

Persian translation of this paper entitled:  
تبیین جایگاه کالبد در ادراک حس مکان با تأکید بر نظریات  
پدیدارشناسان، نمونه موردی: پیاده‌راه لاله مشهد  
is also published in this issue of journal.

### Original Research Article

## Explanation of the Role of Physical Factors in the Perception of the Sense of Place with an Emphasis on the Theories of Phenomenologists A Case Study of Laleh Sidewalk in Mashhad/ Iran

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Received: 08/01/2019 ; revised: 14/10/2019 ; accepted: 19/10/2019 ; available online: 22/08/2020

### Abstract

**Problem statement:** The path of human perception in the environment has always been through the connection of the human five senses with the physical factors in an architectural space. The process of perception by receiving environmental information through the human senses and then analyzing it in the mind that occurs after cognition leads to the creation of a sense in man. The most important feeling between man and place is called the sense of place. Due to the issue of the sense of place in the '60s and the importance of objective and functional issues in the modern era, the attention of theorists turned more to the human and semantic factors. Moreover, the physical themes that make up a sense of place and seem to be easy to avoid were less directly discussed. The position of physical factors, due to the inevitability of the physical elements in architecture, is clear, but given the process of perception as the link between man and the environment, a new perspective can be taken.

**Research objective:** The research aims to explain the position of physical factors in the process of human perception of the sense of place.

**Research method:** Due to the physical approach in this study, the phenomenologists' theories were used. Besides, after classifying the concepts, the physical factors were placed in three functional, semantic, and aesthetic fields. In the first stage, the data were collected by the form of documentary and library studies and then field studies in the environment as exploratory observation and finally through interviews with targeted sampling.

**Conclusion:** The case study is one of the sidewalks of Mashhad, Iran; after analyzing and summarizing the analysis of the perception process, it was concluded that physical factors through initial perceptions have the greatest impact on feelings about the place on the sense of satisfaction and secondary perceptions that are achieved over time affect the sense of place. The method of analyzing the interviews is in the form of qualitative and thematic content analysis and open and central coding using the Maxqda software analysis (Version 12).

**Keywords:** *Physical Factors, Sense of Place, Phenomenology, Perception, Place Satisfaction.*

\*This article is extracted from Atefeh Sariri's Ph.D. thesis entitled "Creation sense of place in urban spaces based on architecture factors (Case study in Mashhad)" which is done / is in progress under supervision of Dr. Khosrow Afzalian and Mahdi Sheybani.. and

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## Introduction and statement of the problem

Many theories have been proposed on the sense of place and its effective components in various fields such as environmental psychology, architecture, landscape, and urban planning. Sense of place is a topic that has been the focus of theorists' research since the 1960s and it has been the subject of scholarly discussions. In the modern era, with the purely functional and physical currents of modernists, with the well-known slogan that form follows function, a kind of objectivity has dominated the architectural space of society. Therefore, these radical trends caused anti-movement currents and evasion from the objective towards meanings and mental factors such as historical factors. The focus of the subsequent currents shifted to semantic and subjective factors, distancing them from objective and physical factors, and focusing on subjective and trans-objective issues. Therefore, the effect of physical factors is obvious here, but in most cases, studies and attitudes have focused on mental spaces, and the indirect effects of objects, and physical factors have been marginalized. On the other hand, due to the material nature of physical factors, it has the ability to control and plan, and in case of identification and classification, it increases the potential to affect the sense of place with a high potential for applying planned interventions. Therefore, in this study, the positions of the body and its role in perceiving the sense of place are examined. Theories of sense of place have been proposed from the perspective of various approaches such as environmental psychology and phenomenology. Given that phenomenologists emphasize experience greatly and deal with tangible phenomena, phenomenological theories have a high potential for extracting physical and objective factors; therefore, this research is conducted based on theories related to phenomenological points of view. Previous research has shown that physical factors affect the sense of place, but the position of these factors in the perception cycle has not been discussed. Due to the relative nature of the subject, the sense of place must be measured in relation to human perception;

moreover, given the importance of the subject of time in perceiving the sense of place, the sense of place seems to be relatively variable with the time factor.

On the other hand, the sense of place is a general issue that includes emotions such as the sense of belonging to the place, satisfaction with the place and dependence to the place. It is necessary to know which of these emotions are affected by physical factors. The research hypothesis suggests that the role of the physical factors in the perception of the sense of place by the audience is relative and depends on the perception of place. Given the initial perceptions of the audience, it affects the sense of satisfaction with the place and in the secondary perceptions, it affects the Sense of belonging to the place. An important research question is how the physical factors affect the sense of place in the perception cycle. In addition, what physical concepts affecting the sense of place can be extracted from the theories of phenomenologists; and the physical factors on the sense of place in primary and secondary perceptions affect which human sense of place.

## Research background

The general structure of the description of how to detect the physical factors of the sense of place has been developed from different perspectives. Falahat in his article entitled "The Role of Physical Design in the Sense of the Place of the Mosques", considered the most important characteristics of the mosque to be the physical characteristics based on the users' opinion. The fewer the difference between the three factors of architectural design and activity in the mosque, the greater the sense of space. In this article, he considers signs and meanings as a factor that indirectly affects activities and emotions and the sense of place itself. On the other hand, he indicated that the increase in activities also increases the experience and strengthens the sense of place (Falahat, 2005). Mirgholami & Ayashm (2016), in his article "Proposing a sense of place evaluation model based on physical, perceptual, functional and

social factors”, considered the memorable nature of space as a historical monument and an important indicator. Negin Taji (2011) in his article “Place and Sense of Place; The Role of Physical Elements in Defining the Sense of Place” to define the frameworks of this field and its application in architecture and urban planning concluded that the factors influencing the place definition are edge and visual enclosure inbound, contrast, and diversity of views, defining input and output, landscaping and naming space. In an article on the effect of physical factors on the sense of place, Abbaszadeh, Sultan Qurraie & Mohajer Milani (2015) Found that appearance and size, spatial relationships and decoration, and the texture of interior design are important in influencing the sense of place. Ghashghae, Movahed & Mohammadzadeh (2016) in the article “Evaluation of Sense of Place with an Emphasis on Physical and Environmental Factors in Urban Coastal Areas (Case Study: Boushehr Town)” to determine the relationship between physical and environmental factors including the natural environment, location of the place concluded that natural environmental factors such as spatial location and safety space diversity are effective and they rank among the factors that improve the quality of space. In the mentioned studies, the authors have discovered the characteristics and physical factors affecting the sense of place separately without considering other factors and finally, the effective factors have been identified as a case in point. However, the study and explanation of the position of physical factors and their role along with other factors have not been discussed. Accordingly, the present study seeks to generally discover the position of physical factors along with other factors and to explain the type and separation of emotions created in the place.

