

INVESTIGATING THE URBAN SIGNS FOR READABILITY IN TODAY'S URBANISM (CASE STUDY: MASHHAD DOWNTOWN, IRAN)

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Abstract

Town is a large house that should have some characteristics and benefits, so to create an attractive and lively environment it is desired to use urban elements as a leading indicator which has a significant impact on the beautiful face of the city. The use of urban indicators as a tool for organizing and saber-rattling is explicitly seen throughout history. Nowadays due to the negligence of urban design criteria the towns are dealing with reduced readability, which causes the lack of urban vision. As the human environment includes natural factors, manmade factors also provide a large part of his life. Indeed, features should be applied in the sign which will lead to their improvement. This research seeks to recognize the urban signs, and was used to collect data library and field investigations. The research method is the correlation method utilizing the mapping tool. The case study is the downtown tissue (in Mashhad of Iran) which is composed of four main streets leading to the Imam Reza Holy Shrine. Research findings were also the representation of characteristics for the urban signs of the studied region to be a background for future designs. Results showed that the visual aspects are not the only factor for the urban signs to become outstanding and a good image is based on improvement, not demolition, even at historical buildings. Thus, designers should take both sides into consideration and attempt to urban rehabilitation and improvement.

Keywords: Mashhad, Readability, Signs, Urban Elements, Urbanism.

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INTRODUCTION

Town is full of meaning and signs that imply it and container lead to the generation of sign-semantic currents (Sholeh 2009). Urbanism history characterizes the old history of urban signs. The figure of Athena in ancient Greece, Jupiter in ancient Rome, mosques in Islamic cities and the like, are symbolic of the fact that human being has always shaped urban signs whether under pre-made plans or unconsciously. Urban signs need a special place in the minds of the inhabitants of those cities and were really helpful in forming the structure organizing those towns (Poor Jafari 2003). When the town and its components and buildings appear more obviously and more complete, they will be more distinct and perceivable.

The problem of seeing the urban vision and the lack of it and efforts to recognize its creation is among the most important problems of the town. Today, due to the structures based on two-dimensional studies, and negligence of necessary urban design principles, urban areas have rarely the obligatory readability for the communities of residents and users. While readability as the essential quality in the living environment and urban spaces, shows an important role in the sense of orientation, reducing sense of being lost, and quick familiarity and communication with the location by people.

While certifying readability of the town and different regions of the town, is an important matter in urban design and of a specific status in shaping the coherent and proportionate urban vision. So every town or part of it in order to generate a clear image in the inhabitants' minds requires that the individual be able to simply recognize parts of the town vision and connected it together in a linking form in the mind. Therefore, in order to improve readable and identity oriented cities for residents, the first step is to combine and structuralize the urban environments. That one can be in the most suitable possible way and by analysing this structure, grow and combine a modern and exact overview of the town in his mind (Poor Jafari and Alhjh 2010).

The character of sign refers to the person's identity. The sign character grows with direct knowledge of physical environment. So it is a replication of social and cultural features of urban sign. However it shows an important part in the richness of individual and social character. Meanwhile part

of the human personality and society which make personal and social identity, are places and elements through which he knows himself and makes known to others. In this way between individual and community that sign will form a deep relationship (Poor Jafari and Alhjh 2010).

The way the signs builds for us ahead, is not a unique and absolute path. It is similar a road with myriad ancillary ways, by choosing any way the possibility for reaching other destinations will be provided (Rouhi 2007). With the assistance of urban signs as the outstanding points and pointers in the towns we can move more easily towards this target. In this way with adaptable and applying the principles which facilitate the application of urban signs for citizens, the act of reading and recording the cities for residents will be easier (Poor Jafari and Alhjh 2010).

LITERATURE REVIEW

In the discussion over literature review mention to definition of city image by Lynch's classification, and also offer comprehensive definitions. Image of the city is an important subject in today's urbanism. Image of the city is a definition in people mind that contains five categories. These five categories deal with convers the role, status, characteristics and differences of symbol with the sign.

