



Environmental Effects on Citizen Behaviours (Perception Dimension) – Ahmadabad Axis between Palestine square and Kolahdooz Ave (Homa Hotel)

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Abstract: In the present study is that it tried to behave in the environment to be monitored and the respective roles of environment (assumed as a vessel) and human beings (assumed as occupants of this vessel) inevitably create effects which can be expressed as various behaviors on the part of human being. The mutual relationship between man and his environment is exhibited through perceptions, behaviors, subjective images, activities, etc. This study investigates the conceptual dimension in the form of the four components of readability, sense of place, identity, and Tenability (tenability) at the Ahmadabad Axis in Mashhad. The theoretical fundamentals and the data regarding the status quo were presented through the descriptive method and the proposed policies were derived through analyzing the available status quo information. The required data were gathered from library resources and documents related to the studied area as well as from instruments used in field methods such as questionnaires. Upon conducting the necessary investigation, the conceptual dimension within the design area was analyzed. The SWOT table was presented, and the results obtained for improving environmental perception were arranged in the form of policy-making tables and operational projects tables for improving the sense of place, creating imagery, and other investigated components.

Keywords: Communication, environment, phenomenology, urban landscape, homa hotel, dimensions.

1. Introduction

The existing differences in boundaries, values, and social expectations in different cultures and environments create different behaviors (Titze, Stronger, Janschitz, & Oja, 2008). Using space, by pedestrians in particular, is rooted in a people's culture and the environment (form and space) plays a supporting or inhibitory role can in no way be a determinant of behaviors. It is not possible, in the short run, to introduce direct cultural or behavioral changes. However, it is possible through design to encourage proper activities and discourage improper behavior. Based on this, the environment can be designed, via implementing suitable spatial, physical, and conceptual elements, in such a way that favorable activities can be facilitated and unfavorable activities prevented. The following area was studied and subsequently analyzed in the present project: The Ahmadabad Axis from Palestine Sq. to Kolahdooz St. (Homa Hotel). The sidelines of this Axis, due to the nature of the dominant commercial activities and services therein, are constantly being changed and renovated. As a result, as compared with the inner areas, this Axis entails weaker social roots. Based on this fact, although we can observe a specific local and social identity is being formed within the inner urban texture, no appropriate behavior has resulted due to the socio-cultural diversity of the users of this street. For this reason, the authors decided to improve the perception of the users of the environment through investigating the conceptual dimension of the problem.

2. The Necessity for this Research

The main subject of this project is the relationship between man and environment (i.e. human environment and physical environment) and their interaction. Since the expectations of people are not considered in designing urban projects(Smith, & Wilen, 2003). we are confronted with a shortage of environments which can satisfy the behavioral needs of users of space. In other words, we are confronted with a lack of environmental response where urban residents are concerned (Figures 1).

The following research questions were asked in the present study:

- What are the qualitative dimensions of the environment?

Upon identifying the qualitative aspects of the environment, the conceptual dimension is discussed in detail. The questions related to the conceptual dimension are:

- Can this study play an effective role in creating a sense of place for an operational space?
- Can this study create a general arena which is both readable and meaningful?
- How can conceptual components be implemented to create suitable urban environments where citizens' behavior can be properly controlled?

3. Background

Lynch (1960), Collon (1971), Rapoport (1982), and other researchers have presented innovative techniques for landscape studies and identifying unique spaces through employing formal urban elements such as edges, nodes, and symbols, as well as comparing and contrasting proportions, view shed analyses, etc. In his book "Urban Landscapes", Lynch enumerated five urban landscape elements: nodes, edges, symbols, zones, and routes. Lynch approaches the key subject of "urban imaging" in this book. Lynch argues that a clear image enables one to move easily and rapidly within an environment. An international conference was recently held in Estonia on Environmental Psychology, the proceedings of which were published later(Belsky, Bakermans-kranenburg, & van IJzendoorn, 2007). Other effective journals and books have also been published on behavior and the physical environment. The following literature was printed on Environmental Psychology: Stokols and Altman (1987), Fisher and Loomis (1978), and Canter (1977). The latest series on environmental studies, behavior, and design (Zube and Moore, 1989 & 1991), as well as credible journals on the environment, Environmental Psychology, architectural research, and planning are also available (Fine Arts, Motalebi, 2005). Table 1 presents the fundamental topics considered in theoretical principles for identifying the effect of qualitative environmental dimensions on the behavior of citizens. Considering these studies and investigating the components that build an environment based on Carmona's perspective, we can divide the qualitative dimensions of the environment into 7 components. Figures 2 shows the qualitative dimensions of the environment as well as the criteria and measures used for evaluating each category(Motalebi, 2001).

