphere through the integral use of cultural, social, and religious contexts. The constituent components of the Iranian bazaars, by creating perceptual images of various signs, manifest an immaterial concept that positively affects the perceptual quality of the architectural space and the sense of place. Values of the physical structure and the space's meanings are the most important factors that affect creating the sense of place. Physical factors have improved the meanings of activities through the quality of design, valuing the proper bazaar-city, the combination of uses, the combination of open and closed spaces, and the creation of appropriate quality in the design of spaces; also by responding to different individual's needs, they have formed a series of perceptions, the feeling of satisfaction, and finally, a sense of place.

Keywords: historical bazaar, sensory perception, reviving the meaning of the environment, sense of place, sense of attachment

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Introduction

Traditional textures often appear in the form of inappropriate, and even sometimes abnormal environments in the central and underdeveloped outskirts of cities. Fifty years of transformation have turned beautiful environments and prosperous houses into ruins; those textures with urban patterns suitable for the culture and climate of the region, now seem undesirable urban environments. Although human life continues in most of these areas, the number of abandoned houses with inappropriate functions increases every day (Amiri, 1995: 119).

The history of the formation of a city and its bazaar is so intensely intertwined that no city could be imagined without a bazaar. Old bazaars with authentic and reliable businessmen, religious bases (e.g., old mosques), and valuing religious ceremonies, compared to modern spaces (which do not attend the mentioned points), have gradually succeeded in acquiring favorable social capitals, which played an effective role in their economical boom (Pour Jafar and Pour Jafar, 2010: 203). As religion became more influential in society and government in the Safavid period, as well as the expansion of commercial relations, the bazaar as the most important element in the history of Iranian urban development has continuously been considered by citizens throughout history; Gradually, with the development of technological factors and the arrival of modernism in Iran, the historical centers and valuable city contexts were emptied which caused the decline of traditional Iranian bazaars. Therefore, the citizen's perception of the traditional bazaar and formulating principles of its architectural perception criteria seem important.

Perception, as an active purposeful phenomenon, is the process of acquiring information from the human environment (Lang, 2006: 97). Perception is a mental process that gives meaning to sensory experiences and helps the individual to understand the relationships between things and their meanings (Greenberg, Aminoff and Simon, 2009: 204). In the various definitions presented of perception, the creation of meaning and meaningfulness of sensory findings, as well as the subjectivity of the perceptual process, are emphasized. In this regard, perception means a mental/psychological process that is responsible for selecting and organizing information, and finally, giving meaning to them in an active way (Irvani and Khoda Panahi, 1992: 25). In the last two decades, many thinkers have stated that a significant part of the process environmental perception follows the theory of perception interaction (school of communication), in which the association of meanings within the framework of historical and cultural values seems significant. In this theory, the individual-environment relationship is mutual and dynamic, and the user meets his needs in the current situation by relying on his past experiences (Lang, 2006). Perception is the individual's sensory experience of the surrounding, which requires the recognition of environmental stimuli as well as reactions to them. Through the perceptual process, one acquires information about the environmental elements vital for survival. Perception is not only a constituent of the experience of the surrounding but also provides an opportunity to act in the environment (Abbasi et al., 2014: 296).

People establish a special perceptual relationship with urban spaces in general, and bazaars in particular, which also determines the space use and utility. A space in the city can favorably respond

to the environment when it is understandable for citizens, and it should be attended to in the process of modifying urban design and modern markets in contemporary conditions. Examining the perception of users in urban spaces should be accompanied by the impact of this perceptual process on behavioral mechanisms, especially the sense of belonging to the place.

The complex of Qazvin Grand Bazaar acts as a very strong axis of communication with many branches in the old context of the city and is still a sensitive point in terms of urban functions. Chaharsouks, squares, breathing spaces, multiple rows, chambers, and caravanserais of this complex form a fabric with a wide organization due to the economic role of Qazvin in the past in terms of the passage of trading goods between the north, west, and center of Iran. This complex, with economic functions, is the center for exchanging agricultural products of the Qazvin plain and provides for villagers' needs. Although the role of the bazaar complex, especially its caravanserais, and rows, has significantly faded its role as a center for the exchange of rural goods and provision of urban needs seems more sensitive, since rural bazaars, which in the past responded to the villagers' economic needs in a limited way, currently, with the ease of commuting between the city and the village and other reasons (e.g., the diversity of needs and the production of services and essential goods in the city) have disappeared in favor of the city malls. Given what was said before, the purpose of this research is to know the process of sensory perception based on reviving the meaning of the environment and the sense of attachment to the place in the historical Qazvin Grand Bazaar.

Bazaar as a space with various activities

A bazaar was the most prominent communication highway in old cities with the highest transitions. In other words, the bazaar was a vital communication channel, where not only people, goods, and funds flowed, but also information, news, and advertisements were communicated to the citizens in it. In the past, the information was given orally. Therefore, when the government wanted to inform the people, heralds first announced the news with a loud voice in the main bazaar (Soltanzadeh, 2003: 28).

Notable people entered a city through its main market and went to the final destination after passing the bazaar as most the important communication route of the city. In national and religious festivals, bazaars were illuminated. At least until the fifth century of Hijri, Nowruz ceremonies and other rituals, as well as various games and entertainments were held in Isfahan and people participated in them (Soltanzadeh, 2003: 29).

