

A Comparative Study of the Memorability Level of Urban Spaces Using Semiotic Patterns; Case Studies: Azadi and Hasanabad Squares*

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ABSTRACT

Urban spaces are rich in memories that remain in the minds of residents as well as visitors. Memories are sometimes individual and sometimes collective, which shared by all citizens and members of society. Events in the city create memories and memories create lives. Those memory-making spaces, that previously existed in our cities, have been forgotten or qualitatively degraded, resulting in reducing the proper context for urban events and social interactions, and thereby the citizens' sense of belonging to space. What makes urban spaces memorable is the objective and subjective instances of semiotic patterns. Today, signs have faded in urban spaces, and this has been an introduction to the amnesia of urban spaces. So, the signs are regarded as an important tool for the continuity and transfer of collective memories. In this regard, the present study aims to compare the memorability level of urban spaces. To this end, in the present study, it is attempted to extract the components contributing to the formation of a collective memory of urban spaces using a semiotic approach. Content analysis and deductive reasoning are the main methods of establishing the intellectual bases of the research. Confirmatory factor analysis is applied for statistical analysis using LISREL software. The results show that although at present, perceptual, social and semantic codes (perceptual-mental and social-temporal components) of the sense of collective memory have the most impact on the memorability of Hasanabad Square and Azadi Square. The perceptual and social codes have the highest effect in Azadi Square and Hasanabad Square, respectively which can be justified regarding the spatial properties of these two spaces (logical codes).

Keywords: Collective Memory, Semiotics, Perceptual Codes and Social Codes, Confirmatory Factor Analysis.

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1. INTRODUCTION

At present, urban spaces are mainly formed as a degraded product between buildings and merely act as a commuting distance between citizens' workplace and their residence places. On the other hand, now we are at a point where we encounter a vast accumulation of signs in the new urban forms. Unfamiliar signs in cities, which are due to the inevitable radical cultural, social, economic and demographic changes, have influenced societies.

At present, many urban spaces are not memorable due to the loss of semiotic patterns in spatial, semantic, and social-event dimensions. As it can be said that the past memory of these spaces is vanishing. In particular, the texture of today's Tehran city has a few signs of its historical identities. So, meaningfulness, as an association of urban memories, is a measure that is not limited to the landscape but also transforms the structure and planning of the city, and its effects can be seen in urban spaces.

The collective memory refers to individuals' common memory of the events and incidences experienced in a social and spatial context by them as a group member (Saed-Panah & Asasi, 2015, p. 5). Events in the city create memories and memories create lives. Those memory-making spaces, that previously existed in our cities, have been forgotten (for example, urban squares and local squares) or qualitatively degraded (for example, streets, alleys and walkways), resulting in reducing the proper context for urban events and social interactions, and thereby the citizens' sense of belonging to a space, and cities have been downgraded to places for frequent commuting.

Aldo Rossi believed that cities themselves are citizens' collective memories, that are formed in conjunction with objects and places. Nowadays, the signs have faded in urban spaces, and this has been an introduction to the amnesia of urban spaces, and greatly affected the meaningfulness of urban spaces. Therefore, signs are regarded as an important tool for the continuity and transfer of collective memories.

Therefore, the present study aims to propose a conceptual model with a strong theoretical basis for evaluating the sense of collective memory of urban spaces based on semiotic patterns hidden in these spaces. In this regard, first, using the content analysis technique, those texts including the theorization of the sense of collective memory and semiotics are analyzed and the criteria forming the sense of collective memory and semiotics are extracted from them. The criteria are logically combined and present the desired pattern. In the next step, Hasanabad Square and Azadi Square in Tehran are investigated and compared as sample case studies in order to retrieve the sense of collective memory.

2. RESEARCH BACKGROUND

On the research background, it can be mentioned to a

study entitled "Assessment Criteria of the Feasibility of Formation, Registration and Transfer of Collective Memories in a City" published in *Honar-Ha-Ye-Ziba Journal* by Mahta Mir-Moghtadaii. This paper provides a primary review of the concepts of "memory" and "collective memory", based on the theoretical foundations presented by Maurice Halbwachs (Mir-Moghtadaii, 2009, p. 7).

In another study entitled "An Inquiry to Urban Semiotics" published in *Armanshahr Journal* by Hamid Majedi and Zahra Sadat Saideh Zarabadi Magazine, after explaining the basic concepts and describing their theoretical necessities in the field of semiotics, an approach is presented to recognize and encode sign systems in the city and the principles and paradigms of this approach are briefly addressed (Majedi & zarabadi, 2010, p. 52). Also, in another article entitled "Marked City as a Land-Oriented City" published in the *Quarterly Journal of Cultural Research* by the same two authors, sign systems are applied to create a land-oriented city. According to the research backgrounds, semiotics will be specifically used as an approach to evaluate and compare the sense of collective memory in urban spaces, which is not mentioned in any of the abovementioned studies (Majedi & zarabadi, 2010, p. 10).

3. THEORETICAL FOUNDATIONS

The theoretical foundations refer to theories and scientific models chosen as the cornerstone of his/her research in order to explain research results by the researcher. To this end, existing theories on the research topic are reviewed and criticized (Pazkzad, 2010, pp .34 52).

3.1. Collective Memory

In Dehkhoda's dictionary, the term "memory" is defined as follows:

"Things that have happened to a person and some effects of which have left in his/her mind, i.e. his/her past. It is past events that a person has seen or heard, i.e. things seen or heard in the past" (Dehkhoda, 1966, p. 66).

in Longman's Dictionary, memory is defined as "Someone's ability to remember objects, places, experiences" (Longman, 2010, p. 1093).

In Webster's dictionary, it is defined as "the capability or process of recalling or reproducing what has been learned or remembered, in particular, using associative mechanisms of meaning" (Merriam-Webster, 2003, p. 725).

According to the lexical definitions presented above, "memory is to recall past events and incidents by recalling people, objects, places and experiences". Examination of the various definitions indicates that one of the key aspects in defining "memory" is an event.

The events intended in these definitions are not merely those events written in history books, but also include

those events that someone himself has experienced. So, to define “memory” more precisely, it can be said that memory is to recall experienced events and incidents by recalling people, objects, places and experiences, and by means of associative mechanisms of meanings. Memory can be individual or collective. Collective memories are events recalled by a group of people who are involved in building and forming that memory. The greater the number of people remember that common memory, the higher the connotation of that memory (Mir-Moghtadaii, 2009, p. 7). Maurice Halbwachs was the first person who introduced the social frameworks of memory as collective memory.