### Research method

The attraction and repulsion of the place is not just an objective matter; the actors communicate with them according to their values, attitudes, beliefs, and emotions and their perceptions and images of different places. In this research, it was necessary to explore the

mental world of the audience to determine from which perspective each of them looks at the place and how they interpret them. For this purpose, first, the hidden participation technique should be applied in the studied places and the clients’ feelings and moods should be closely and empathetically examined. In addition, it was necessary to enter into an in-depth conversation and interview with them so that during the conversation, they could identify how they would view the study site. In the process of exploratory studies, it was possible to discover individual differences between clients. This means that although they resembled each other in terms of the places they visited, a closer encounter with them showed that each of them had its own unique cultural, social, and personal world and interpret the place utilizing own values, attitudes, and beliefs. Based on such a discovery, instead of using quantitative methods and a standard questionnaire, the researcher would be able to understand the main differences between clients. It leads to a qualitative approach and can provide a valuable opportunity to discover the motivations and reasons and attitudes of the clients through observation, dialogue, and in-depth interviews. Therefore, The research method in the present study includes a qualitative method based on the collection of information and theories of theorists and then the qualitative analysis of library data and documents by content analysis. The general trend in this research is that after lexicography and expression of concepts and definitions, based on the views of phenomenologists, the factors affecting the sense of place and important components were extracted from their view. Then, by combining these two outputs, it was determined how the sensory effects of the location were based on each of the components. In the next step, field studies were performed in two ways: exploratory observation and on-site interviews. The sampling method was based on theoretical saturation techniques. After analyzing it, components were determined for this field. Using Maxqda quality analysis software, the coding of open and central texts was done to analyze the content and finally to determine important topics.

It should be noted that although it was possible to

analyze research data manually, the researchers preferred to use software to facilitate the process of coding and ultimately analyzing and classifying data. Among the applications used for qualitative analysis such as Atlas ti, Nvivo and Maxqda were used, which made the process of coding, tracking, merging, and communicating between codes very easy, especially when the number of codes extracted from the interview is high. Contrary to the quantitative software, these softwares do not provide a new output to the researcher, and the best advantage is the ease of analysis. For example, when the number of interviews is high, it is very difficult and time-consuming to find similar codes or change the location of the code from the categories, which makes it very easy to analyze the software through its own features. Finally, by summarizing the documentary and field studies, the position of the body in the process of human perception was categorized and presented. Here, the research method is summarized in the form of the following model (Fig. 1).

### Theoretical foundations

#### • Sense of place

In terms of lexicography, “the word sense means affection, love, judgment and general experience of place or its ability to create a special sense of belonging to individuals” (Falahat, 2006, 60). The term sense means feeling and emotion not intuition like orientation. Man’s sensory relationship with place

is defined by various terms, the most important of which is the sense of place. To better define the sense of place, we first define place. A place is a space that has meaning for a person or persons who express it as a place = space + meaning (Harrison & Dourish, 1996). Thus, the place can be considered a meaningful version of space. Lackerman describes space as a complex combination of nature and culture that has developed or is evolving in a particular geographical location (Abbaszadeh et al., 2015, 24). Relph (1976, 20) considered the place to be a combination of place, landscape, religion, importance, and protection of the home. He believed in the importance of geography and physical place; and everything that occupies it is an important and continuous integrated phenomenon.

According to Shamai, “the place is a combination of the conscious and the subconscious, which includes the perceptions and experiences of individuals and gives meaning to the place and affects the way the person looks and behaves” (Shamai, 1991, 347). That means immaterial characteristics or character of a place that is close to the spirit of the place. Tuan uses the term friendship and considers it a deep and influential link” (Tuan, 2001, quoted in Falahat, 2005, 36). For Relph, the place is a combination of natural, and artificial objects, activity, and meaning. Relph also points to Lackerman, who considers meaningful factors to be the most important factor in space. “Place means meaning with beliefs

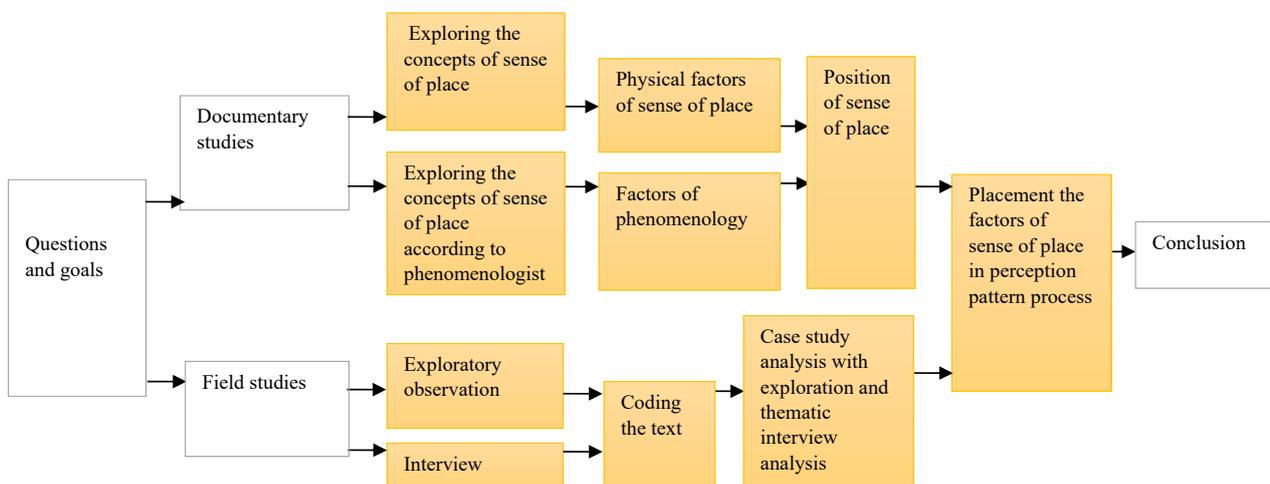


Fig. 1. Research process. Source: Authors.

(Abbaszadeh et al., 2015, 24). “The sense of place determines the nature of the place and is found in places that have a distinct personality and use. The place is a generality made of permanent objects with colored material. The set of elements together expresses the character of the spatial environment (Partovi, 2003, 420).