Even notable persons often entered a city from its main bazaar, and after passing through it as the most important communication route of the city, they would go to their final destination. In national and religious festivals, markets were illuminated. At least until the fifth century of Hijri, Nowruz ceremonies and other rituals, as well as various games and entertainments were held in Isfahan and people participated in them (Soltanzadeh, 2003: 29).

Another vital issue in commercial centers and bazaars is to have an attractive force to encourage consumers from all nearby places. Therefore, attending to regular architectural arrangements

needed by merchants is important. In other words, it is necessary to create a great movement through advertising and moving signs and exhibitions in the shopping center. Sometimes, this mobility leads to very diverse results, including creating a cunning market, light reflections, children's play space, commercial tours, etc (Nobakht, 2008: 37).

Physical Elements of Traditional Bazaars in Iran

There are different elements in the market, each of which is specific to doing something that solves a need. So, the bazaar is made up of a series of shops, which form a special texture with covered passages and caravanserais, timchehs, rows, and camel stables. In addition, in the vicinity of this complex, public places including bathrooms, schools, mosques, drinking fountains, gymnasia, and tea houses were built. If there is a relatively fixed relationship between these elements of the bazaar complex, this relationship is called a "construct". Therefore, the construct has two aspects: 1- the elements that make up the construct, and 2- the relationships between these elements (Tavassoli, 1990: 125). Therefore, the market construct consists of its constituent (physical) elements and the relationships between these elements (physical image). These elements include the primary elements - that make up the bazaar - and the secondary elements. The primary elements directly from the commercial identity of the bazaar, such as alleys, rows, chambers, timches, khans, caravanserai, Caesarea, chaharsouks, and squares. The secondary elements, located in its vicinity, provide the bazaar's needs. These include a mosque or a blessed place (Imamzadeh), Hosseiniyehs, schools, public bathrooms, drinking fountains, gymnasia, and tea houses (Bigleari, 1976: 9). These elements meet people's economic, social, religious, and political needs. The bazaar's elements can generally be divided into the following types:

Economic elements: commercial elements including shops and chambers, timches, tims, khans, rows, and chaharsouks. Production and commercial elements: workshops, Caesarea, corridors or bands; Elements with a storage role: khanbars, khan anbars, caravanserais, docks, loading docks; Social/religious/cultural/service elements: Religious-social elements: mosques, Hosseiniyehs, tekiyehs, Imamzadehs; Cultural-social elements: general schools and religious schools; Service-social elements: general bathrooms, drinking fountain, gymnasia, tea houses, canteens, and barbershops. Communication and protection elements: squares, passages, gates.

Sense of the Place

Relph defines place as the result of the components of the physical body, human activities, and psychosocial processes directed to the physical body (Relph, 1976); Therefore, body, activity, and social process are the components of Relph's definition of a place. David Kanter, a pioneer of perceptual studies of architecture and urban design, has proposed a model based on this definition. Kanter defines place as a unit of environmental experience shaped by the relationship between conceptions, attributes, and physical characteristics. The four-dimensional model of Golkar's stable place is influenced by Kanter's model. Golkar's model shows that the quality of the urban environment is the result of three components: functional quality, experimental-aesthetic quality,

and environmental quality. This model can be used as a basis for recognizing the constituent components of urban design quality (Golkar, 2008).

Psychologically, the sense of place is a catalyst that transforms an environment into a place. The process of deep experience of a place is formed when the place is recognized as a living organism rather than an object. This is realized after successive mutual adaptations. Therefore, the relationship between individuals and places requires a certain level of stability. The environment acquires these characteristics through the combination of natural and human order (Falahat, 2005: 60). Through the lens of environmental psychology, the outstanding meaning of the sense of place lies in the experience of a symbolic relationship between the individual, group, and place, which may be enriched with the meaning acquired from other social, political, historical, and cultural sources.

Factors Forming the Sense of Place

Given the concept of the sense of place from different perspectives and at various levels, factors that shape the sense of place are divided into two groups: 1) perceptual cognitive factors, and 2) physical factors (Falahat, 2005: 62).

Perceptual and Cognitive Factors

The sense of place is a complex combination of meanings, symbols, and qualities that an individual/group consciously or unconsciously perceives from a specific space. The meanings/concepts decoded by the person after perceiving a place influence shaping the sense of place. Here, the sense of place does not only refer to a feeling, emotion, or any relationship with a specific place, but it is a cognitive system with which a person feels belonging to subjects, persons, objects, and concepts related to a place. Therefore, without a sense of place, people cannot live in a specific environment, because the sense of place refers to the ability of a place to create a special feeling towards the whole place; also, it is through this sense that the place shapes a relationship between the individual, and all other concepts, persons, and subjects in it. If this process is successful, the place turns into a general space by which people recognize all events (Falahat, 2005: 63).