3.2. Memorability of Urban Places and Spaces

The social nature of memory reveals its relationship with the public spaces of the city. Since memories shaped in the collective residential setting are of social nature, the context where they are formed must also be the place of social interaction (i.e., the city). The perception of urban environments is a mental

process. The human being receives the sensory messages of the environment and creates an image of it that is called the memories of the environment. Although memory is an abstract and subjective concept, the possibility of its occurrence is a physical reality with a concept beyond a position or place, which acts as a container for the occurrence of events to help the human’s mind to record memories. A memory directly drives us to a specific place. Humans sometimes gain experiences in a place where others are present. This links them to all human beings who have experienced such a process in the past or will experience it in the future. According to Madanipoor, these connecting segments provide stability and continuity for public spaces. It is in these spaces that people have common experiences. In fact, these experiences are collective memories (Asgari & Naghibi, 2015, p. 8).

3.3. Factors and Components Affecting the Formation of Collective Memory

The components forming the collective memory are summarized in (Table 1) and (Fig. 1).

Table 1. The Components Forming the Collective Memory

Type of Component	View
Temporal Component	Since collective memories, such as the historical memory of one nation, are transferred from generation to generation, the history and time of residence is a factor reinforcing collective memories (Lewika, 2008, p. 23).
Spatial Component	Memories requires a spatial reference to form. According to Halbwachs, any change in the physical form of urban spaces makes a significant change in the mental image of the city’s inhabitants and affects their collective memory. As long as the place of buildings, rocks and trees in a city is not changed, the inhabitants’ mental image of that space would not change and there would be its inhabitants’ a sense of belonging to the place and collective memory (Abd Elrahman & Mahmoud, 2016, p. 57).
Social Component	It is the manifestations of these communities that make the public arenas lively and deepen relationships and the passage of time enhance a sense of collective memory (Habibi, 1999, p. 44).
Perceptual-mental Component	Mental and individual experiences, including occupation, education, and the extent to which a person interacts with the environment as well as one’s perception of the environment, are other components forming and influencing collective memories.

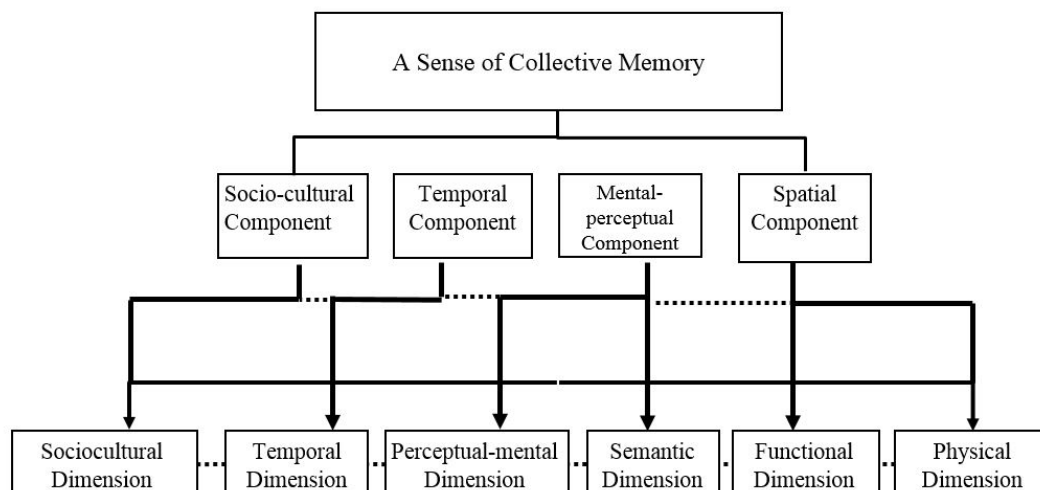


Fig. 1. The Dimensions and Components Forming the Sense of Collective Memory

3.4. Semiotics

About one hundred years ago, the American pragmatist philosopher, Charles Sanders Peirce used the term “Semiosis” as the study of the relationship between a sign and its interpretation. In the last year of his life, Pierce had used the term “semiotics”. In the same decade, Ferdinand de Saussure had used the word “Semiology” for semiotics. In other words, semiotics is a systematic and organized study of all the effective factors contributing to the interpretation of signs. Semiotics is the study of phenomena based on the significant relationship to create and produce meaning. Semiotics seeks to discover deeper layers of meaning, and includes all the readings derived from the decoding of phenomena. It is important to use signs because truth and right meaning are often incorrectly understood in a form other than signs and codes. In the arts, architecture, and urbanism of Iran, we often encounter signs and cryptic objects and shapes, that familiarize their audiences with different layers of meaning and truth in their designer’s mind, in addition to their own role in the form of decorations, geometry, form and so on. Signs are “things that have meaning to man” (Sojoudi, 2014, p. 72).

Nothing is considered a sign unless it is referred as a signifier, referent or pointer to something other than itself. In this case, it can be a sign. Signs are completely unconsciously understood by linking them to familiar systems of social norms and conventions. It is the significant use of signs, which is emphasized by semiotics (Chandler, 2008, p. 45). To understand the semiotics in the city, it is essential to understand the rules of semiotics. The city is a structure that applies signifiers, and particular attention to how signifiers are applied founds the semiotics of the city (Majedi & Zarabadi, 2010, p. 50).

3.5. Codes

The concept of code is very fundamental in semiotics.

codes create a framework in which the signs become meaningful. In fact, one cannot call something sign if it cannot be codified. Codes transform signs into meaningful systems, thereby creating a relationship between the signifier and the signified. The production and interpretation of texts depend on the existence of codes or communicational conventions. Therefore, the meaning of the sign depends on the code in which it is.

Conventions of codes represent the social aspect of semiotics. Codes are procedural systems of appropriate conventions that act in their certain domains. Semiotics seek to understand the codes and implicit rules and limitations that exist in the process of producing and interpreting the meaning of each code (Chandler, 2008, p. 56).

3.6. Types of Codes

Social codes: They can be identified when they converge with socio-cultural norms.

Perceptual codes: These codes can be identified through mental interaction with the environment as well as one’s perception of the environment based on his/her mental and individual characteristics.

Semantic codes: These codes can be identified through the signs of semantic communication with the environment.

Logical codes: These codes can be identified when they convert with natural factors, including position (Majedi & zarabadi, 2010, p. 10).

The functions of signs, as a tool for better understanding of the semiotic patterns (Table 2), are listed in Table2. In the following (Figs. 2 & 3), it is presented how to integrate the subject of collective memory and semiotic patterns in the form of a model of urban spaces analysis in order to retrieve the sense of collective memory using the semiotic approach and conceptual research model.