Fig 1 . The discussed concepts and their relationships, procedures, and sequence (Source: The author)

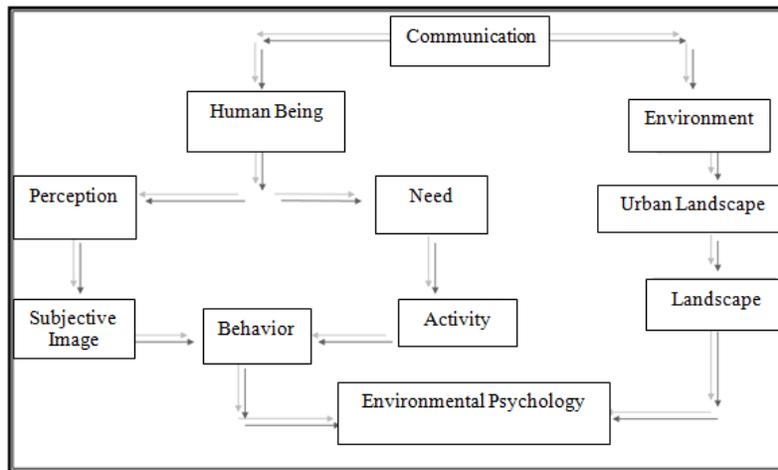


Table 1 Theoretical titles considered for achieving qualitative environmental aspects (Source:The author)

Communication	Environment	Environment potentials	-		Environmental Psychology	The causes of the creation and development of environmental psychology
		Meaning of the built environment	-			
		Environmental qualities responsiveness	- Penetration - Sensory richness - The color of belonging - Visual proportions	- Identity - Variety - Readability - Flexibility		
		Urban spaces	- Urban street - Case expectation of urban street			
		Landscape	- Landscape types - Landscaping position in human interaction with the environment			
	Man	Perception	- Perceptual organization - Perceptual phenomena - Perception of objects - Determinants of perception under conditions specified by the observer	- Perception of objects in space - subjective perception - Human senses		One study of environmental psychology in relation to the design of a physical
		Need	-			A study of personality in applied psychology
		Activity	Activities associated with urban space - Categorization of activities in urban space - General activity	- The impact of other activities on occurrence of activity - The impact of environmental		Behavioral

			features - The impact of man's ability on activities	factors on activities - Space-activity Interaction	
		Behavior	-The process of human behavior - Classification of behaviors - Characteristics of Behavior - Factors influencing behavior	- The relationship between behavior and design - The effect of time on behavior -The effect of space on behavior - The impact of behavior on space quality	

Fig 2. Study of constructive environmental components based on Carmona’s perspective [2].

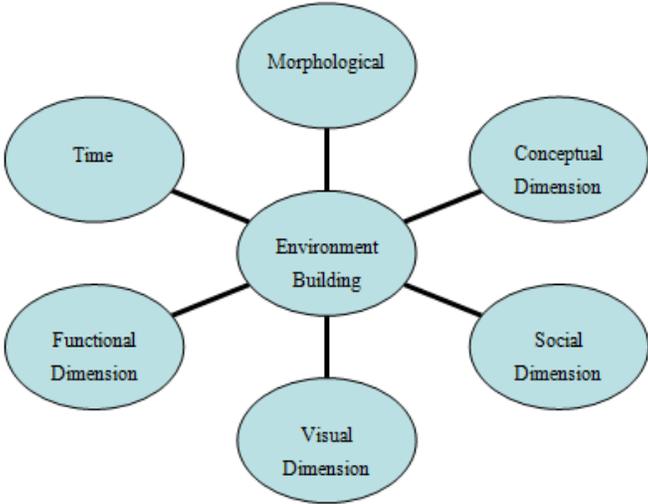
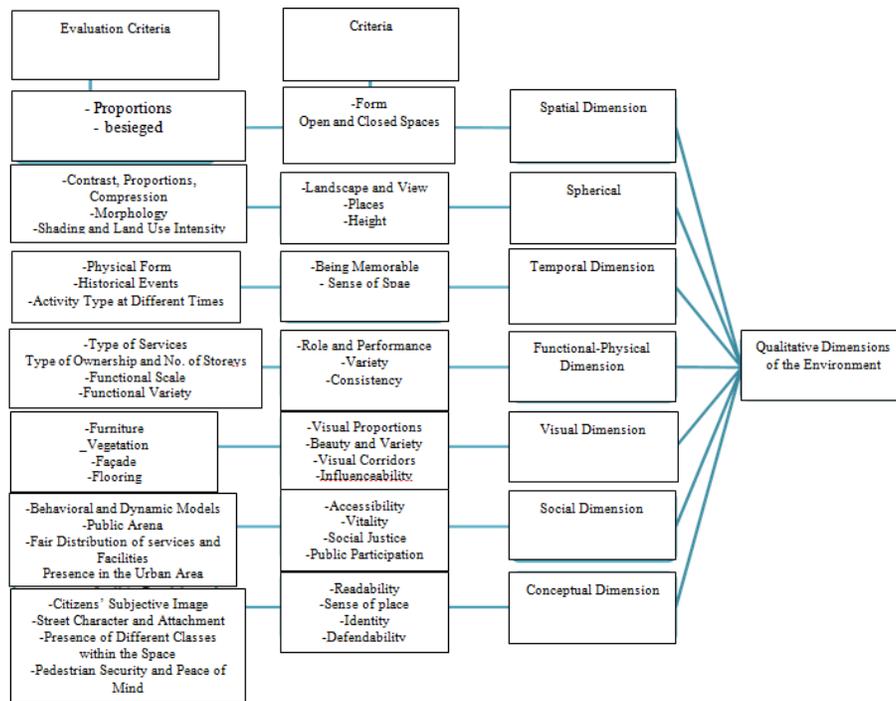