Image of the city

Image of the city is real appearance of the lifestyle and insight of its inhabitants. In a way that throughout history, geographical factors, has never had such a decisive impact on the way people's life and their insights. Image or mental vision of the city, is a valued schemas in the mind of the separate of the cityscape. Physiological, individual, social, factors and beliefs or values and etc. play an important part in making the vision or image. This image is the foundation of any contact of the individual with the environment (Davari Nezhad and Mabhoot 2013).

The main parts of image or person's mental map will have overlay with each other and become complete. So we can reflect a set of map-image or map-perception of a town; a set that people have extracted of physical existence of a town, this extracted image is the town vision (Poor Jafari and Alhjh 2010). It should be noted that the Vision or the mental image, is the image of a citizen of the environment and therefore is not accurate and in full compliance with current realities.

Image represents the subject simply and succinctly (Mousavi Lar 1994). Image of the city: are all the elements of the town that can be seen by the eyes. All of these features individually and particularly act in a continuous and collective mode (in the any moment of time a combination of several factors together). "Lynch" to offer tangible manifestations of the Image of the city conditions five main factors: road, edge, node, sign and neighborhood (Lynch 1995).

Then by saying and describing some examples makes them and the environment better understood is the result of insight and thought. Lynch not only explains and describes these factors but also offers some methods to build image of the city in a way which is in compliance with these conditions. Each factor typically includes another factor and penetrates in other factors.

Sign Definitions

Signs appear frequently in the forms of words, images, sounds, smells, flavors, movements and objects. However, these things are not integrally meaningful and only when a meaning selected, they will turn into a sign (Rouhi 2007). In another definition Moughtin et al. also define urban sign as an element or group of uniform elements which can be divided from a visual field with repetitive detailed.

These signs in the form of most single and outstanding elements which often exists in natural or artificial forms (buildings, part of buildings, urban elements, etc.), are responsible for facilitating the navigation and route determination for the inhabitants or the environment users, and also giving identity to a particular place. In this way each of these elements as one of the five main physical elements in the town vision, is of an important role in the readability and identifying different parts of the town (Davari Nezhad and Mabhoot 2013).

The characteristics of the signs should be such that could be noticeable among many factors. The signs may be in the city or so far that continuously show a convinced direction. Therefore the town maps afford a greater help in organizing the space in the mind and consist important reference points in the environment. The signs' understanding is obtained completely unconsciously through relating them to familiar systems of the norms and social contracts (Chandler and Parsa 2010).

The Role of Urban Signs

The urban signs meet multiple objectives in routing. Golledge in 1999 considers that urban signs can be used as a measure of space organization or a guiding tool (Poor Jafari and Alhjh 2010).

- Urban signs as a measure of space organization: Symbolic signs (Eifel Tower)

- The spatial reference points (a combination of parts with more familiarity, visual dominance, being discernible from distance, and the importance of culture)

- Urban signs as a guiding tool
- Emphasis on hierarchy of place
- Create the skyline

As Grouter in 2004 considers the science of signs, each sign is explored from two aspects or in other words is of two dimensions and it is natural if a sign has two aspects simultaneously.

- Syntactic aspect of sign which represents the facial characteristics like form, size, and the color. The mark receptor perceives the sign from facial aspect and can give it a facial organization through repeating a sign.

- Semantic aspect of sign represents the content and meaning of the sign. Semantic perception of a sign is often possible when the receptor has already perceived its concept and this means that the sign should be part of viewer memorized content list (Poor Jafari and Alhjh 2010).

From Saussure's opinion the sign has two folds and actually includes two parts:

- The Signifier: the tangible part of a sign; the material form of the sign; the shape that the sign takes. The Signifier causes the confusion of the object and the sign as a single entity.

- The Signified: the hidden part of the sign; the content implied by the Signifier or the meaning of the sign (Poor Jafari and Alhjh 2010).

The signifier and the signified context are known as form and content in Art Criticism. Louis Hjelmslev mentioning to this issue and states: "One can consider the dichotomy between signifier and signified as (form and content). In this framework the signifier is as form or face, and signified as content or theme." (Zamiran 2003). Peirce in his view (Table 1) adds the object (to which sign refers), as if he adds the indicator to the Saussure's division (object) (Poor Jafari and Alhjh 2010).