According to Norberg-Schultz, places are the whole environment, such as countries and regions, landscapes, settlements, and buildings, so to name them we use words such as the island and the street of the courtyard (Norberg-Schultz, quoted in *ibid.*). Tuan believes that sensory space is an abstract space between oneself and space that makes it possible to understand the space (Tuan, 1980, 3-8). Various factors are effective in shaping the sense of place; the sense of place is the “point of intersection of physical elements, activity, and meaning resulting from people’s experience of space. A sense of place is not just a simple way to explain how a person perceives a place, but it is a valuable, multidimensional concept that relates to a person’s symbolic and emotional identification with the place (Stefanovic, 1998, 31). Therefore, memories and experiences, as well as meaning, play an essential role in creating a sense of place.” This sense is a factor that results in the transformation of a space into a place with special sensory and behavioral characteristics for special people. It becomes an environment that supports the cultural concepts desired by the people, the social and cultural relations of the society in a specific place, and it reminds the past experiences and provides an identity for the people” (Falahat, 2006, 57).

In general, a sense of place has to do with the interaction of three elements, location, landscape, and personal involvement; each by itself usually is insufficient to create a sense of place. A place most often is tied to a certain location, something unique that exists in space—a building, neighborhood, street, region, state, nation, continent, or planet (Salvesen, 2002). A sense of place is the achievement or result of a person’s sensory connection with place and caused by various factors. These pillars have been studied

and discussed from different perspectives such as environmental psychology and phenomenology. In this research, according to the study of physical factors and the fact that phenomenology is based on experience, it is examined from the perspective of phenomenologists.

#### • The sense of place from the phenomenologists’ point of view

Phenomenology was founded in the 20th century and was pursued by philosophers such as Heidegger. This knowledge is based on experiences. What distinguishes phenomenology from other fields is the encounter with the subject and their experience. Phenomenologists observe and study objective phenomena and analyze events based on them. The connection between man and his surroundings is a function of the set of systems of his multiple senses.” Norberg-Schultz sees space as more than just abstract space. These elements express the character of the environment, which is the nature of space (Norberg-Schultz, 1975, quoted in Falahat, 2006, 59). The main purpose of phenomenology is to know human situations, events, meanings, and experiences exactly as they happen in human daily life (Eckartsberg, 1998, 3). According to Norberg-Schultz, every phenomenon, due to its existence, is required to be in one place; in this regard, he believes that “when phenomena occur, they are certainly said to have been in this place. In the sense that they form the place or places of the innate living world and we cannot separate from them and separate them” (Norberg-Schultz, 2014). He considered the sense of place to be a general phenomenon with structural, spatial, and atmospheric values that man achieves through the perception of direction and identification (Partovi, 2008, 122). “Sense of place is a synaesthetic faculty that combines sight, hearing, smell, movement, touch, imagination, purpose, and anticipation” (Relph, 2009, 28). Phenomenology, based on experience, is very effective in discovering the effective physical factors that create a sense of place. Phenomenological theories of the sense of place refer to a radiance of the living environment

and the creation of a feeling among the viewers about the living environment (Pouriyaie Vali & Nasekhiyan, 2014, 3746).

Phenomenologists consider meaning strong and noteworthy in the sense of place; In this regard, Relph believed that the sense of place “is one of the effective factors in the semantic quality of architectural space. The sense of place is influenced by the meanings and many psychological-behavioral conventions of society” (Relph, 1976, 43). Falahat also paid attention to the semantic dimension of place; “human perceptions, which are rooted in meanings, are received through interpretation and mental associations and can provide a basis for creating a sense of place” (Falahat, 2006, 18). Sense of place means people’s mental perception of the environment and their more or less conscious feelings about their environment, which puts a person in an inner connection with the environment so that the person’s understanding and feelings are connected and integrated with the semantic context of the environment (ibid, 57).

“A sense of place is a place where there is meaning; It is hard to make because, it is made up of history, memories, and myths over time (Rotenberg, 2012, 241). Creating a sense of place often takes time”. According to Xu (1995), the semantic structures of space and the environment created to play a role in creating sets of specific qualities and creating a sense of place. The sense of place depends on the attitudes and connections of people with the place, such as the name of the place, the anecdotes about the place, the experiences of the place, and the spiritual connections with the place (Negin Taji, 2011, 26).

From phenomenologists, the sense of place means the connection of place with the understanding of everyday symbols and activities. This feeling can be created in a person’s place of life and it is deepened and expanded over time. In Relph’s view, “sense of place means to link a place by understanding the symbols and everyday activities. This feeling could result in the place where individuals are living

and expanded as time passing” (Pouriyaie Vali & Nasekhiyan, 2014, 3746). In expressing the concept of sense of place from a phenomenological point of view, it can be concluded that the truth and nature of place are very important and therefore the meanings and messages of a place are also important. “In place phenomenology, the experience is the main principle of perception. The phenomenon of epistemology means mental purification and the attainment of the essence of things through the manifestation of objects through the individual, which is effective in the sense of place. Alan Gassow considered this deep experience as a factor that turns every physical and environmental situation into a place” (Falahat, 2006, 58). From Mourin’s point of view, “in the cognition of every phenomenon, in terms of existence, it is important to deal with its existence as a whole” (Mornen, 2012, 1611, quoted in Akbari & Falamaki, 2016, 10). Therefore, phenomenology is more related to physical dimensions. Man perceives the body through the senses; from Relph’s point of view, “the sense of place is a perceptual ability that can combine the powers of sight, hearing, touch, movement, mobility, imagination, and purpose” (Relph, 2009, 28). The phenomenon refers to something or experiences felt by humans and they are able to experience it.

In fact, memory is the impact of time and events on the human mind, which also affects his feelings. Understanding the place and its aesthetic meaning is not only in the function of the space but also in the experiences and memories that are obtained from the place and more than anything the identity is made with it (Norberg-Schultz, 2014, 541). “Every object, event, experience and every situation that can be perceived, heard, touched, recognized, or experienced by human senses can be a matter of phenomenology” (Seamon, 2000, 158). In shaping the memory, time and experience are the two main factors. The cognition of time creates memories and thus it creates a stronger sense of place.