Fig 3. Summary of constructive environmental components



4. Experimental Procedure

Perception is a subjective process where sensory experiences are compared with subjective meanings. Thus, one can understand the relationship between matters and objects. We influence the environment and are influenced by it, i.e. through our senses of sight, hearing, smell, and touch we are stimulated by the environment (Jakson, 2013). For interacting with the environment, we must understand it. Our perception requires that we interpret, organize, and understand the data we receive from the environment. This article investigates human perception in the form of 4 components, i.e., readability, sense of place, identity, and Tenability (tenability). These four components were extracted from the views and models presented by Micheal Southworth in his article “Urban Planning: Theory and Practice” and Opeliard’s Model, and based on their relation with human conceptual states (operational, inferential, and emotional). Green’s set of criteria introduced in his article “Urban Form” (1992) was also used for this purpose.

a) Sense of place

Sense of place refers to a set of individual and collective stories which occur simultaneously with a place (Milfont, 2009). The fundamental matter in perception, according to location phenomenology, is experience. An important role of Architecture is the objective realization of sense of place. Through such a sense, the abstract space is converted into a tangible place and finds its own identity (Falahat, 2006). Sense of place can be investigated in two different ways: through phenomenology and through environmental psychology (Armanshahr, 2007). Sense of place is the sense experienced by some beyond the physical and sensory features of a place which leads to a kind of attachment and belonging to that place. In other words, sense of place is the cognition formed in one’s mind regarding the geographical or geological features of a place (Vandar, & Steg, 2014). It is actually a feeling developed in one towards the history and location of a place as a result of living in that place (Carmona, 2010).

b) Identity

Identity is a most important matter in the realm of human knowledge. Many scientists and thinkers have addressed identity during the course of history. Every space and place is the origin of identity, giving identity to those groups who are situated therein(Ghasemi, 2006). In the Architecture and Urban Planning, complementary definitions are offered for identity. First, identity creates a sense of memory and remembrance and second, identity defines distinction and individuality. Therefore, identification is a process between the objective and the subjective(Pakzad, 2006).

Different places invoke different images in one's mind. The feelings of a person can affect his subjective image of the place(Mcdonald, 2007). These subjective images give identity to a place. In addition to a place's physical structure, personal memories of the place also define its identity. According to Proshansky, spatial identity is a subset of personal identity and the result of that person's general knowledge of the physical world wherein he/she lives(Proshansky, 1978).

c) Readability

As compared with other environmental quality criteria, readability plays the most important role in understanding and evaluating urban responsiveness(Behzadfar, 2006). Readability provides the ground for perceiving a place by one. In practice, a part of the choices offered by the urban environment depend on its readability. An effective factor in readability is that it enhances a person's subjective image(Pakzad 2006). Lynch enumerates 5 urban design elements which form people's subjective image of the city: 1. Routes, 2. Edges, 3. Nodes, 4. Zones/districts, and 5. Symbols(Mozayani, 2006).

d) Defend ability (Tenability)

A defendable space is a space which facilitates control of activities for its residents. Defendable spaces provide consistency between form and function, and are themselves in need of a particular identity and meaning to guarantee vitality and dynamism in the urban space. The following produce undefendable spaces in an urban environment:

- a) Inconsistency between form, function, and meaning
- b) Unused spaces or spaces where intermittent work is done
- c) Lack of visual sighting (Taherkhani, 2002)

5. Identifying the Status Quo

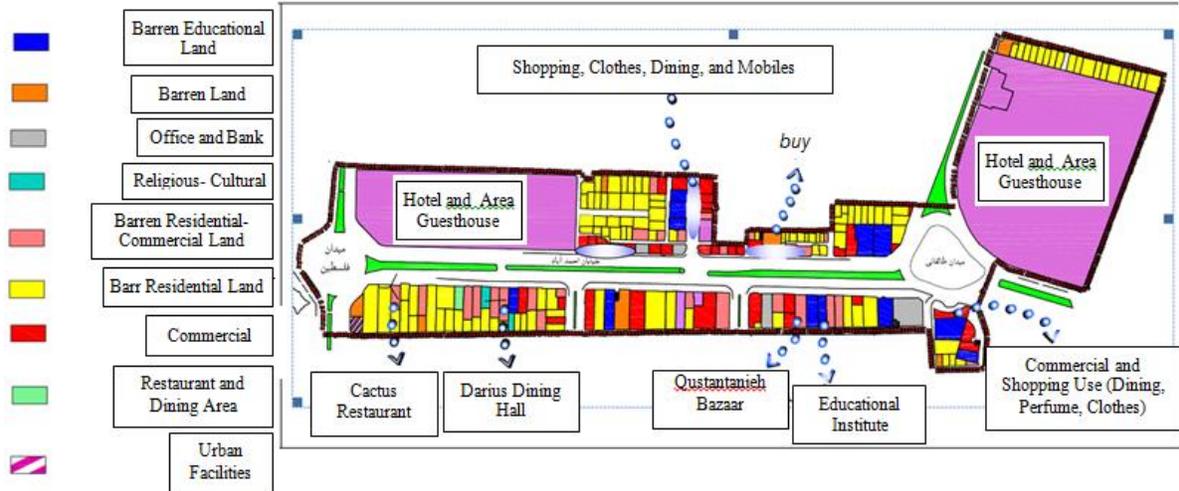
The studied area is that length of Ahmadabad St. located between Taleghani Sq. and Malekabad Sq., with a depth equal to one block along the street. This is an east-west axis located in Mashhad Municipality District 1. It is a commercial axis in the city. The perceptual components in the studied are presented below.

a) Land Use

More than 75% of the buildings in the studied area are residential. The office/commercial buildings are the next frequent form of building in the area. Most of the commercial and mixed uses are located along

Ahmadabad St. There are also large scale occupancies such as hotels, schools, and gardens along the margins of Ahmadabad St (Figures 4).