3.7. Functions of Signs

Table 2. Functions of Signs

Type of Sign Function	Function
Referral Function	Establishing a relationship between the message and the issue to which the message refers
Emotional Function	Expressing the attitude towards the issues by the recipient
Judgmental or Ironic Function	Causing the recipient’s action
	Involving the recipient’s intellect or feeling
Artistic or Aesthetic Function	Expressing the message of art and literature
Communicational Function	Establishing, maintaining and stopping communication

(Majedi & Zarabadi, 2010)

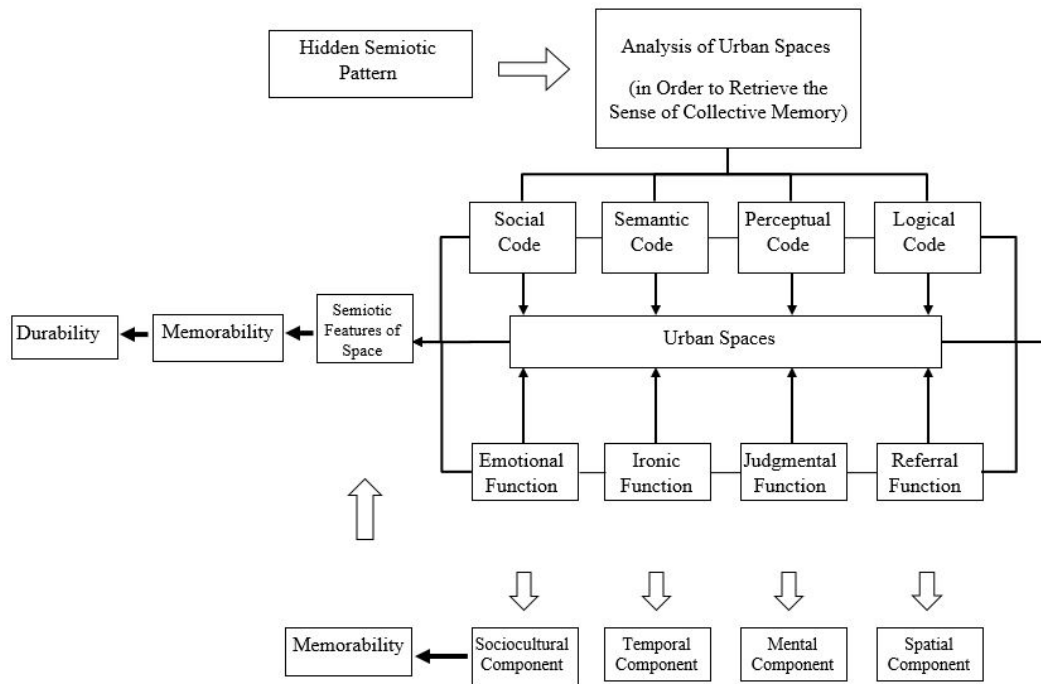


Fig. 2. Urban Space Analysis Pattern Used to Retrieve the Sense of Collective Memories Using a Semiotic Approach

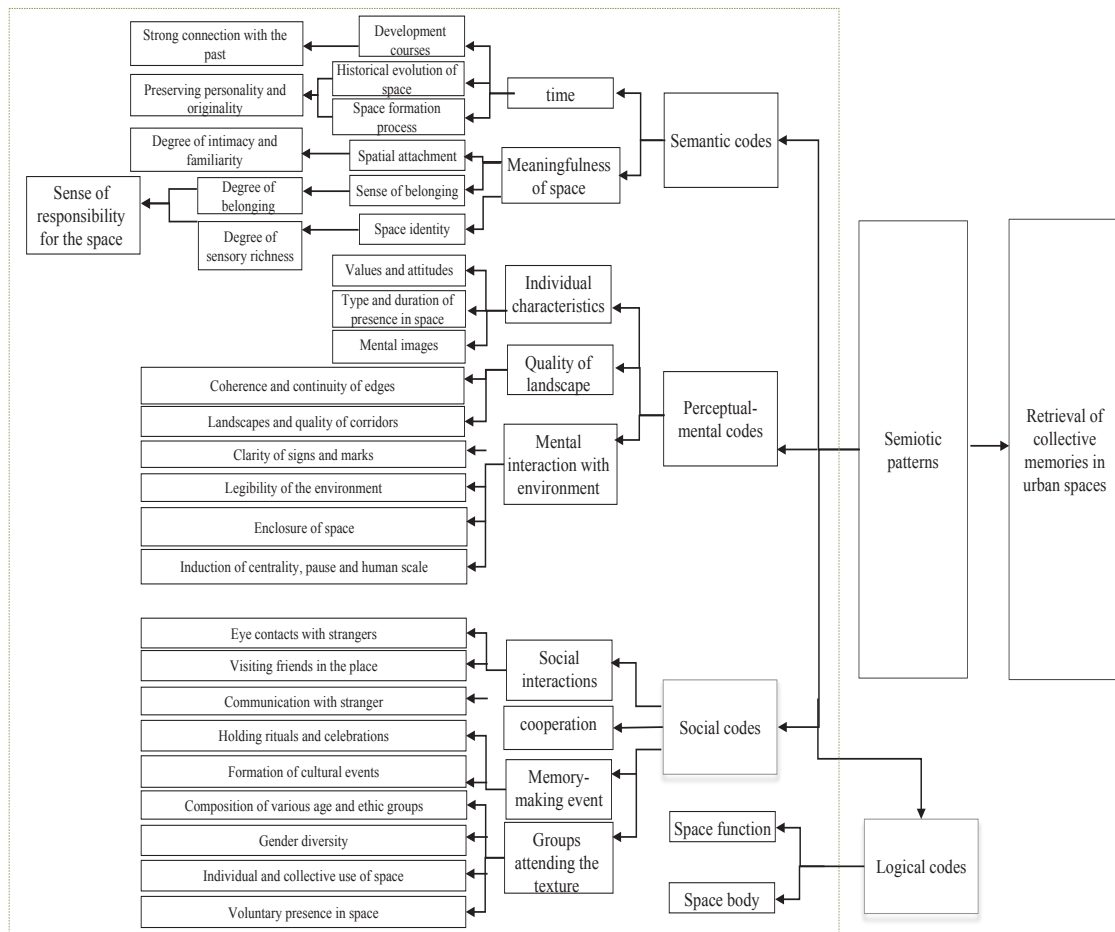


Fig. 3. Conceptual Research Model

4. METHOD

The present study is theoretical-practical research. The necessity of producing a tool to examine urban planners and practitioners' attitudes and views about its method led the researcher to gather data using the content analysis method. In addition, an exploratory survey was used to identify the factors contributing to the formation of collective memories. Next, the operational indices of social, semantic and perceptual codes that were collected in the earlier stages through archived documents, books and articles, were organized in spatial, mental-perceptual, temporal, and sociocultural dimensions after being coded and integrated with memorability components of urban spaces. The confirmatory factor analysis was used to analyze the extracted data, after determining the validity and reliability of the questionnaires.