Table 1: Physical factors influencing the perception and sense of place (Source: Norberg Schuls, 1997)

Human scale	Ratio	Scale	Conflict	Enclosure	Place size
Visual variety	Sound	Smell	Color	Texture	Distance

Lynch believes that the sense of place establishes a connection between the individual and place to create unity. He states that the space must have a perceptible identity and be recognizable, memorable, and visible to create a sense of place. This sense of place can also shape a sense of belonging (Lynch, 1997). Jennifer Cross refers to the relationship with the place and the sense of

community as the factors affecting the sense of place, and categorizes the relationship with the place into biographical, spiritual, ideological, narrative, material, and forced dependence groups, which combined by factors including identity, interiority, and satisfaction creates five different levels of a sense of place (Cross, 2001).

Therefore, the physical characteristics of the environment are effective in shaping a sense of place by creating meanings and providing specific activities. The response of the space to different activities occurs through achieving satisfaction with other environmental factors (e.g., temperature, sound, and the possibility of performing individual activities and social interactions) with the help of static environmental factors (e.g., dimensions and proportions). Cognition and affection towards the space are achieved by understanding the meanings, symbols, aesthetic form, and meaning of the space, as well as identification with it. In short, it seems that the sense of place is the result of an individual's inner connection and his mental imagination with environmental features (Falahat, 2015: 62).

Methodology

This research examines all aspects of the perception phenomenon concerning the contents of the bazaar in Iran. Therefore, the historical-descriptive method was used to collect the data, and the analytical-adaptive method was performed to analyze the data. Also, the correlation method was used to investigate the relationship between the multisensory environment and creating a sense of place. The statistical population was the users of the Qazvin Grand Bazaar, selected through random sampling to measure the sensory dimensions of the space. In both steps of the field observation process, interviewing the participant while walking was performed. The sample size was determined by Cochran's formula, which due to the variable users of the selected segments of the Qazvin Grand Bazaar, the sample size was about 237 people. However, for compensating for incorrect answering or withdrawal during the research, 250 individuals were selected, and finally, 227 opinions were analyzed. The sensory symbols of space in this research are analyzed both qualitatively and quantitatively in three stages of recognition. In the first stage, the body, activities, and uses of the selected areas are evaluated.

The reliability and validity of the questionnaire were evaluated by Cronbach's alpha. Its good reliability was confirmed by α =0.884. The content, face and construct validities were performed to determine the validity of the questionnaire. When designing the questions, the objective-content table was used to confirm the validity of the content. The face validity of the questionnaire was confirmed by the approval of experienced architecture professors who were familiar with the research topic. Construct validity was also determined by the factor analysis method, and two methods of calculating the partition coefficient and loop method were used to analyze the questions.

The Study Scope

The area studied in this research includes the historical Qazvin Grand Bazaar, located in District 1 of the Qazvin municipality, and in the historical context of the city. It occupies a total area of 14 hectares. In the following, the Qazvin Grand Bazaar and its features will be briefly introduced. The complex of Qazvin Grand Bazaar acts as a very strong axis of communication with many branches in the old context of the city and is still a sensitive point in terms of urban functions. Chaharsouks, squares, breathing spaces, multiple rows, chambers, and caravanserais of this complex form a fabric with a wide organization due to the economic role of Qazvin in the past in terms of the passage of trading goods between the north, west, and center of Iran. Aqueducts and access to drinking water also significantly affected the development of the Qazvin Grand Bazaar. The water used in the market is supplied by the branches of 2 large aqueducts, namely the Shah Aqueduct and the Khmar Tash Aqueduct, which flow in the central and western neighborhoods of the city.

From an architectural view, the most valuable elements of a bazaar are mosques, caravanserais, timchehs, and rows. The main materials for building the Qazvin Grand Bazaar include bricks with plaster-lime mortars, thatch in roofs, and wood (Majabi, 2008: 232). Among the substantial spaces in the Qazvin Grand Bazaar, the Al-Nabi Mosques (former "Shah's Mosque"), Saad Al-Sultan's Palace, Minister's Palace, Haj Reza's Palace, Razavi's Palace (former "Shah's Palace"), open and covered timchehs, and Caesarea row could be mentioned (Figure. 1)