Fig 4. Land use in the studied area



b) Sense of Place

As already stated, once a person stays in a place, she/he develops a sense of belonging to that place and becomes attached to the activities and goes on of that place. (Che Ahmad, Osman, & Halim, 2010) At certain locations along Ahmadabad St. (e.g. Babak St. and Rahnamayee St.), this sense of attachment, pleasure, security, and perception can be experienced. In spite of its commercial use and various activities as well as behaviors, Rahnamayee St. provides the possibility of pedestrian movement and presence and thus, has turned into a pleasant space. For these reasons, people remember this street. Due to the old trees lining Babak St., this street also invokes a sense of vitality as well as pleasant memories in people (figures 5).

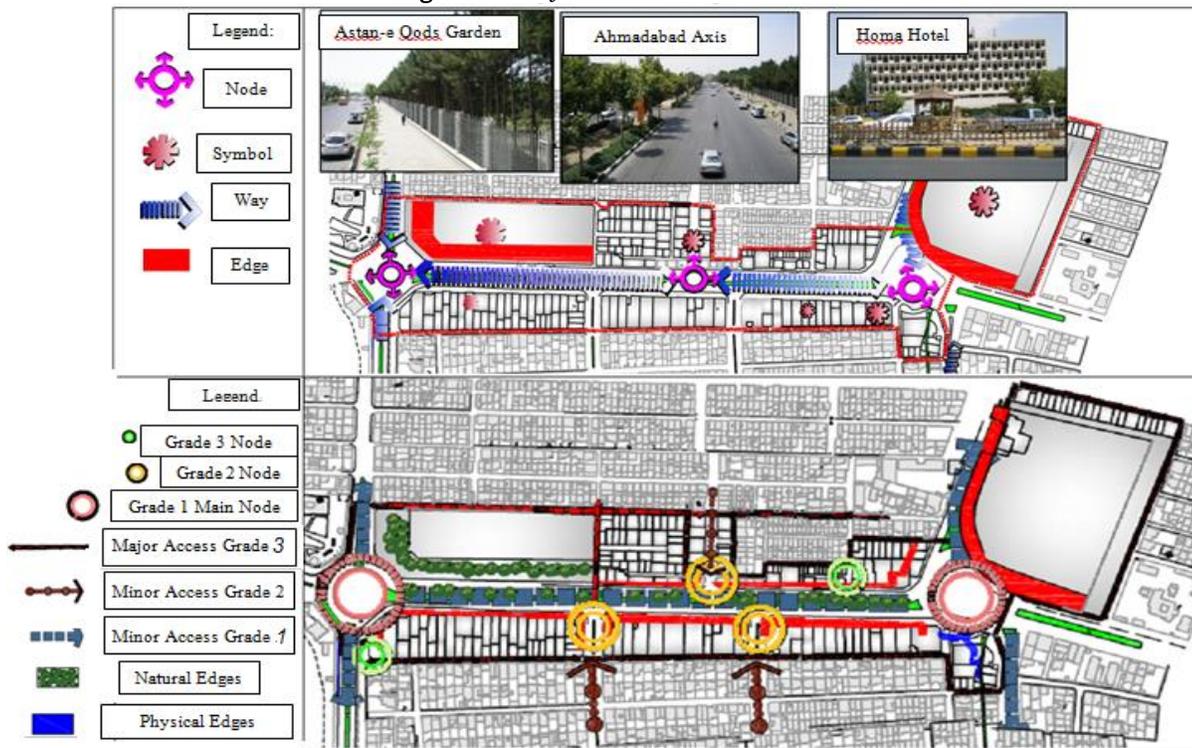
Fig 5 . Babak St. and Rahnamayee St



c) Readability

The five key elements enumerated by Lynch, i.e. routes, edges, nodes, symbols, and place (neighborhood) were implemented to study the quality of Ahmadabad St. For this purpose, participants (users of the neighborhood) were interviewed and asked to complete questionnaires. Then, these five elements were identified. The obtained results are presented in Figures 6.

Figures 6 . Lynch elements in the studied area



d) Tenability

The defensible qualities and their manifested examples, as well as their map are determined in the following figure (table 2).

e) Character and Identity

The studied Axis can be divided (by considering the indicator symbols) into three zones. These zones are shown in the following Table 3. Due to the location of three strong traffic-social nodes along the Axis.