Table 1: Specifications of Urban Sign (Poor Jafari and Alhjh 2010)

Specifications of Urban Sign	Quantity and/or Quality
The role of urban sign	<ul style="list-style-type: none"> • As a corporate gimmick • As a guiding tool • Emphasis on places hierarchy • Create the skyline
Sign Characteristics	<ul style="list-style-type: none"> • Singularity (Unique) • Prominence • Distance and Visibility from different directions • Availability • Content and function
Types of urban sign	Natural signs Artificial signs 1.2 Constructional signs 1.1.2 Known 2.1.2 Unknown 2.2 Non-constructional signs 1.2.2 Known 2.2.2 Unknown

Lynch in his description of urban signs, offerings two main features for them one of which is singularity and the other prominence:

A) Singularity: or intense contrast with the environment (differences in size, shape, position, age, or even cleanliness). If signs have distinct forms with different background and if their location on their surroundings is dominant, they will be easily discernible.

B) Prominence: prominence in the spatial situations. This prominence occurs when a building is visible from different locations or is located noticeably in the intersection of several routes (Lynch 1995).

The Difference between the Sign and Symbol

Comparing the symbol and sign we can say: "sign plus public reputation in a long time" in other words, any sign with regard to the characteristics of the object can be considered and implemented, but the symbol does not appear once and overnight. Regarding the relationship between the symbol and sign it can be specified that the sign can be a potential symbol but requires a relatively long passing of time. In other words the role of cognition, social acceptance, and reputation is extremely important and regarding the religious symbols religious beliefs should be added to the previously

mentioned cases (Mousavi Lar 1994). Each symbol is likewise a sign but a sign is not compulsory a symbol (Poor Jafari and Alhjh 2010).

Types of Urban Signs

Urban sign has three classifications with its dimensions that presented by table 2 and 3. First Classification: in the physical environment, there are two main categories of urban signs (Table 2):

Table 2: Poor Jafari's first classification (Poor Jafari and Alhjh 2010)

Table 2: Poor Jafari's first classification (Poor Jafari and Alhjh 2010)		
• Natural signs (see Figure 1)		
• Artificial signs	Constructional signs (include buildings)	1. Traditionally constructed building
		2. Buildings constructed according to urban master plans with astonishing characteristics (see Figure 3)
	Non-constructional signs	In a smaller scale of urban buildings three dimension elements which are for ornament of the city (see Figure 2)

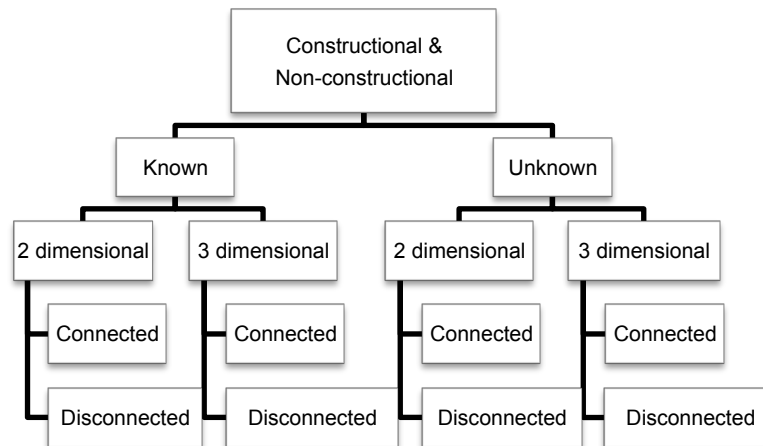


Figure 1: Constructional and Non-constructional signs (Poor Jafari and Alhjh 2010)

- **Known signs:** in the urban context is detectable by any viewer. Usually, in terms of scale and form are recognizable from adjacent buildings.

- **Unknown signs:** There are indications that there is no physical or external presence in the current situation, but in the past they physically play the role of a visible sign.

- **Two dimensional signs:** sign that have not the third dimension (height) and invisible. These kinds of signs have a limited operating range and are not discernible from far distances (such as football field or a pond).

- **Three dimensional signs:** this group of signs is under the known and unknown kinds of signs which have three discernible physical dimensions.

- **The connected signs:** those signs which are connected to their surrounding buildings.

- **The disconnected signs:** single and disconnected sign from their surrounding texture and have an identifier role.

- **The virgin signs:** signs with no manipulation which remained in their original shape.