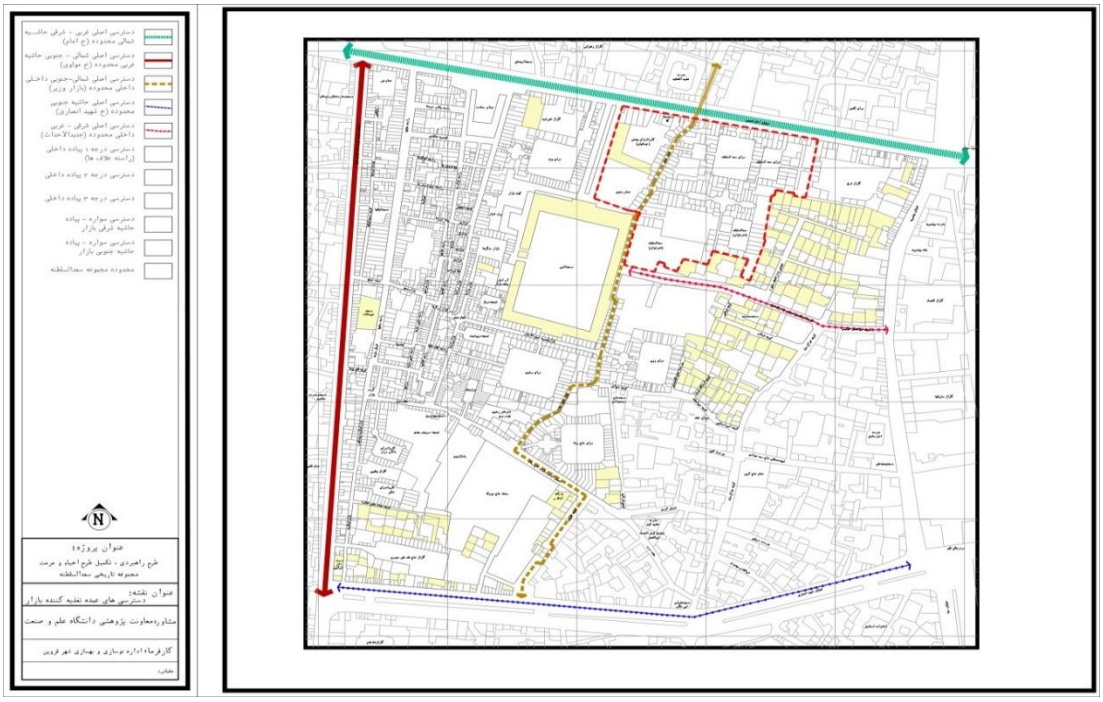

Figure 1: Texture of the main entrances of the Qazvin Grand Bazaar

The primary entrances to the Qazvin Grand Bazaar are located on the north (in Imam Khomeini Street) which could be ranked based on their importance as the main entrance of the bazaar in Saadat Square, the entrance of the Forage Sellers row, and the entrance of the Wazir Bazaar (Traders). Apart from these entrances, the Qazvin Grand Bazaar has access to Imam Street (former

"Pahlavi" Street) through several caravanserais, the most important of which are the entrances of Saadi Seraglio. Following the north entrances, there are the western entrances which are generally along Molavi Street and used for transporting goods. There are several other entrances from the south side (Mojabi,2008: 232).

To perform this research more precisely, a part of the historical Qazvin Grand Bazaar including the forage sellers row, tanners row, screener-makers row, Gardeh Bazaar, chaharsouk, mercers row, coppersmiths row, and finally, the Al-Nabi Mosque and its eastern entrance were investigated. As the maps show, the study of the sensory dimensions of the place was limited to an area of 1200 square meters.

Figure 2: The studied area in the Qazvin Grand Bazaar

Based on this map, the environmental data were classified into five visual, tactile, auditory, thermal, and chemical categories, and into four periodic, rhythmic, temporary, and permanent time classes. These samples were taken randomly over 3 months.

Findings

To examine the time dimension, it is necessary to consider the sensory stimuli in the fourth dimension, "time". Therefore, the multisensory properties of the studied samples are evaluated in 8-20 hours (according to the working hours of the samples, and the season). The note-taking process was repeated every 2 hours.

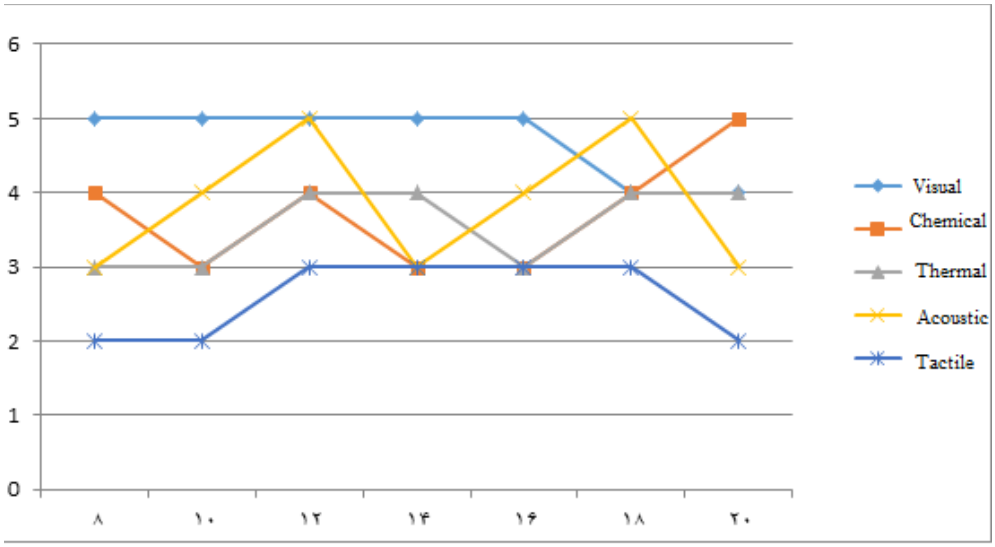

Figure 3: Comparing the level of valuing each stimulus at different hours in the Qazvin Grand Bazaar

According to Figure (3), as predicted, visual stimuli have the highest value. This dimension becomes less valuable only at sunset when the ambient light decreases. Among other stimuli that have a lot of fluctuations in the graph, are auditory stimuli. This is due to the variation in the emission source and the range of sound perception. The constant presence of people and commotion in the bazaar as gray background noise, and the sound of the businessmen and the cart drivers, with ups and downs at different hours, create a variety of auditory sensations at different hours. For example, during religious hours, when the adhan is played in the mosques of Imam Sadiq and the Third Martyr Mosque, the soundscape is greatly affected.