6. Discussion

To find out the way people communicate with their environment in terms of the investigated conceptual components, a questionnaire was prepared based on the following conceptual dimensions: sense of place, identity, readability, and defensibility. The sample size was calculated based on Kochran statistical method

and 88 questionnaires were completed in the studied area. These questionnaires were then analyzed in the SPSS and Excel environments. In this project, 29 questions were asked for obtaining the subjective images people of the area had formed towards the studied urban area:

In the first section, questions were asked about readability of the studied space aimed at identifying the significant elements of the street so that the necessary modifications can be implemented and the space can be reinforced. In the final part of this section, people’s expectations and favorite images of the studied space were investigated. The second section asks questions about the way people feel towards the studied space as well as the identity of the street. The purpose here is to determine the degree of imagery in people’s mind towards the street and its surrounding spaces as a whole. The answers were further used to improve the design of the studied area. The third section asks questions on the Tenability of the environment. This section is aimed at identifying the undependable or insecure spaces through the citizens’ eyes. The results obtained are presented in Table 4.

Table 2 Undependable qualities and their manifestation along Ahmadabad Axis

Undependable qualities at Ahmadabad Axis	Manifested cases along the Axis
Frequent usages requiring major pedestrian presence and continued interruption of pedestrian movement	Administrative organizations and the gardens affiliated to Astan-e Qods
Existence of rigid structures with large lengths (physical and occupancy) 	Examples: Homa Hotel, Asten-e Qods Guesthouse, Malehabad Garden
Unfunctional dilapidated spaces	The southeastern structures in Felestin Sq. 
Nonexistence of visual sights and existence of hidden corners	Babak St., the southern space in Felestin Sq.
Insufficient lighting at night	Spaces under pedestrian bridges (towards Rahnamayee Junction)



Identity and character

With signs of indicators can be based on any of the three Divided areas, which can be seen in the table below. Due to the strong social traffic three nodes along the axis

Zone 1: Node at the beginning of the route (a major node), Ahmadabad Node This node describes the meaning of Ahmadabad Axis

This node represents a symbolic and ceremonial (public) character due to proximity to such prominent indicator elements as Homa Hotel and Sepah Bank. Due to such occupancy, this zone is evaluated as lacking in vitality and uncrowded

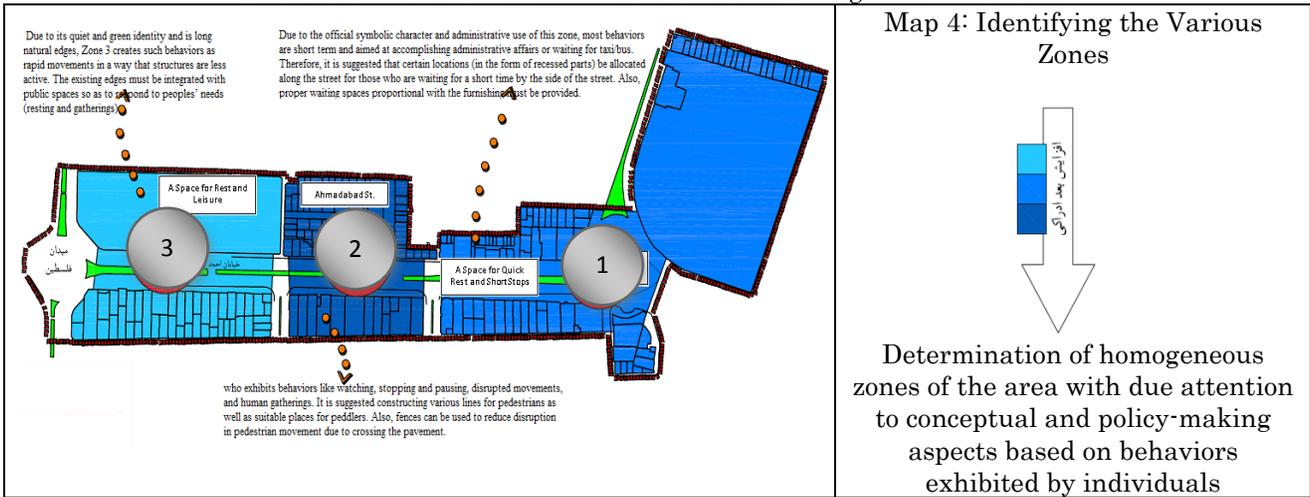
Zone 2: Intermediate nodes (minor nodes) At the intersection of Ahmadabad St. with Rahnamayee St., Abuzar St., and Za St. Due to its highly lively and active commercial occupancy, Rahnamayee Node is a socially powerful node. The high absorption of populations into Rahnamayee St. has given rise to such behaviors as stopping, watching, etc.

Due to its small scale commercial use, this zone represents a commercial identity. Increasing the number of tree lines along the middle traffic island has given the zone an artificial-natural character. The green Abuzar and Reza Blvds. As well as Rahnamayee Junction along the Axis have increased the subjective and objective symbolic character. The prominent Qostantanieh Bazaar also plays a role in defining the identity of this zone.