The Reason Behind the Use of Confirmatory Factor Analysis: Confirmatory methods determine whether the data are consistent with a certain factor structure (shown in the research model in Figure 3). Using this method, the researcher expects to examine a specific scheme of hidden factors beyond the variables. In this case, variables are expected to have a particular configuration.

Using this method, the researcher tests hypotheses about a particular factor structure. In this analysis, the researcher seeks to develop a model about which it is assumed that it explains or justifies empirical data on the basis of relatively few parameters. This form of factor analysis is performed using LISREL software.

4.1. Statistical Population

The statistical population defined in this study consists of different audiences and experts with different levels of familiarity with the case study. On the other hand, considering the multifunctional role of the case study, a wide range of individuals in three general forms of businessmen, customers and pedestrians, and urban experts constitute another part of the statistical population. Since the number of population was not known, to sample the population, the studied streets and squares were identified on the map, and then the

respondents were located in designated locations and randomly collected the information from the target population. In the present study, samples were selected using single-stage cluster sampling. Due to the large size of the statistical population, Cochran's formula was used to determine the sample size.

$$n = \frac{Z^2 pq}{d^2}$$

Where, Z equals 1.96 ; p = q = 0.5 ; d denotes the allowed error value (error value is usually considered to be between 0.01 and 0.1).

The sample size was estimated 196 (6 experts in urban planning and 190 people of other groups) with an error rate of 0.07.

4.2. Developing the Questionnaire (Research Tool)

Due to the lack of a standard questionnaire for measurement in the area of the present research, a researcher-made questionnaire with a set of measures and items was designed and used as a research tool based on the obtained conceptual diagram. The operational indices of social, semantic, and perceptual codes were collected through archived documents, books, and articles that were organized in spatial, mental-perceptual, temporal, and sociocultural dimensions after being coded and integrated with memorability components of urban spaces. Components related to each dimension, measures of perceptual, semantic and social dimensions were introduced as effective codes contributing to the formation of a sense of collective memory. organizing these measures within the framework of qualitative norms provides the basis for measuring each measure on a Likert scale. Interviewing with experts to identify their attitudes was the next important step in the questionnaire design phase. To this end, the content obtained from the analysis of the interviews with the experts was organized in the following figures (Figs. 4&6) to provide a better understanding of the framework for developing the questionnaire.