Thermal stimuli become more valuable as the environment becomes more unfavorable. At sunset when the temperature drops sharply (17:30- 20:00) more value is given to this dimension from a sensory perspective.

Another environmental stimulus with a lesser and almost constant role is the tactile stimulus. This stimulus has the least tension during the day and remains relatively constant. Tactile stimuli are largely influenced by the individual perception of the space and vary in young and old, and women

and men. This is affected by the perception of space, and of course, the lack of arousal of curiosity in space due to repeated experience. In other words, the desire to touch raises to have a new experience and know more accurately, while by recording sensory data over time, it decreases. Therefore, connection with the environment is limited to the connection of the foot with the ground, and the effects of walls or limited elements including grass and water.

Qualitative evaluation of sensory landscapes in the Qazvin Grand Bazaar

Each sensory landscape was evaluated in a range of two dominant attributes, which describe schemas of the strength/weakness of a stimulus in the space. Strength/weakness is a qualitative measure of the space and no criteria for quantitative measurement are defined due to the lack of quantitative criteria for measuring tactile and smell sense. Tables (3) to (7) show the qualitative evaluation of each stimulus by users. On the other hand, evaluating space in this manner provides the possibility of checking the effect of a stimulus outside of its physical strength/weakness, while the intensity of a stimulus is not necessarily a reason for its effect. Table (2) shows how the stimuli are recorded by the participants.

Table 2: Recognition of sensory plates in different sensory dimensions in the Qazvin Grand Bazaar(source: authors, 2017)

	Sensory landscapes				
	Visual	**Chemical**	**Thermal**	**Auditory**	**Tactile**
Station 1	Various products, view of chambers, visual disturbance of advertisements	Poultry shops, vegetable shops	Temperature difference between rows and entrances	Music inside the bazaar, the sound of vehicles, the voice of the sellers, the crowd of people	Various products, furniture
Station 2	Dirty and worn roof, various products, roof coverings, and entrances	The smell of fruits, damp walls	The temperature difference between rows and entrances	The voice of sellers, the crowd of people, the musicians	Variety of products, full/empty space, Carpet-covered floor
Station 3	View of Imam Sadiq Mosque, various products, various entrances,	Herbal medicine shops, sewage, cigarettes	The temperature difference between rows and entrances	The voice of sellers, the crowd of people, adhan	Variety of products, full/empty ceiling

	shadow/light of roof, garbage				
Station 4	Visual disturbance in the ceiling and advertisements, the shadow/light of the roof, the view of the Third Martyr Mosque	Dried fruits, dairy products	Temperature difference between rows and entrances	Voice of sellers, the crowd of people, adhan	Shadow/light of walls, various products
Station 5	full/ space, visual disturbance of advertisements, worn-out walls, various roof coverings, light	Protein shop, poultry shop, barbecue shop	Sunlight, temperature difference between the yard and rows	The sound of sellers, crowd of people, smithery shops, the sound of birds	Thatch walls, roof rhythm, wind
Station 6	Rhythm of the roof and arches, wall's and roof's stuff, coordination of products	Restaurant, the smell of herbs	Temperature difference between rows and entrances	Crowd of people, the sound of cart drivers	Changes in walls' texture, shadow/light of the roof
Station 7	Various entrances, domes, decorations, walls' stuff	Cigarettes, the smell of herbs, damp walls	Temperature difference between rows and entrances	Crowd of people, the sound of cart drivers	Full/empty space in the roof, various products in terms of texture
Station 8	shadow/light of the roof, walls' stuff, the vestibule, various products, and walls' rhythm	Perfume shop, the smell of herbs	The temperature difference between the vestibule and rows	The voice of sellers, the crowd of people	Full/empty space in the roof, various products in terms of texture
Station 9	Trees and grass, coordination of products, water feature, porch, light, full and empty space	The smell of grass and trees, motorcycles smoke, fast food	The temperature difference between the yard and rows, fountain,	The crowd of people, the sound of a coppersmith, the sound of sellers, musicians	Trees and grass, various products in terms of texture, fountain, wind

			sunlight, shadow of trees		
Station 10	Dome and porches, lighting, water basin, trees, rhythm, portico, decorations	Trees and grass (nearby)	Porticos, the temperature difference between the courtyard and the rows, fountain, light	Adhan sound (significant reduction of auditory diversity in the environment)	shadow of porticoes, trees, grass, fountain, wind

Table 3: Qualitative evaluation of the attributes of visual stimuli

Stimuli	Type		Intensity	
	Beautiful	Ugly	Strong	Weak
Rhythm of the bazaar ceiling	*			*
View of chambers	*		*	
Crowd of people	*		*	
Carpet-covered floor	*			*
Various products	*			*
Various entrances	*		*	
Visual disturbance in billboards		*	*	
Dirty old walls		*		*
Imam Jafar Sadiq Mosque	*		*	
Various roof covering	*			*
Vestibule	*		*	
Third Martyr Mosque	*		*	
Trees and plants	*		*	
Grass	*			*
Western porch of the Al-Nabi Mosque	*		*	
Furniture	*			*
Fountain	*			*
Vehicles		*	*	
Courtyard of the Al-Nabi Mosque	*	*		
Darkness/lightness of shadows	*			*
Dome and porches	*		*	
Garbage	*		*	
Lighting	*			*