The important points extracted from the theories of phenomenologists were identified in the Table 1. The

last factor is the relative perception of phenomena. Our perception of the sense of place is also relative, which is unique to each person because it is derived from each person’s perception of the environment. “Relph believed we can define ourselves, but we cannot have a clear definition” (Najafi & Shariff, 2011, 1055). “The sense of place in different places and for different people has different levels of depth and intensity. They have different evaluations of the place and its experience, depending on the type and extent of interaction with their environment” (Canter, 1977, cited in Falahat, 2006). Cross also argued that “although the place has characteristics that affect the relationship between man and place, ultimately humans create a sense of place, and this sense varies for different people and is related to people’s emotional and intellectual dependencies” (Cross, 2001). Our perception of phenomena is different.” Different people have different interpretations of their environments based on their backgrounds. “Ethnicity, age, gender, lifestyle, length of stay in an area and the way of moving in the city all affect the way the environment is received” (Madanipour, 2008, 194). “An environment may have special capabilities for an individual but for another person, these capabilities are meaningless and do not reveal that environment to him” (Javan Forouzande & Motalebi, 2011, 62). Factors effective in building a sense of place have different categories. In most of them, they have been divided into physical, environmental, and social factors, which according to the subject of research, physical dimensions are considered here. In the following, the keywords

related to the sense of place by analyzing the texts are extracted.

• **Constructive elements of sense of place**

As can be seen in fig. 2 was obtained by categorizing the concepts extracted from the sense of place and referring to the documentary theories. Physical elements or activity on three levels affect the sense of place: primarily functionally, second semantically and third aesthetically. Ralph also considered three signs of place identity as: physical structure, activity, and meaning (Carmona, 2006, 99) which largely encompasses the same classification. Shamai also believed that the function, beauty, and meaning of raw elements are the sense of place (Shamai, 1991, 347) and with constant conditions in two spaces, one of which has better visual proportions and creates a greater sense of space.

Functional domain: Functional factors, and primarily user interfaces, are effective in creating a sense of place (Mehrbani, Mansouri & Javadi, 2018, 6). On the other hand, “the abundance and diversity of uses create the activity of pedestrians and a lively social environment that makes the functions stable” (ibid., 7). According to Norberg-Schultz, “the sense of place is also found in distinct places” (Norberg-Schultz, 2014). John Montgomery described liveliness as one of the building blocks of urban activity and believed that liveliness distinguishes successful urban areas from each other. It does not create a sense of place, but through interactions between people and place and between people themselves, this sense is produced (Mehrabani et al, 2018, 9).

Aesthetics: The field of aesthetics, which is an important part of the body, is the first part of the space that communicates with humans. “Visual qualities are important criteria for communication between strangers in urban space” (Paknezhad & Latifi, 2019, 51).

Semantic: What has been considered as the semantic dimension of the city has been more focused on preserving historical and physical symbols. Cognition and emotion towards space are achieved through the perception of meanings, symbols, formal and

Table 1. Concepts derived from the theories of phenomenologists. Source: Authors.

Concepts derived from phenomenologists theories	Theorists
Experience	Relph, 2009
Sign	Seamon,2000; pouriyaye vali & Nasekhiyan,2014
Memories	Norberg-Schultz,2014
Meaning	Relph,1976;Rothenberg,2012
Relativity	Canter,1977; cross, 2001

Table 2. Physical concepts extracted from the theories of phenomenologists. Source: Authors.

Components	Theorists
Distinctive personality	Norberg-Schultz,1979
Orientation and identification, readability	Xu,1995; Norberg-Schultz,1979; Lynch, 1981
Definite space, deep coherence and ambiguity, degree of heterogeneity, simplicity and calm	Christopher Alexander,1979
Cultural relations	Patner, 1991
Perceptual functions	Xu, 1995; Patner, 1991
Excitement and life-pleasure	Steele, 1981
Nature	Salvesen, 2002
Good shape, symmetry Materials, shape, texture, and color	Salvesen, 2002; Christopher Alexander; Steele 1981; Norberg-Schultz, 1979
Place familiarity, distance from the place	Tuan, 2001
Experience	Seamon, 2000; Xu, 1995;Shamai, 1991
The human senses, Psycho-behavioral contracts	Relph,2009
Emotional-symbolic sense	Stephenwick,1998; Cross, 2001
Memory	Norberg-Schultz, 1979; Rapaport ;Rothenberg, 2012;Lynch, 1981
Physical properties of materials	Peter Zoomer,2014
History, and myths	Rotenberg, 2012
Spiritual connections with place	Xu, 1995; Relph, 2009;Shamai, 1991
Coordination	Xu, 1995

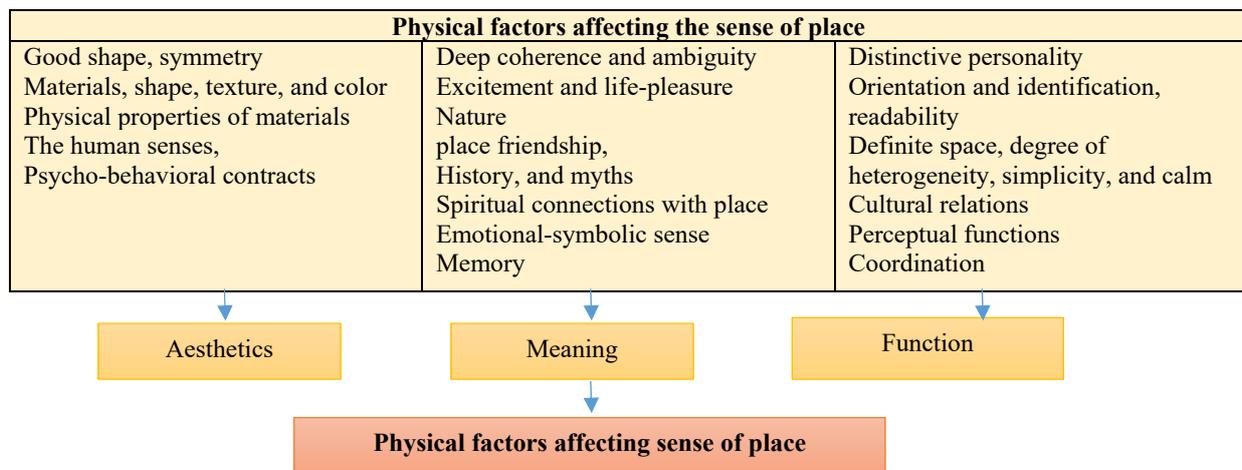


Fig. 2. Physical concepts extracted from the theories of phenomenologists. Source: Authors.

semantic aesthetics of space (Mirgholami & Ayashm, 2016). Sometimes the factor of meaning is considered as contradictory to the physical factors, But there are physical factors that indirectly convey meaning.