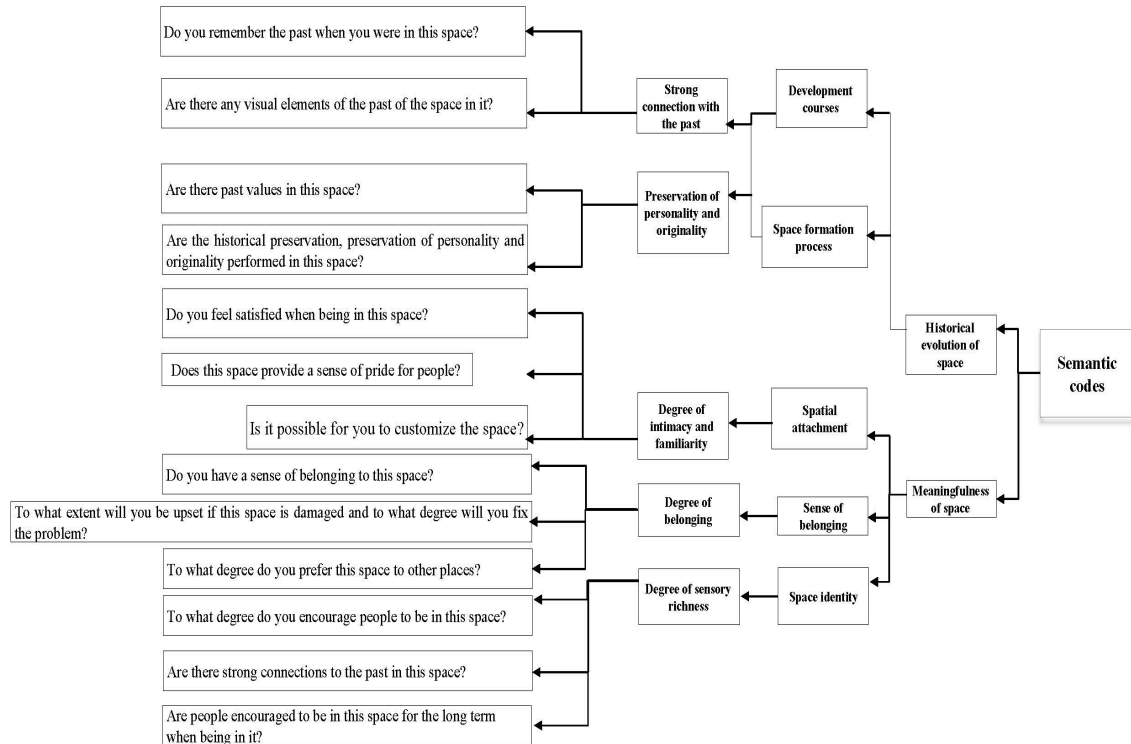


Fig. 4. The Questions Related to Semantic Codes

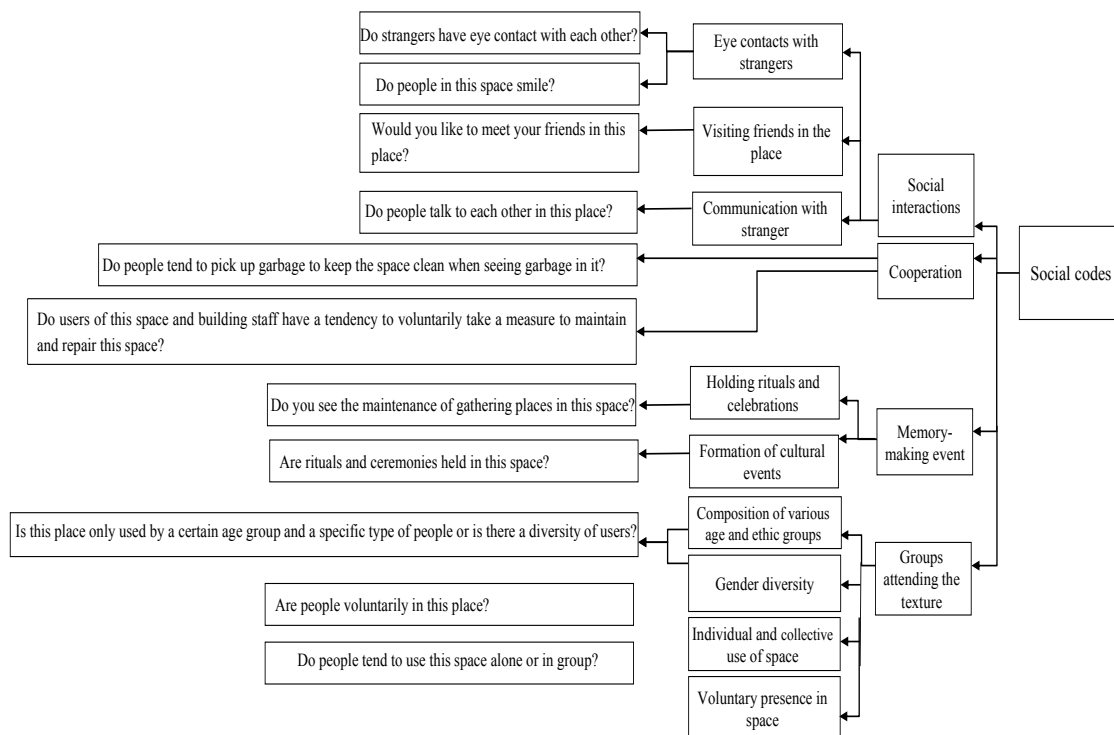


Fig. 5. The Questions Related to Social Codes

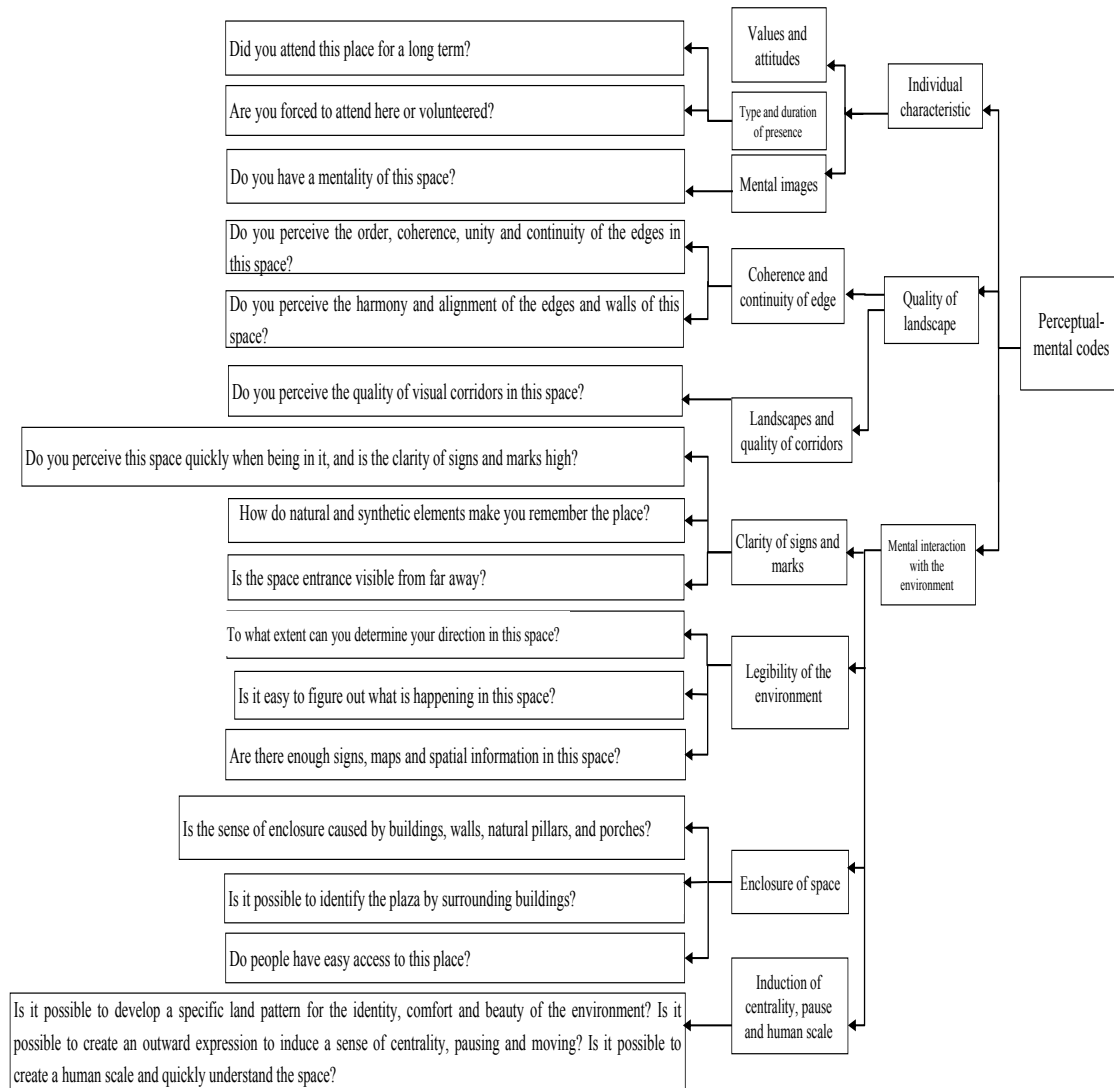


Fig. 6. The Questions Related to Perceptual-mental Codes

4.3. Validation of the Questionnaire

The measurement tool must have the required reliability and validity. Validity and reliability are the characteristics that every measurement tool including questionnaire should have. Validity is the degree to which the tool measures what it claims to measure. Also, reliability is the degree to which an assessment tool produces stable and consistent results.

4.3.1. Pilot Test (Pre-test)

The questionnaire should be tested (formally and informally) before it is applied:

Informal pre-test: at this stage, the preliminary examination is mostly advisory and not all statistical population is evaluated. Most of the people who are asked include professors, experts, researchers, and those who have a specialty in the research topic, and some are part of the statistical population.

Formal pre-test: At this stage, the data are collected in the same way used for the main data collection phase, but it is limited. In other words, the people who respond to the questionnaire should be representative

of the actual sampling. The main purpose of a formal pre-test is to examine the pattern of the answers, so the pre-test sample should be large enough. The results of this step will help the researcher decide which questions have the least or most respondents. Moreover, the repeated questions are identified, and how the questionnaire is responded estimates the approximate time required for the main sampling. In this study, a statistical population of 80 was used for the formal pre-test.