Zone 3: The end node of the route (a major node) Defined as a traffic node with quiet boundaries

Due to proximity with Astane-Qods Garden and relatively extensive green spaces on the northern front and residential villas on the southern front, this zone is a quiet and green zone. The panoramic landscape of mountains and trees on the southern front also is an identifier for this zone. As a socio-behavioral base, BanifatemeH Complex is an effective factor in the identity of this zone and increases people’s beneficial use of this zone

Table 3 Nodes and identification of each zone along Ahmadabad Axis



Of the questionnaire Analysis

In this research, in order to get people to communicate with the environment Components based on the theoretical study of the perceptions of the study and the four constituent elements of the conceptual. The sample size was calculated based on the Cochran statistical methods so that the population in the study area of 88 questionnaires have been completed. And then the questionnaires were analyzed in Spss and Excle.

Table 4 Summary of completed questionnaires results

	<p>If you are reluctant to change your neighborhood, state your reason.</p> <p>Ninety percent of the participants were unwilling to move from their present homes, The reasons were attachment to the place and residents as well as easy access to urban services and public transport system.</p>	Sense of place and Identity
	<p>Which one of the following disruptive occupancies is observed in the vicinity of Ahmadabad St.?</p> <p>33% of the participants believed traffic and pedestrian-vehicle congestion were disturbing; 24% mentioned construction works, and 24% referred to repeated unorganized excavations.</p>	

<table border="1"> <caption>What part of Ahmadabad St. do you particularly like?</caption> <thead> <tr> <th>Location</th> <th>Percentage</th> </tr> </thead> <tbody> <tr><td>Area bet. Taghad and Ahmadabad Sq.</td><td>~5%</td></tr> <tr><td>Malkabad Sq.</td><td>~2%</td></tr> <tr><td>Zulkhavar Complex</td><td>~12%</td></tr> <tr><td>Square, Malkabad</td><td>~8%</td></tr> <tr><td>Homa Hotel, Backside, Facade</td><td>~12%</td></tr> <tr><td>Area bet. Rahnamayee Junction and Ahmadabad Sq.</td><td>~12%</td></tr> <tr><td>Area bet. Rahnamayee St. and Rahnamayee Junction</td><td>~23%</td></tr> <tr><td>Commercial space on the sidewalk</td><td>28%</td></tr> </tbody> </table>	Location	Percentage	Area bet. Taghad and Ahmadabad Sq.	~5%	Malkabad Sq.	~2%	Zulkhavar Complex	~12%	Square, Malkabad	~8%	Homa Hotel, Backside, Facade	~12%	Area bet. Rahnamayee Junction and Ahmadabad Sq.	~12%	Area bet. Rahnamayee St. and Rahnamayee Junction	~23%	Commercial space on the sidewalk	28%	<p>What part of Ahmadabad St. do you particularly like? 28% of the participants referred to the commercial space, 23% mentioned Rahnamayee St. and Junction due to their dynamism and vitality as well as round the clock activity, and referred to the peddlers as a pleasant sighte in the street.</p>
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Readability