### Findings

The concepts extracted from the field of phenomenological theories were coded. In the next step, we will encode and categorize the concepts extracted from the theories. As can be seen in table 1, concepts

were extracted from the views of phenomenologists, and then in the fig. 3, the physical factors derived from the theories of sense of place were expressed. According to the fig. 3, the keywords derived from the theories of phenomenologists, and theories extracted from the sense of place were categorized. Eventually, each category and concept became related to a particular sense of place. As can be seen in the last column, the concepts related to sensory experiences are in direct contact with the

body. It is observed that the physical connections with the place lead to satisfaction and dependence on the place. To understand the subject better, we also examine the sense of place in the process of perception. In the classification of the perception cycle, physical factors are also received in the receiving stage through the five human senses. In the first stage, when perception is with the senses, physical properties have a direct effect, and in the second stage, the mental analysis takes place with secondary perception and emotional and spiritual connections with place take place. Memories show themselves here and personal experiences do not emerge. The sense of place is a general concept that has several different meanings; it is a general concept that has different levels, including the sense of belonging to the place, dependence on the place, attachment to the place, satisfaction with the place and the spirit of the place. Shamai, for example, discussed attachment to place, and commitment to place (shamai, 1991). Satisfaction with the place, belonging to a place, and attachment to place are the

most important topics. Satisfaction is the “satisfaction of place users as an experience of pleasure” (Canter, 1977). Satisfaction is a combination of cognitive components for environmental and emotional perception. Emotions play an important role in satisfaction. Besides, satisfaction also includes tangible aspects of physical needs. Stedman believed that the sense of satisfaction is a composition of space, physical events, and needs, space services and scale, and distance and dimensions. However, many studies have suggested that there is a link between attachment and place satisfaction. The attachment of a place that is composed of belonging to a place and the identity of a place is the realization of a sense of satisfaction through social and symbolic physical characteristics. Satisfaction is more related to the physical aspects. Another important concept is the sense of belonging or attachment to place; it often happens in cases where there is a memory in the environment. The sense of attachment to place is directly related to the subject of time. In most senses, satisfaction is a combination of environmental

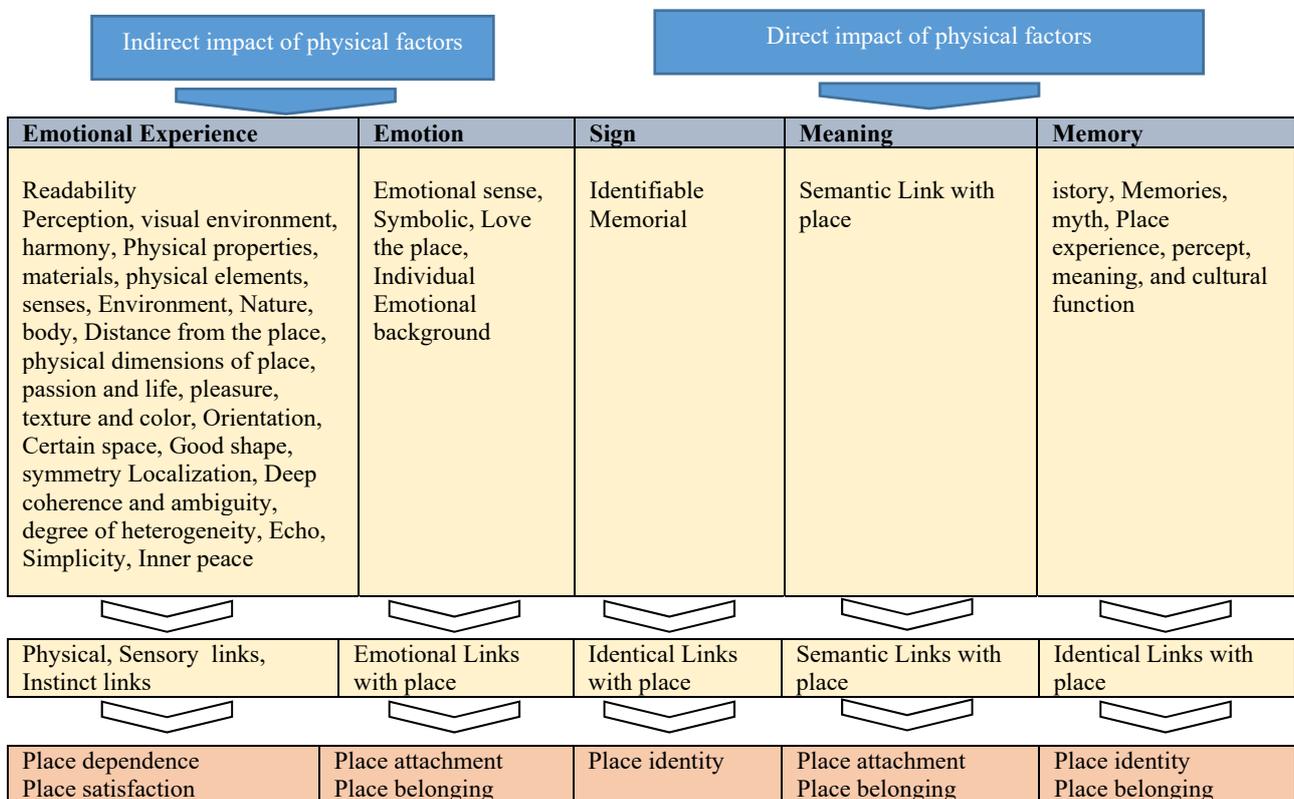


Fig. 3. Classification of place-based emotions according to concepts derived from phenomenological theories. Source: Authors.

quality and environmental attachment (Bonaiuto, Formara & Bonnes, 2003) (Table 3).

## Case study

### • Exploratory observation

The case study is one of the few sidewalks in Mashhad that has been created recently in one of the affluent neighborhoods of Mashhad located on Sajjad Boulevard. This sidewalk, located between Bahar and Bozorgmehr crossroads, has a relatively modern context. According to table 4 There are fewer historical elements and symbols in this context. Starting from the main street -Sajjad Boulevard- and starting on this route, this sidewalk cuts a linear park and a side street. In the first stage, an exploratory observation was made, and based on the observation, the results were obtained. The exploratory observation report is as follows. During the field observations and perceptions, the points with more human density were completely identified. The sidewalk has been blocked with time in places where strong performance prevails; people cross the sidewalk and stop only at places there is a coffee shop a long time and the duration of use is a sign of emotional involvement. In the next step, we interviewed people. For the interview, the purposeful sampling method was used as theoretical saturation. Samples were taken to obtain a relatively uniform summary and result. The interviews lasted 20 minutes. After conducting the interviews for data analysis, the coding software was opened from Maxqda software, and then centralized and selective methods were performed.