Table 4: Qualitative evaluation of chemical stimuli

Stimuli	Quality		Intensity	
	Desirable	Undesirable	Strong	Weak
Smell of chicken and fish shop	*		*	
Smell of vegetables	*			*
Smell of fruits	*			*
Smell of dried fruits	*		*	
Smell of protein shops	*			*
Smell of damp walls		*		*
Smell of sheep-cooking shop	*		*	
Smell of a barbecue shop		*	*	
Smell of poultry sellers row		*	*	
Smell of the perfume shop	*		*	
Smell of sewage		*		*
Smell of restaurants	*		*	
Smell of clothes/fabrics	*			*
Smell of trees and plants	*			*
Smell of dairy	*		*	
Smell of grass	*			*
Smell of cigarettes		*	*	
Smell of perfumes	*			*
Smell of the fountain	*			*
Smell of garbage	*		*	

Table 5: Qualitative evaluation of the attributes of auditory stimuli

	Stimulus	Type		Intensity	
		Normal	Abnormal	Strong	Weak
1	Vehicles sound		*		*
2	Sellers' voice		*	*	
3	Buyers' voice		*	*	
4	Cart drivers' voice		*		*
5	Sound of music inside the bazaar	*			*
6	Adhan	*			*
7	Voice of smithery		*		*

8	Sound of the fountain	*			*
9	Voice of poultry sellers	*			*
10	Sound of the wind between the trees	*			*
11	Sound of itinerant musicians	*			*

Table 6: Qualitative evaluation of the attributes of tactile stimuli

	Stimuli	Type		Intensity	
		Soft	Hard	Strong	Weak
1	Various products in terms of texture	*	*	*	
2	Carpet-covered floor		*	*	
3	Furniture		*	*	
4	Trees		*		*
5	Water	*			*
6	Thatch walls		*		*
7	Grass	*			*
8	Full/empty roof		*	*	
9	Wind	*			*
10	Shadow/light of the walls	*			*

Table 7: Qualitative evaluation of thermal stimuli

	Stimuli	Type		Intensity	
		Warm	Cool	Strong	Weak
1	Trees' shadows		*		*
2	Sunlight	*		*	
3	Furniture		*	*	
4	Touching the grass		*		*
5	Chambers' heat	*		*	
6	Fountain		*		*
7	Porticos of the Al-Nabi Mosque		*		*
8	Yard		*	*	

Table (4) manifests the average and standard deviation of the multisensory environment and components of sense of place (configuration, aesthetics, climatic factors, ratios). In the Qazvin Grand Bazaar, among the components of the Sense of Place, climatic factors (3.92) and aesthetics

(3.59) had the highest and lowest average scores, respectively. The mean of the multisensory variable was (3.60). Examining the mean and standard deviation of the sample scores of the passages in Table 4-15 showed that among the components of the sense of place, climatic factors (3.62) and configuration (2.60) gained the highest and lowest average scores, respectively. The average of the multisensory environment was (2.49) in these samples.
Analysis of shopkeepers' and space users' opinions, as well as the field observations regarding the components of the sense of place in Qazvin Grand Bazaar, are presented in tables (8) to (11).

Table 8: Configuration indicators and their manifestations in the Qazvin Grand Bazaar

Physical indicators	Physical manifestations	Survey of the Qazvin Grand Bazaar
Configuration indicators	Dialectic of inside and outside	Internality in a place is defined as the conscious/unconscious emotional or practical participation of a person in that place. Internality in the Qazvin bazaar can be interpreted as the emotional dependence of shopkeepers/buyers on the bazaar. Participation in maintaining a meaningful place can be a proof of internality.
	Territory	Territoriality in the Qazvin Grand Bazaar occurs in various ways. For example, preventing vehicles from entering the market or considering entrances with a hierarchy for garages, or the bias of each shopkeeper toward his Colleague and shop
	Centrality	Centrality often emphasizes a particular theme. In the bazaar, Chaharsouk is a good example of this architectural technique, which was used not only for commercial but also for administrative and governmental affairs in the past. In the Qazvin market, there are many examples of this place.
	Character	The character of each segment in the Qazvin Grand Bazaar depends on the type of services it offers, as well as the architecture of that segment. For example, the forage sellers row, coppersmiths row, Caesarea, and timchehs.
	Perception and identification	The popularity of various parts of the Qazvin Grand Bazaar gives users and businessmen a sense of familiarity.
	Orientation	The Qazvin Grand Bazaar consists of two main lines, located on the main road of the city in the old context, with easy orientation is; Like forage sellers row, which was known as ….. row. Also, since each part was dedicated to a specific activity, the orientation process was easy.