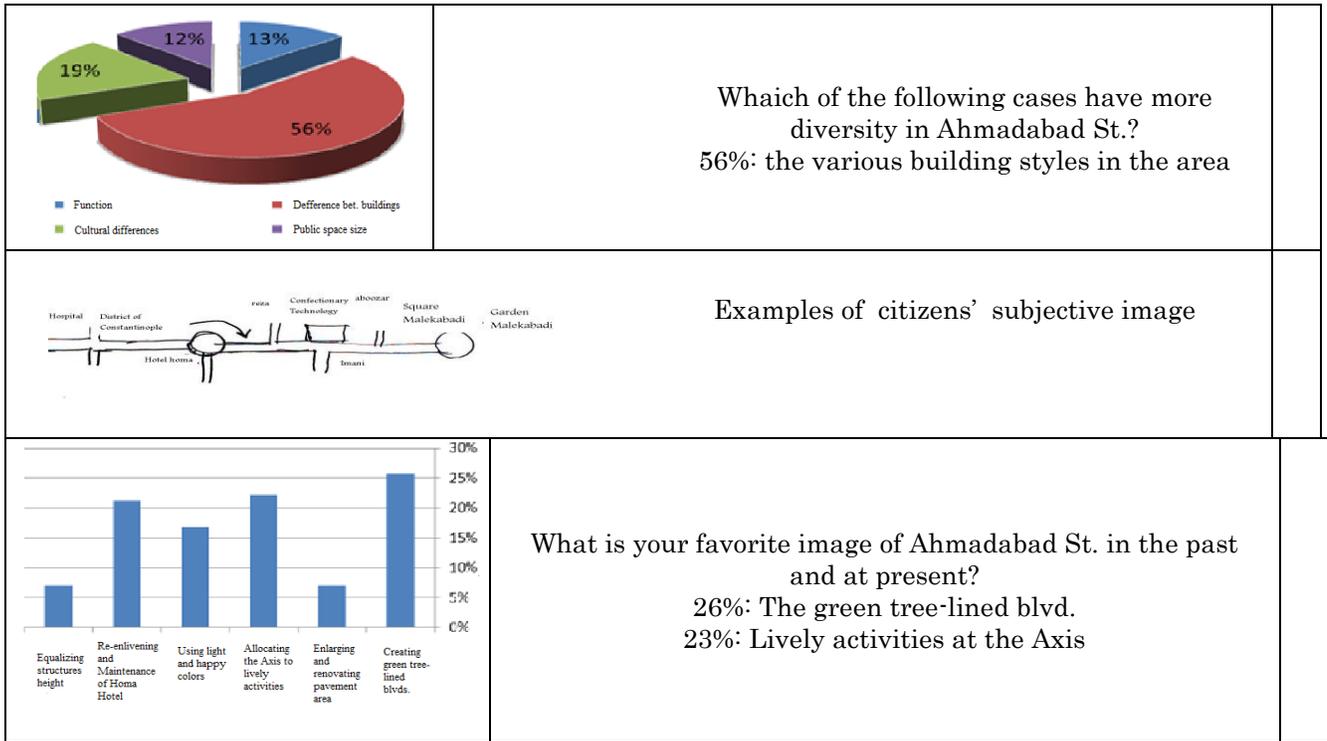
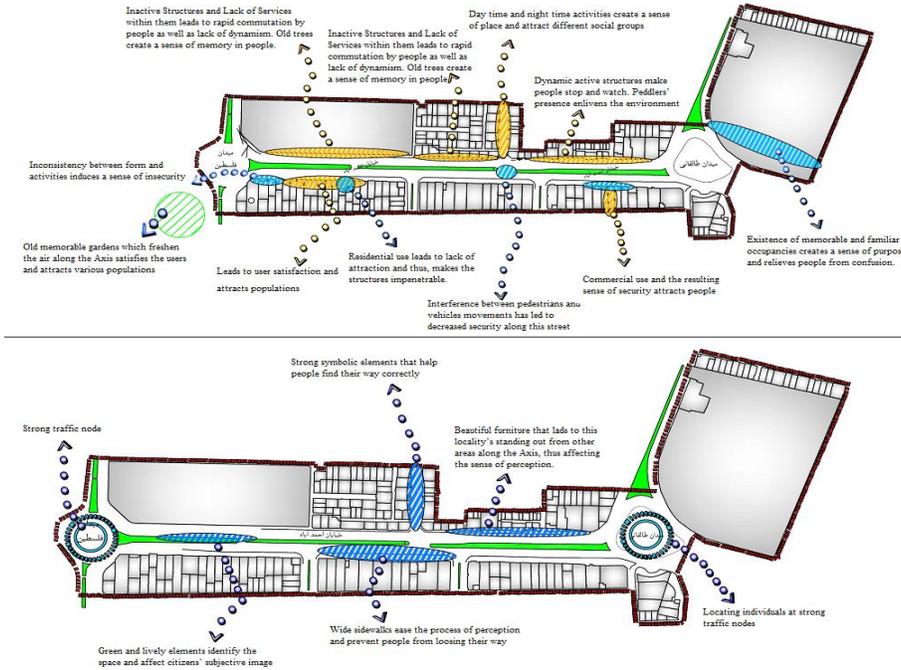


Fig 6 & 7. Analytic maps obtained from the status quo and the completed questionnaires



7. Conclusion

According to the material that was studied and the scope of expression Strengths and weaknesses have been identified range and using opportunities and identify the scope of the threat to have occurred in the form of table 6 to strengthen the sense of place and improve the perception of subjective impression of plasticity and environment of citizens As well as the strengthening of the role of an and the readability of the range offered. Finally an example of operational projects are also listed.

Table 5 The SWOT Matrix for the studied area

	Strong Points	Weak Points	Opportunity	Threat
SWOT Matrix	<ul style="list-style-type: none"> -Symbols along the Axis which create a strong image in people’s minds -Existence of two important nodes along the Axis -Existence of green lush spaces which create a strong image in parts of the street -Shading of trees and freshening the air during the hot season which facilitate pedestrian movement, creating a sense of place -Suitable human scale -readability along passage ways -Strong imagery at Rahnamayee Junction as the most important node in the area -Continuous presence during the night due to dominant commercial use of the structures along the street -Security in commercial parts according to the citizens -Active and lively urban uses as well as public supervision, leading to defendable 	<ul style="list-style-type: none"> -The entry gates to the Axis are not determined to improve readability -Pedestrian movement disrupted along the Axis due to large-scale rigid occupancies which lead to undefendable spaces (like gardens) -Constant construction works on the street and razing of old buildings create a disruptive image and destroy the identity of the Axis -Impenetrable, inactive, and long edges -Some edges are disrupted due to inconsistencies associated with mass operations along Ahmadabad Axis -Disturbing appearance of buildings -Tearing down the squares and turning them into junctions, leading to destruction of citizens’ collective subjective images and memories -Excessive commutation of strangers in the area which leads to undefendable spaces in certain cases -Heavy traffic and congestion in the area 	<ul style="list-style-type: none"> -Possibility of using the wide street for strengthening its identity and creating imagery in public areas -Possibility of using public participation to enhance a sense of place -Possibility of enhancing a sense of place and readability in the street through old buildings and strengthening the existing nodes along the street -Opportunity for creating exclusive identities at each sequence along the street by considering the existing spatial structure of the Axis -Possibility of using the green spaces of Homa Hotel and Astan-e Qods Gusethouse to provide public green space quota and enhancing a sense of place among people -Possibility of using Islamic architecture for improving the sense of place and 	<ul style="list-style-type: none"> -Possibility of ruining the subjective image of residents if too much attention is focused on motor traffic only -Excessive opulation increase would lead to reduced security