### • Software coding process

The coding operation is based on the researcher's opinion and is the most important part of qualitative content analysis. In this section, the researcher assumes the keywords by specifying phrases and

keywords, and the software is used only to facilitate and expedite the coding process. Encoding and managing codes and categorizing and organizing codes in a part of the software called code system plays a pivotal role in the analysis of quality content by the software. In Maxqda software, the number of codes is unlimited and there is a hierarchical structure of the codes. Coding is done first. in open coding, concepts and components are extracted from documents. As shown in fig. 4, the right side of the document and the left side of the open-source batch of code is visible. The software documentation system can allow the researcher to display the documentation used for analysis and coding on a regular and coherent basis. In this system, the documentation groups, the names of the analyzed documents, and the number of codes of each group and each document can be seen. In fig. 5, a part of the code system related to this research is displayed. On the left side of the tree structure, the codes, and subcodes, and the right, the numbers of coded pieces are displayed. Here the coding is side-by-side and the so-called central coding is done.

## Analysis of the findings

The output of Maxqda software is in the form of a table that contains specific codes and documents. One of the tables is displayed as a sample in the following. Finally, after axial coding, selective coding was performed, and using this method, the components, and codes were extracted as shown in the fig 6. The result of the interviews is also in the form of a diagram obtained from the software as fig. 7. Finally, a model is presented as follows. This cycle of the body's effect on both the direct and indirect forms of the effect site is felt in the first case, and the five senses directly examine the form and engage in formal aesthetics during the analysis phase. In the other case, the form is received through the five senses, and effectively, unlike the previous case in which the form is directly effective and the aesthetic poles are effective, the formal aspects affect the mental patterns. This aspect of the body includes

Table 3. Satisfaction Criteria. Source: Authors.

Satisfaction criteria	Theorists
Aesthetics	Amole, 2009
Safety and facilities	Amole, 2009
Environmental comfort	Behzadfar, 2011
Natural area and extent	Amole, 2009

Table 4. Observation conclusion. Source: Authors.

Sequence Function	Physical factors				Level of usage by people
	Meaning	Aesthetic			
First sequence		Café Canopy: Create a long pause space	Symbol: Language	Vegetation Lighting-color Wood material	Visual aesthetic factors are strong.  High
		Crossing Divide the sidewalk Vegetation in the form of canopies		Proper paving Suitable vegetation	Proper functional factors for passage  Low
Second sequence				Paving	Proper performance fast passing  Very low
		The path of the trees to define the passage		Convenient view at the end of the route	High
Third sequence		- Temporary sitting space - The coffee shop is a space to attract the audience - Flexible furniture	Use an arched frame	Landscape Wood facade Suitable material	High
		Night lighting	Use of vernacular architectural materials	Rhythm and repetition	Night light  Average
		Paint the walls	Historical architectural colors		Average

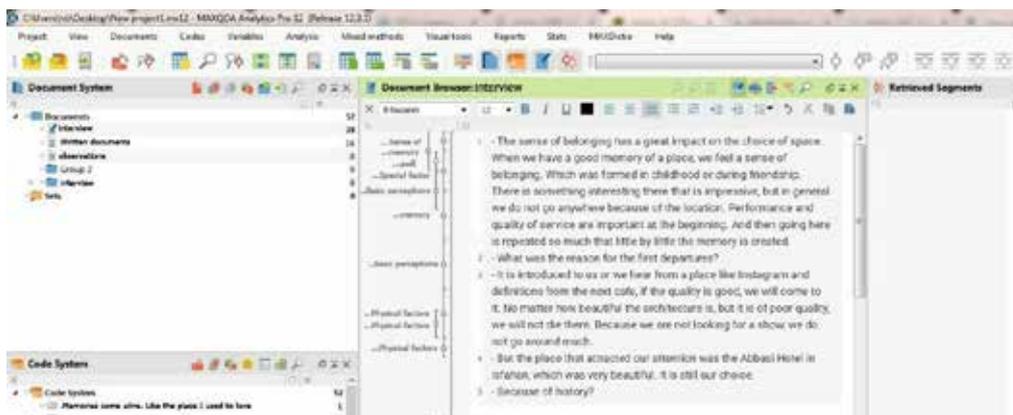


Fig. 4. Documentation code in the document browser window. Source: Research Findings.

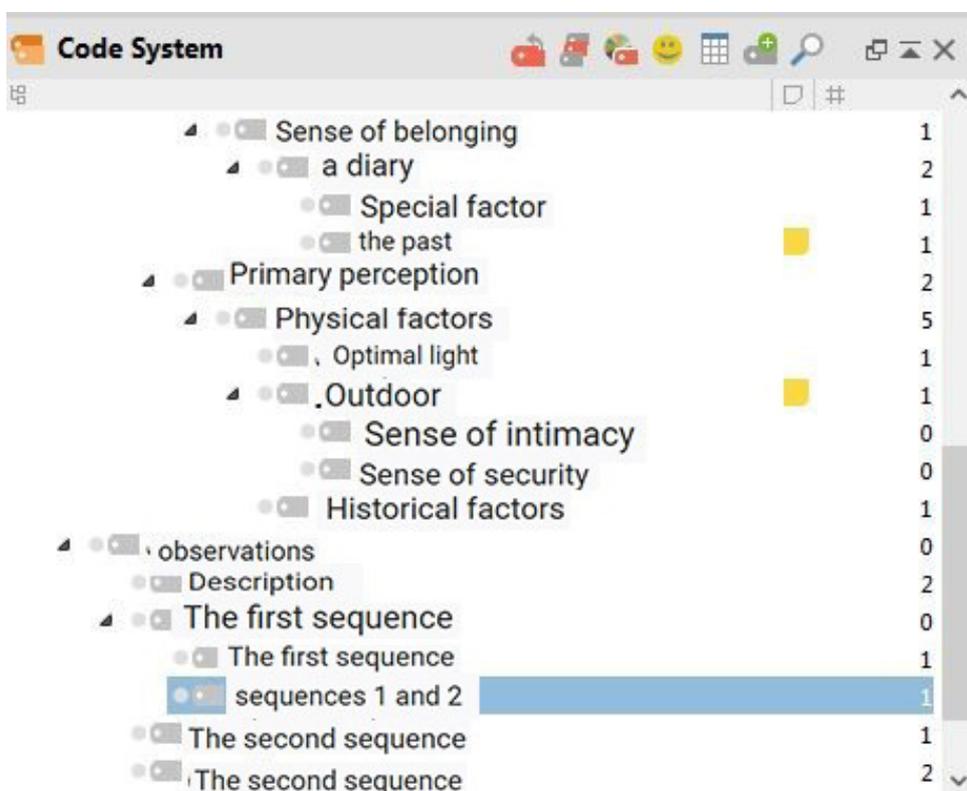


Fig. 5. System of general thematic code and components. Source: Authors.