4.3.2. Validity and Reliability of the Questionnaire

To investigate the validity of the questionnaire, its face validity and content validity were evaluated. In order to validate the face validity, 6 experts in urban planning who were familiar with the research topic were asked to determine whether the questions were appropriate to determine the purpose of the research. According to the results obtained from the statistical analysis of the preliminary implementation, a number of questions were removed from the initial questionnaire and the final test was performed with

40 questions.

The conceptual research model derived from theoretical studies was also used to design the questions to confirm their content validity. It should be noted that Cronbach's alpha was used to assess the reliability of the questionnaire. In the present study, the reliability of all questions was estimated 0.7, confirming the reliability of the questionnaire.

5. CASE STUDY

In each study including case study, the case study should be clearly identified. This is of great importance because it is practically impossible to perform a research with no defined case study and

the results will not be valid if the subject is studied without a certain case study.

5.1. Hasanabad Square

It is located in the middle part of Tehran's central zone. The square is in a historical texture called "Hesar Nasser". According to Tehran municipality divisions, Hasanabad Square is the boundary of districts 11 and 12. Hasanabad Square has a unique design and dates back to the Qajar and Pahlavi eras. There are four buildings around the square body that make it distinguished. They were constructed in the neoclassical style combined with Baroque architecture in 1934 by engineer Mirza Alikhan (Bani-masoud, 2011, p. 232) (Fig. 7).



Fig. 7. Location of Hasanabad Square in Tehran City

(Strategic Management Plan for Improving the Quality of Urban Spaces of Tehran, 2012)

5.2. Azadi Square

It was called "Shahyad Square" before the Islamic Revolution of Iran. It is the largest square of Tehran City and located in west Tehran. According to the municipality division, it is in district 9. The square was

designed and built along with Azadi Tower in 1970 and named "Azadi Square" in 1978 after the Islamic Revolution of Iran. Azadi Tower is the symbol of Tehran City and has witnessed many political events before and after the Islamic Revolution of Iran (Fig. 8).

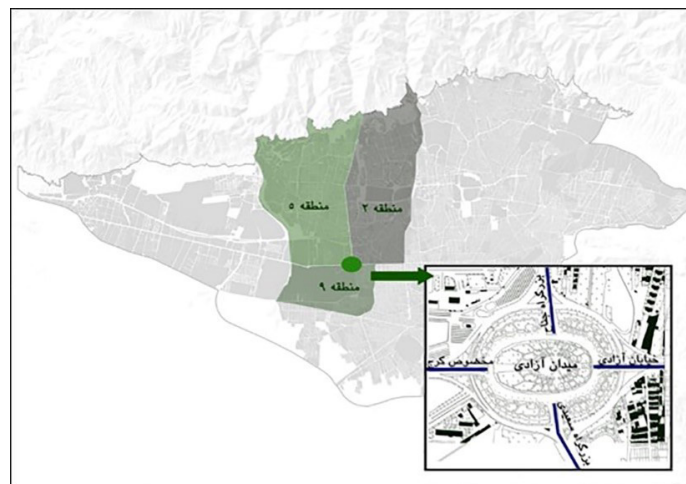


Fig. 8. Location of Azadi Square in Tehran City

(Strategic Management Plan for Improving the Quality of Urban Spaces of Tehran, 2012)

6. FINDINGS

In this study, in order to evaluate the memorability level of urban spaces, the components contributing to the formation of a sense of collective memories in urban spaces have been studied using a semiotic approach and by developing measures, as discussed in detail in this article. These measures were introduced as the diagrams of operational indices of codes, namely four logical, perceptual, social, and semantic codes, and were investigated in Hasanabad Square and Azadi Square.

In this regard, qualitative norms of perceptual, semantic and social dimensions of semiotic patterns hidden in the urban spaces of Hasanabad Square and Azadi Square were evaluated by using a questionnaire filled out by citizens and urban space experts. The results of the questionnaire were presented as findings, analysis of tables and charts by reviewing the view of 190 respondents, as the research statistical population. In order to analyze the data collected, using LISREL software, the following path analysis was applied. So, the correlations between variables were presented for both Azadi Square and Hassanabad Square to compare them.

6.1. Model Interpretation

The results of the analysis show that eleven factors affect the memorability of urban spaces based on semiotic patterns. According to the theoretical research model, the correlations between these eleven factors are shown as the following hypothetical model.

Based on semiotic patterns hidden in urban spaces, social interaction, cooperation, memory-making events, groups attending the texture, as social codes, are considered as a factor forming social events,

and individual characteristics, quality of landscape, and mental interaction with the environment, as perceptual codes, are considered as a factor forming the audiences' mental image of space, and two factors of meaningfulness of space and the historical evolution of space, as semantic codes, are considered as a factor identifying the space. Moreover, two factors of space function and space body, as logical codes also play significant roles in shaping the properties of each space. The end product of this set, which was named "the semiotic pattern hidden in urban spaces, influences the formation of a sense of collective memory that can be assessed with spatial, socio-cultural, and mental-perceptual components in urban spaces. Of course, the effect of logical codes should not be neglected. Logical codes, which correspond to the spatial component of collective memory, as support codes directly influence perceptual codes, and on the other hand, differentiate the qualities of different spaces by injecting specific spatial features.

As a result of this model process, two independent sets are obtained. There is a causal relationship between these two sets (Figs. 7 & 8). In the first set, the operational indices of the four codes, as independent variables, influence the formation of semiotic patterns. Moreover, semiotic patterns, as mediator variables, depend on the operational indices of the four codes, on the one hand, and as an independent variable, influence the formation of a sense of collective memory, on the other hand, indicating that the semiotic pattern recognition is effective in retrieval of a sense of collective memories. The values of the direct relationship between perceptual, logical, semantic and social codes are 0.80, 0.57, 0.75, 0.69 in Hasanabad Square and 0.5, 0.56, 0.46 and 0.7 in Azadi Square, respectively.