Table 9: Ratio indicators and their manifestations in the Qazvin Grand Bazaar

Physical indicators	Physical manifestations	Survey of the Qazvin Grand Bazaar
Ratio indicators	Geometric shape	The geometric shape of commercial spaces in the Qazvin Grand Bazaar is different. For example, the rows are linear with a longitudinal ratio, while the chaharsouk is circular; Caesarea looks like a rectangle; seraglios are a combination of corridors and a central courtyard, and finally, caravanserais is made of chambers around a rectangular courtyard.
	Height	The height of different segments of the Qazvin Grand Bazaar is mainly consistent with its use. For example, chaharsouk has a high roof and a dome, which manifests its central role. This height difference is seen in different rows of the market.
	Width	The ratio of height to width is almost straight. Therefore, the wider the market width, the higher the height, which can be found in the structural factors of the vault and arches. In general, more width and height enhances the quality of the space, and in turn, may improve the sense of place.

Table 10: Aesthetic indicators and their manifestations in the Qazvin Grand Bazaar

Physical indicators	Physical manifestations	Survey of the Qazvin Grand Bazaar
Aesthetic indicators	Context	The texture of the bazaar is mainly compatible with traditional architecture. Offered goods are suitable for the middle class, and a part of the bazaar is dedicated to handicrafts/traditional products including spices. Straw and brick textures are observed in all segments of the Qazvin Grand Bazaar. This texture is changed as roofs or rows change.
	Decorations	In the Qazvin Grand Bazaar, a combination of different decorations from the Islamic period is observed. A great part of the decorations have been destroyed gradually, and in several cases, the flowers have been restored. However, muqarnas and karbandi, tiling, bricks, and paintings are visible, especially in portals of seraglios.
	Materials	Major parts of the Qazvin Grand Bazaar are built with bricks and sometimes with tiles, cement, and straw. Modern materials can also be seen in some small parts.

Table 11: Climatic indicators and their manifestations in the Qazvin Grand Bazaar

Physical indicators	Physical manifestations	Survey of the Qazvin Grand Bazaar
Climate indicator	Factors affecting environmental comfort (temperature, humidity, ventilation, etc.)	The Qazvin Grand Bazaar has a lot of diversity in terms of environmental comfort, temperature, and ventilation. Due to the covered areas, chambers are safe from the dusty sunlight in the summer, while in the winter, due to the thickness of the construction elements and the variety of materials, the users enjoy relative comfort. Empty/full spaces help to change the temperature which affects the tactile and thermal sensation.
	Light	Ceiling skylights in the bazaar rows cause light to enter rhythmically and stimulate movement. Chambers in the bazaar usually do not use natural light, while those around the caravanserais in some rows have access to the sunlight.
	Hygiene	In general, the hygiene of each shop depends on its use, as well as the shopkeeper's effort for preserving hygiene. In the rows and public spaces, with the partial restoration of the bazaar and the paving of the entire bazaar floor, the level of hygiene has been improved. In general, pollution sometimes occurs due to mixed of uses.

Table 12: Mean and standard deviation of the components of multisensory environment and the sense of place in the Qazvin market (source: former studies, 2017)

Variable	Mean	Standard deviation	N
Multisensory space	3.60	0.972	227
Configuration	3.60	0.89	
Aesthetics	3.59	0.91	
Climatic factors	3.92	0.89	
Ratios	3.66	0.94	

Table 13: Simple correlation coefficients between the multisensory environment and the sense of place in the Qazvin Grand Bazaar (source: article processing, 2017)

Variable	Dependent variable	R	P	N
Multi-sensory environment	Sense of the Place	0.717	0.000	220

As manifested in Table (12), there is a significant positive relationship between the multi-sensory environment and sense of place in the Qazvin Grand Bazaar (r: 0.717; p<0.0001); Therefore, the hypothesis of this research regarding the relationship between the multi-sensory nature of the environment and the sense of place is confirmed. This relationship in the passages was accompanied by a lesser degree of the sense of place. In other words, by improving the multi-sensory nature of the environment, the sense of place gets stronger.

To investigate the contribution of the multi-sensory environment in making the sense of place in each case sample, multiple simultaneous regression analysis was performed. Since using the regression model needs to examine several pre-assumption, the Durbin/Watson test was used to check the independence of the errors and the co-linear test with two indices of the tolerance coefficient and the variance inflation factor. In predicting the sense of place through the multi-sensory environment, the numerical value of the Durbin/Watson tests (1.67) was smaller than 4, which confirmed the assumption of independence of errors for regression analysis.

Also, colinearity between the prediction variables was rejected by the colinearity indicators. The tolerance index values (0.48-0.33) were less than 1 and variance inflation index values (1.18-3.16) were less than 10. The tolerance (0.33-0.48) was less than 1, and the variance inflation index (1.18-3.16) was less than 10, which indicated that the assumption of non-collinearity between the variables was met. Since Stevens (2002; cited in Mears, Gamest, 2006) considers VIF values greater than 10 to indicate multiple collinearities between antecedent variables, other characteristics of regression analyzes are seen in Tables 3 and 4

Table 14: The results of the regression analysis of the multisensory environment and sense of place in the Qazvin Grand Bazaar (Source: former studies, 2017).