functional and semantic dimensions. Primary perceptions are influenced by objective factors and secondary perceptions are influenced by objective factors. As can be seen in fig. 8, the perception in the reception stage is initially objective and under the influence of the body and with the intervention of the human senses. In the later stages, with the passage of time and the formation of mental images, memory and mental factors have a more important effect on perception.

## Discussion

Answering the first question of the research requires research in the perceptual cycle. Human perceptions of the environment are directly or indirectly influenced by physical factors. Because the sense of place is formed in the relationship between the individual and the environment, and what connects man to the environment is the five senses. The five senses are connected to humans on the one hand and the environment on the other; factors in human

communication are the sense of smell, visual acuity, taste, and touch. All these senses must be perceived through the physical space, and therefore the body affects the sense of place at all times. Physical factors, Due to being the connection between man and the environment, certainly affect the creation of a sense of place, and as observed in the perception cycle, aesthetic factors are involved in primary perceptions of the environment, and semantic factors are involved in secondary perceptions. For the second question of the research, the physical factors were extracted from the theories. In previous research, physical factors have been investigated on a case-by-case basis and its sub-assemblies and their impact on the sense of place have been investigated. For example, in previous research, the size of space and the confinement of physical factors are important and they affect the sense of place. however, in the present study, physical examples have not been considered and the position of physical factors and its effect on human perception has been studied. In this research, by separating human perceptions, a new perspective has been created in terms of time. Regarding the third question, due to the relative nature of human perception, the separation of perceptual conditions into primary and secondary can be helpful. In the initial perception, visual senses

are more involved, and in subsequent perceptions, they are more effective due to the passage of time and the creation of memories of mental factors.

### Conclusion

In this study, the physical factors affecting the sense of place were investigated from the perspective of phenomenologists. In this study, unlike previous studies, physical factors were not expressed as a case study rather, the position and role of the body examined and categorized according to the way a person perceives it. Besides, the effect of physical factors on different subsets of the sense of place has been determined separately. As the output of the research indicates that from the perspective of human perception, physical factors affect the sense of place directly and indirectly, and in the cycle of perception, perceptions are placed in two subsets of primary and secondary perceptions. After dividing the extracted cases from the views of phenomenologists and categorizing, as can be see in [fig 9](#) the theories of sense of place and the results of conversations, it became clear that in the initial perceptions of place, factors such as access and quality are effective and visual beauty alone can cause space use in the short term. Nevertheless, with the passing of time and secondary perceptions, other

Code structure	Code snippet
Interview / Olive Garden interview / Initial perception / Physical factors	No matter how beautiful the architecture is but it is of poor quality, we will not go there
Interview / Olive Garden interview / Initial perception / Physical factors	Because we are not looking for a show
Interview / Olive Garden interview / Initial perception / Physical factors	But the place that attracted our attention was the <u>Abbasi Hotel</u> in Isfahan, which was very beautiful
Interview / Olive Garden interview / Initial perception / Physical factors	My ideal is a house with traditional architecture that has a pond and stained glass
Interview / Olive Garden interview / Initial perception / Physical factors	Only architecture, we may want to experience the space once, but food, quality, services, etc.
Interview / Olive Garden interview / Initial perception / Physical factors	More open space and lighting make better sense
Interview / Olive Garden interview / Initial perception / Physical factors	We enjoy a chair on the street

Fig 6. Examples of coded tables. Source: Authors.

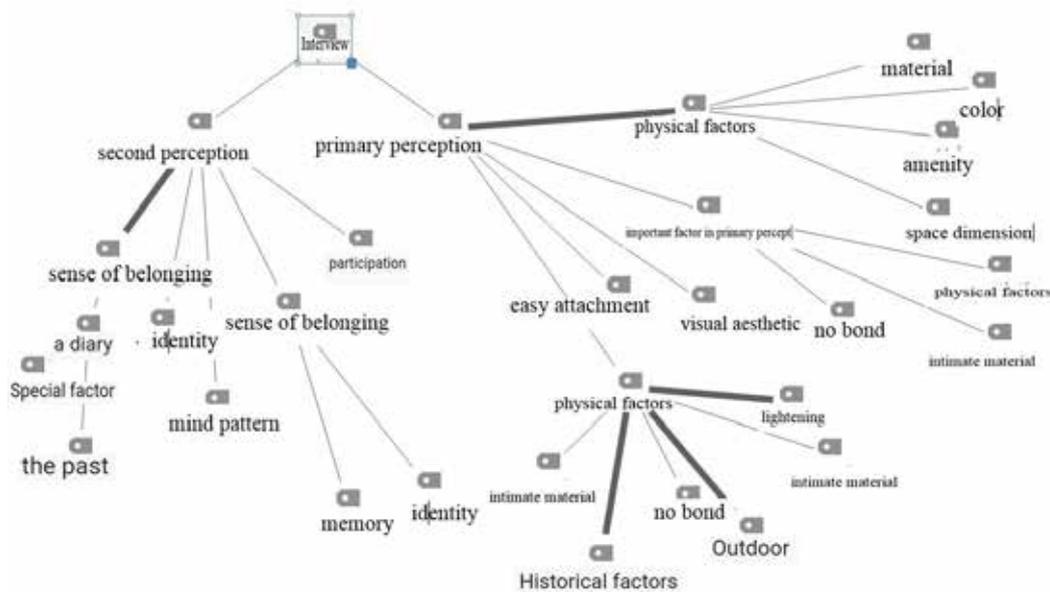


Fig. 7. Output of the interview in Maxqda 12 software. Source: Authors.

factors such as memories, experiences, and beliefs are involved. Factors that affect secondary perceptions are mostly influenced by semantic characteristics such as memory and semantic factors created over time and events which create emotions such as a sense of belonging and attachment to place and identity in place. Thus, it can be concluded that primary human perception of the environment is more involved in functional and aesthetic factors and is related to the with space, and secondary perception over time and diminishing objective factors and creating memories, mental factors have replaced objective factors and sense of attachment and belonging, and identity become more prominent in space.