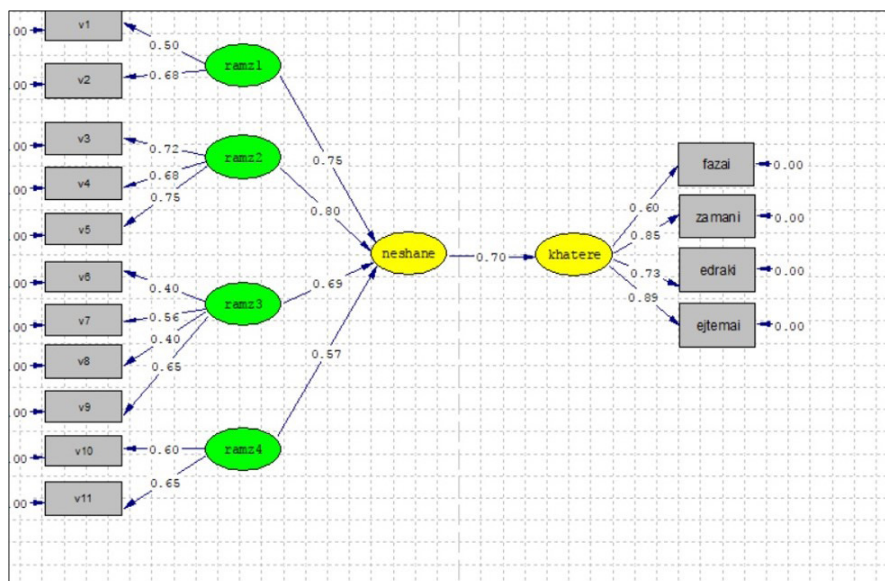


Fig. 9. The Output Diagram of LISREL Software for Hasanabad Square

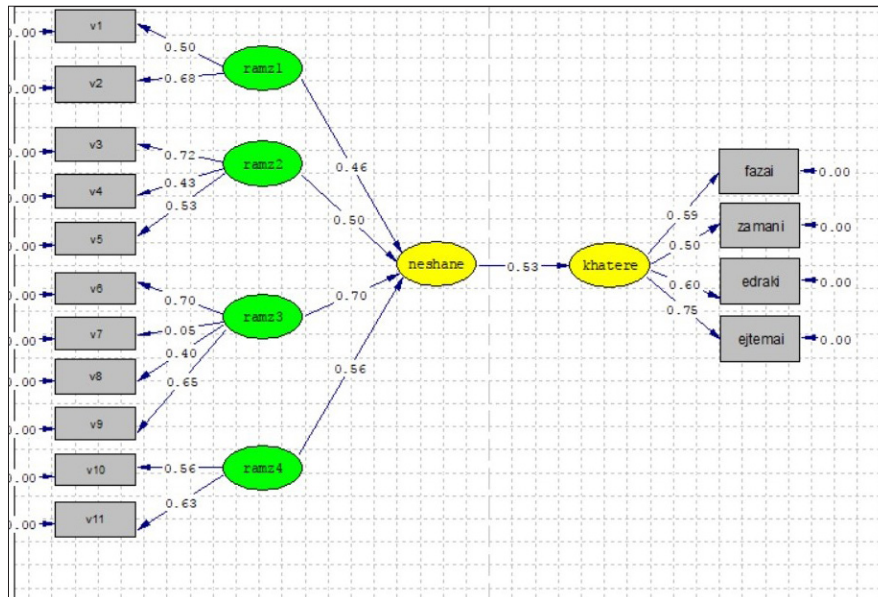


Fig. 10. The Output Diagram of LISREL Software for Azadi Square

The results show that Hasanabad Square is a memorable space with the realization of the four abovementioned codes as much as 70%. The high level of memorability of Hasanabad Square is primarily due to the high values of operational indices of perceptual-mental codes (quality of landscape, mental interaction with the environment and individual characteristics). What is perceptually very effective in Hasanabad Square is the preservation of its main body from its inception until today. This feature enhances the quality of landscape and improves the audiences' mental interaction with the square. Moreover, the preservation of the main square body is closely related with the audiences' mental image of space and plays a key role in the memorability of this square.

7. ANALYSIS OF FINDINGS

The semantic codes of square have been assessed with two criteria, including: 1- Historical evolution, 2- Meaningfulness, as operational indices of semantic codes and the most influential criteria on space identity. Another important factor influencing the memorability of Hasanabad Square is the historical background and the passage of time process in the square. Fortunately, the meaningfulness and identity are well seen in the square (Fig. 11).

Recent functional and operational changes in Hasanabad Square have influenced social codes in the square, which were assessed by four criteria including: 1- social interactions 2- memory-making events 3- Cooperation 4- groups attending the texture, as operational indices of social codes and the most influential criteria in the formation of memory-making events as well as social interactions.

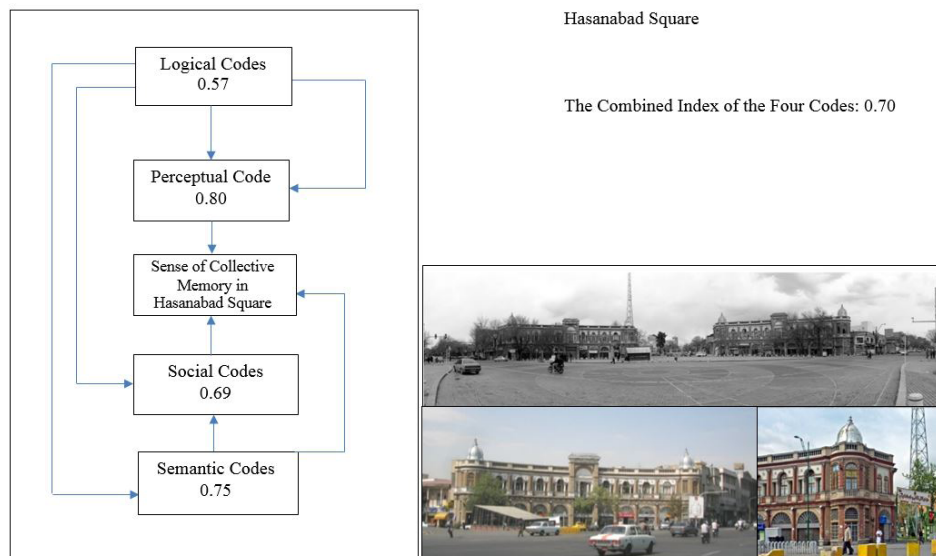


Fig. 11. Realization of the Four Codes in Hasanabad Square

About Azadi Square, the results show that it is a memorable space with the realization of the four abovementioned codes as much as 55%. The high level of memorability of Azadi Square is primarily due to the high values of operational indices of social codes. The social codes in the square were assessed by the four criteria (including: 1- social interactions 2- memory-making events 3- Cooperation 4- groups attending the

texture) as the operational indices of social codes and the most effective criteria in the formation of memory-making event as well as social interactions. Azadi Square is an event square which is a gathering place on the anniversary of the Islamic Revolution of Iran and this has an acceptable impact on the memorability of the square.