Predictor variable	Source of changes	Sum of squares	df	F	R	R^2
Multisensory space	Residual in regression	116.458	1	237.436	0.717	0.513
		110.359	225			
		226.817	226			

F is significant in Table (14), which means that predictor variables, i.e. an environment with more multi-sensory elements, could predict a significant percentage (0.717) of the variance of the sense of place's scores as a criterion variable in the Qazvin Grand Bazaar.

Discussion

Covered bazaars, as valuable heritages of the pre-modern era, can be compared to modern passages and shopping malls. Indoor bazaars take advantage of a combination of all sensory stimuli. The prevailing trade separation in these bazaars has reduced the interference of the sensory domain. Since these bazaars are covered in connection with an open environment (e.g., squares) makes the temperature difference is noticeable in different seasons. Combining the light with the rhythm of the walls evokes movement even in the inanimate bodies of these places. The rhythmic sound of

coppersmiths' and blacksmiths' hammers, the smell of food and herbs, and the coloring of the bazaar with colorful cloths all create an admirable symphony of different senses that cannot be compared with modern fashionable passages. However, in passages, the excessive use of air conditioners, music, and the strong light of showcases, as the only sensory stimuli has turned such places into non-memory-making places. None of the existing stimuli can represent the activities in the space. Due to ventilation devices, there is no smell of a deli, and the sound of music can be heard from a coffee shop, boutique, or auditory equipment store. Generally, it shows that the city identity has been removed from the sensory standpoint.

The field observation through sensory recording in the Qazvin Grand Bazaar confirmed this hypothesis. The process of sensory recording, performed in 3 months, showed that the variety of uses in the market with the overlapping scope of activities had enriched sensory varieties at different hours. In other words, analysis of the time of activities and multisensory of the space revealed that as the number of activities increased, the level of multisensory was also increased. For example, between 10:00 -13:00 a.m. and 17:00-19:00, an increase in the number of sensory stimuli was observed, and as a result, the multi-sensory of the environment was perceived more intense.

In the next step, each sensory landscape was evaluated in a range of two dominant attributes, which described the strength/weakness of a stimulus in the space. Strength/weakness is a qualitative measurement of the space, and no criteria for quantitative measurement are defined due to the lack of quantitative criteria for measuring tactile and smell senses. On the other hand, evaluating space in this manner provides the possibility of checking the effect of a stimulus outside of its physical strength/weakness, while the intensity of a stimulus is not necessarily a reason for its effect. For example, an unpleasant smell, even if it is weak and in the background, is perceived as much more annoying than the inappropriate ugly appearance of a building.

Most of the visual elements of the Qazvin Grand Bazaar were "beautiful" with equal intensity. The users perceive most of the scents in the Qazvin Grand Bazaar as attractive due to their diverse uses and classified them as pleasant strong scents. The qualitative evaluation of the sounds revealed that most of the sound components were classified as weak normal and strong abnormal. Most of the strange voices described by the audience belonged to vendors.

It is notable that regarding the findings of the tactile and thermal fields, the use of two opposite words is merely describing the state of stimuli. The choice of "soft" and "hard" as tactile descriptors is due to the dominance and easier perception of these words. Otherwise, words like rough/soft and polished/ textured can also describe this space's tactile stimuli. What matters about the tactile factor in s space is the proper mixing of contrasting qualities to create diversity in the environment. What matters in the ambient temperature and thermal stimuli is the ability to maintain the climatic comfort of the environment. The Qazvin Grand Bazaar, compared to passages, was much more diverse in terms of the thermal and elements. Analysis of the relationship between the multi-sensory perception of the environment and the sense of place in the Qazvin Grand Bazaar revealed a positive and significant relationship between these components.

The qualitative evaluation of the sensory landscape elements manifested that most of the visual elements in the Qazvin Grand Bazaar were classified as "beautiful" with equal intensity. Also, most sensory descriptors were classified as visual or chemical with significant influence on the bazaar. The findings of this study are consistent with those of the previous studies (Soleimani et al., 2016; Barati and Kakavand, 2014; Lotfi and Zamani, 2015).

Conclusion

A 3-month evaluation of the Qazvin Grand Bazaar revealed a mutual relationship between activities and sensory changes; each activity had created a unique sensory space, which gave an unparalleled effect on the environment. The evaluation of sensory stimuli recognized sound and chemical stimuli as the two influencing stimuli in the sensory perception of the bazaar.

As a rich environment, the Qazvin Grand Bazaar has created a pleasant atmosphere through the integral use of cultural, social, and religious contexts. The constituent components of the Iranian bazaars, by creating perceptual images of various signs, manifest an immaterial concept that positively affects the perceptual quality of the architectural space and the sense of place. Values of the physical structure and the space's meanings are the most important factors that affect creating the sense of place. Physical factors have improved the meanings of activities through the quality of design, valuing the proper bazaar-city, the combination of uses, the combination of open and closed spaces, and the creation of appropriate quality in the design of spaces; also by responding to different individual's needs, they have formed a series of perceptions, the feeling of satisfaction, and finally, a sense of place.

The quantitative findings of the research also emphasized the effect of the multi-sensory environment on the sense of place in the Qazvin Grand Bazaar. A significant correlation was found. Also, a positive relationship between the multisensory level of the environment and the sense of place was uncovered.

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