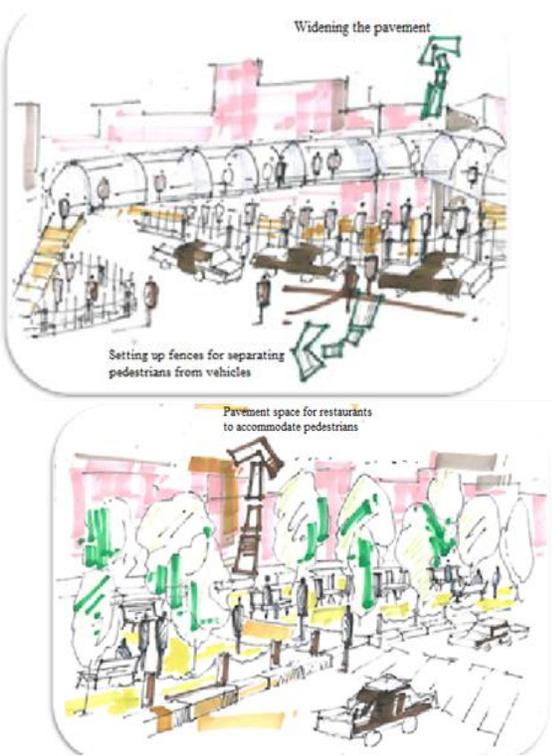
	spaces -Sense of attachment to the area among the residents		identity on this street	
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Table 6 Objectives and policies related to perceptual dimensions in the studies area

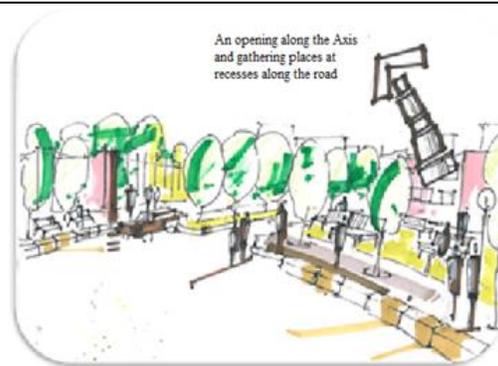
Conceptual Dimension	Objectives	Policies
General policy” Enhancing the sense of place and readability in the studies area	-Creating physical, intellectual, and functional imagery/effects -Understanding the area as a consistent and definable element in	-Defining the entrance gate to the Axis and increasing confinement around the square in order to improve readability -Improving the role and structure of those streets which have created a positive image in the citizens’ minds -Using beautiful imagery and popular art in the

	<p>terms of edges, entrances, and routes</p> <ul style="list-style-type: none"> -Humanizing the perceived space in the area -Aligning the spaces with peoples' social and psychological needs <p>Reducing the factors that affect perceptual errors, vagueness, complexity, and spatial disturbance</p> <ul style="list-style-type: none"> -Enhancing positive identity features within each zone -Defining visual gates for enhancing the sense of entering the street 	<p>street furniture</p> <ul style="list-style-type: none"> -Increasing indicator symbols along the Axis by using barren lands -Preventing constant construction works which lead to the creation of temporary and disturbed subjective images -Reviving the destroyed symbols like the main nodes in the area -Avoiding construction works which block citizens' view too landmarks like Homa Hotel -Converting the undefendable spaces into defendable ones which create pleasant imagery -Enhancing those places evaluated as pleasant by citizens -Calling certain old occupancies by their old names to increase the sense of place and readability -Creating background elements with rich and valuable identities through using the existing unused lands
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Table 7 An example of operational projects in the studied area

<p>1. Defining and enhancing the role and spatial form of squares for creating better spatial structure and readability for the area through the following:</p> <p>1.1. Planting trees on the southeast of the square where there is no possibility of creating a heap/mass for increased confinement in order to create compatibility with other parts of the square</p> <p>1.2. Installing a high and impressive sopraporta for Malekabad Garden to increase readability and confined space in the square</p> <p>1.3. Constructing a proper opening at the entrance to the Axis by suitably altering the current occupancy of Astan-e Qods on the north and residential blocks on the south of the square</p> <p>2. Reducing disturbance in pedestrian movement via creating suitable spots for placing furniture and flooring proportional to the mood at the respective parts of the Axis through the following:</p> <p>2.1. Reviving the main squares along the Axis and redefining them in the form of subsequent squares to enhance connectivity between them, i.e., to create suitable communication between main urban nodes, thus defining a proper spatial structure</p>	 <p>The image contains two architectural sketches. The top sketch, titled 'Widening the pavement', shows a street scene with a central area where the pavement is being widened. A label indicates 'Setting up fences for separating pedestrians from vehicles'. The bottom sketch, titled 'Pavement space for restaurants to accommodate pedestrians', shows a street scene with a central area where the pavement is being widened to accommodate pedestrians. A label indicates 'Pavement space for restaurants to accommodate pedestrians'.</p>
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2.2.Reviving the old identity-enhancing elements along the Axis to create memorable images through artistic lighting for introducing functional elements and creating proper arenas in front of these elements for the purpose of civil activities



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