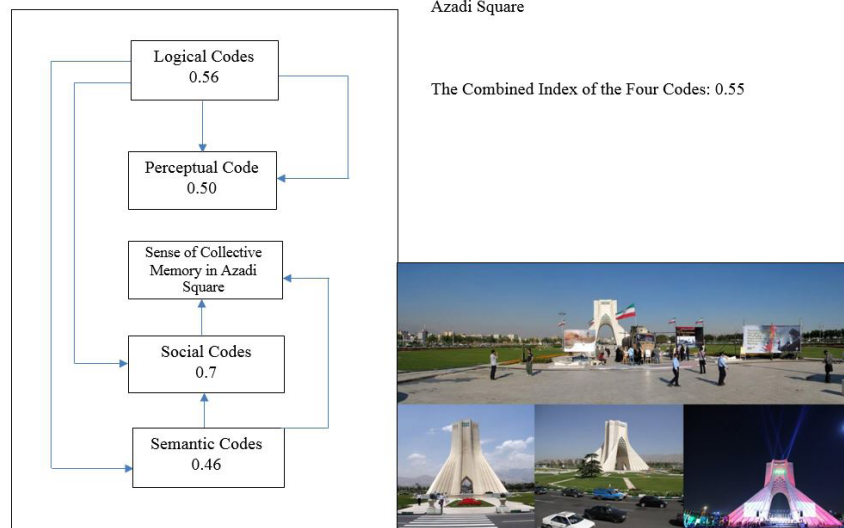


Fig. 12. Realization of the Four Codes in Azadi Square

Perceptual codes have been assessed with three criteria (including: 1- Quality of landscape 2- Mental interaction with the environment 3- Individual characteristics) as the operational indices of perceptual codes and the most influential criteria in forming individuals' mental image. What is perceptually very effective in Azadi Square is the presence of Azadi element and Azadi Tower in the main space of the square, which is considered one of the most valuable visual manifestation both in Azadi Square and in Tehran. This feature of the square enhances the quality of landscape and leads to audiences' mental interaction with it. On the other hand, the presence of Azadi element is closely related with the audiences' mental image and plays an important role in the memorability of the square (Fig. 12).

To evaluate semantic codes, two criteria (including: 1. historical evolution 2. Meaningfulness) were used as operational indices of semantic codes and the most influential criteria in space identity. What is semantically influential in Azadi Square is the historical background and the passage of time process in Azadi Square, and also the important events in the contemporary history of Tehran have a significant impact on the memorability of Azadi Square. Unfortunately, the recent functional and operational changes in Azadi Square and the transformation of the square into a traffic square, with the terminal role currently evoked in the audiences' minds, have a negative impact on its memorability. Moreover, this

results in the reduction of the social vitality of the square and the presence of different social classes.

8. CONCLUSION

The results of the measures show that according to the respondents, the urban spaces of Hassanabad Square and Azadi Square is still memorable, and according to the results of path analysis and structural equations, the memorability of Hassanabad Square is due to the perceptual codes and the formation of audiences' mental image of space and the memorability of Azadi Square is due to the social codes and the formation of social events in it.

The results obtained from confirmatory factor analysis indicate that perceptual codes, as mentioned in the diagram of "combination of components forming collective memories and semiotic codes", represent the perceptual-mental component of the sense of collective memory in Hassanabad Square, which has the greatest impact on the memorability of Hassanabad Square. While in Azadi Square, social codes, as shown in the abovementioned diagram, represent the social component of the sense of collective memory, which is the most influential factor in the formation of the sense of collective memory in Azadi Square.

In the last step, the operational indices of the semantic codes, which are represented by time and meaningfulness criteria, were measured and analyzed for both Azadi Square and Hassanabad Square. The

results of the confirmatory factor analysis indicate that semantic codes, which represent the temporal component of collective memories, have a greater influence on memorability of Hasanabad Square, as compared to Azadi Square (Fig. 13). According to the results of the analysis, the criteria of identity and historical evolution of space, which were introduced as operational indices of semantic codes, lead to the creation of collective memories in Hasanabad Square through their influence on the identity of Hassanabad Square. However, in Azadi Square, these two criteria are less important and this is justified by the spatial features of Azadi and Hassanabad squares, which were referred to as logical codes in this paper.

In this applied research, according to the investigations and their results, to shape a memorable area for citizens, in addition to perceptual-mental and social components of collective memories, which are currently at accepted level in the urban spaces of Hassanabad Square and Azadi Square, it is required to pay attention to spatial and temporal components which are at unfavorable level due to changes made in recent years.

This illustrates the inability of space to present the potential expected by the audience in space.

Therefore, attention to the activity dimensions of space in measuring the quality of space is more noticeable, while experts are more concerned with physical indices. The intersection of environmental quality derived from the citizens' mental perceptions and qualitative norms considered by urban designers for urban space promotion can illustrate the quality of responsiveness of a place to a wide range of audiences and space designers. Thus, taking an approach by which the views of experts and end-users of space come together should be on the agenda of organization of urban spaces. Despite specific situation in Iran, it is not to be expected that these conditions will be improved without a public awareness system about the memorability of urban spaces and the continuity of these conditions could lead to public dissatisfaction with urban spaces. Certainly, people's conscious and knowledgeable interaction with urban spaces can result in richness of space, perception of space richness and growth and awareness of people. On the other hand, people's common understanding can shape, perpetuate, and deepen collective memories of the environment, and thereby deepening the sense of collective belonging to the environment, society, and the development of identity.

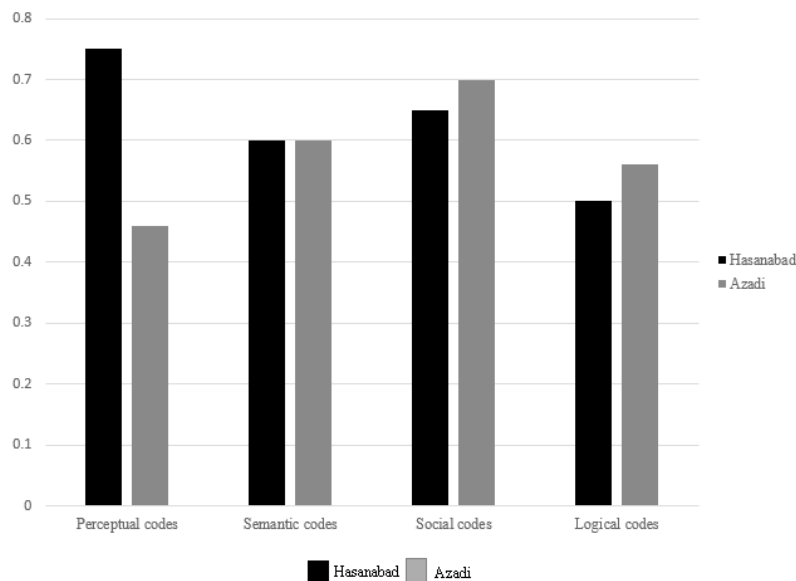


Fig. 13. Comparison of the Results Obtained for Hasanabad Square and Azadi Square

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