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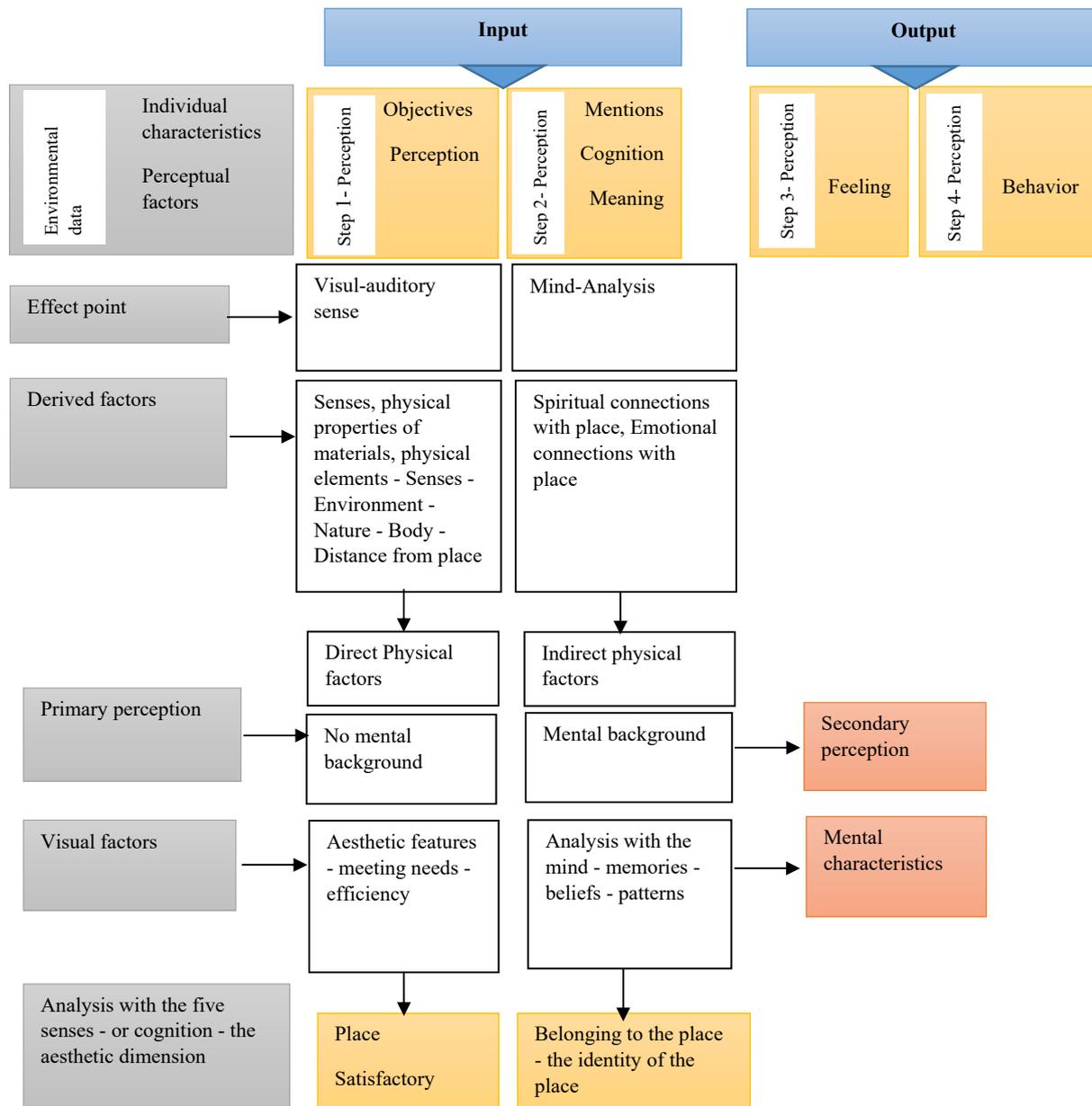


Fig. 8. The position of the body in the perception cycle. Source: Authors.

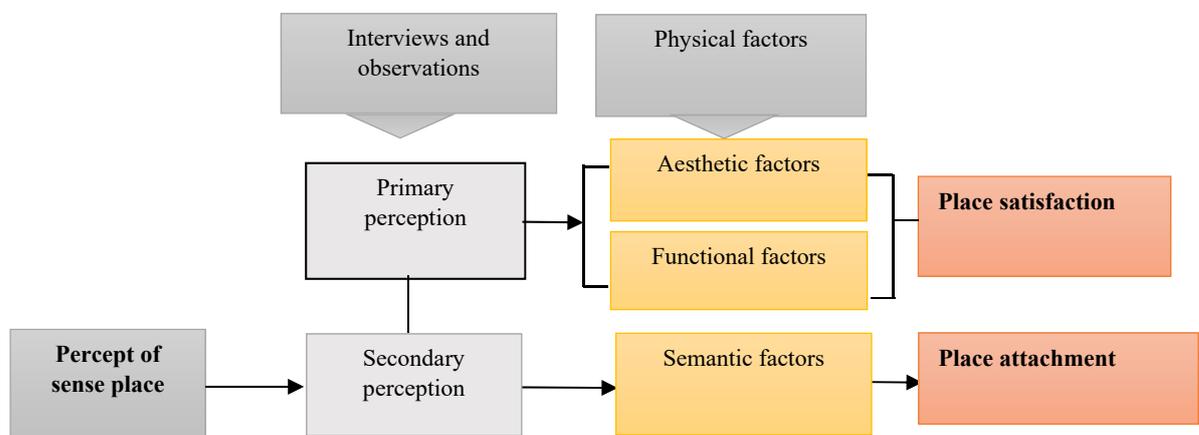


Fig. 9. Summary of Content. Source: Authors.

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#### HOW TO CITE THIS ARTICLE

Sariri, A., Afzalian, Kh., Sheybani, M. & Sarvari, H. (2020). Explanation of the Role of Physical Factors in the Perception of the Sense of Place with an Emphasis on the Theories of Phenomenologists, A Case Study of Laleh Sidewalk in Mashhad/ Iran. *Bagh-e Nazar*, 17(87), 83-98.

DOI: 10.22034/BAGH.2019.166270.3948

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