- **The organized signs:** sign that manipulated and organized.

- **The Random signs:** the signs with no pre-determined plan and have the role of identifier and sign just due to their status among people and the town inhabitants, exactly in opposition with the planned signs.

Second Classification mentioned in table 3. And third classification are includes Cultural - Religious - Historical - Natural Disasters - War - Economic - Social - Ethnic Tribes - Socio-Political

Psychological Disorders (Poor Jafari and Alhjh 2010). In this study has been analyzed urban sign based on Poor Jafari classifications from recognition to analysis.

Table 3: Poor Jafari's third classification (Poor Jafari and Alhjh 2010)

• Visual symbols	Two dimensional visual symbols	No identifying height
		Fields with special application
	Three dimensional visual symbols	Organizations
		Historical buildings
• Verbal symbols	Sweet, historical, and social (debris, damages, abnormalities) memories related to belief (successes and failures)	
• Verbal-visual symbols		

RESEARCH METHODS

The research is drawn from correlational method whose general features include a focus on patterns that occur naturally. Measurement of certain variables and using statistics will be discussed through the method of relations model making. The samples of correlation research emphasize more on people attitudes, meanings attributed to objects, and even people's understanding of the behavior of others and less on direct observable behaviors (Groat and Wang 2002).

The research type is applied and its method is based on comparative analysis method by mapping. To collect data have been used library and field observation. The case study selected in the downtown tissue of (Mashhad city, Iran) which is divided to four main streets leading to the Imam Reza Holy Shrine. To achieve perceptual maps surveyed from 30 inhabitants (Based on the Lynch's research) to draw perceptual map in the area. In addition from inhabitants were requested to determine the most important and significant factors, places and monuments in the region regarding to places and monuments determination in terms of addressing. Eventually after the perceptual maps, the figures and numbers should be turned into diagram by Excel software.

STUDY AREA

Mashhad city is located in Khorasan Razavi province in North-East of Iran (Figure 2). The traditional tissues in the city are located around the Holy Shrine (Ahmadi, Pileh Chian and Talebi 2013). Therefore, study area has been chose among the streets in exit and entrance to the Holy Shrine. The Street are include: Shirazi, Imam Reza, Navab Safavi, and Tabarsi (Figure 3).



Figure 2: Mashhad Location in Iran (Geology 2014)

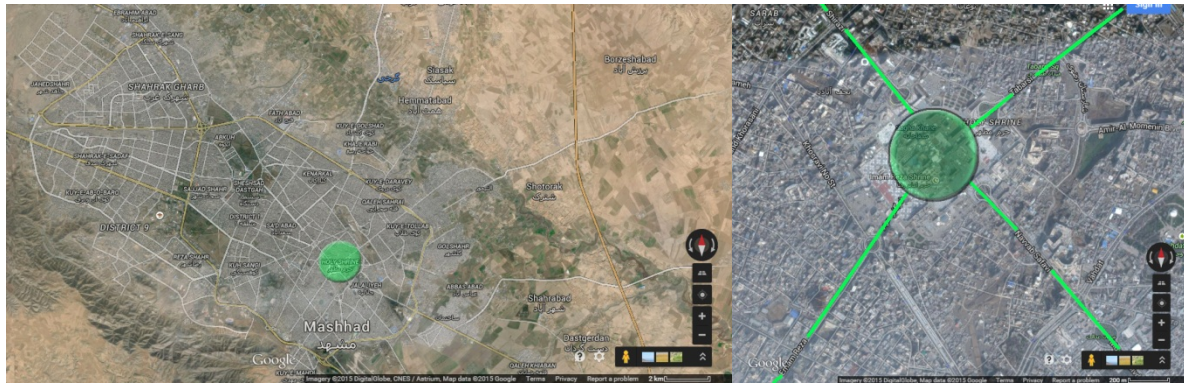


Figure 3: Location of Imam Reza Holy Shrine and its streets in Mashhad (Googlemaps 2015)

ANALYSES AND RESULTS

Based on field study, recognition and mental map of residents has been determined the sign in streets. Locating signs taken from the inhabitants’ perceptual map presented in Google map as follows (Figure 4). Lactation of the signs have been analyzed and determined in mentioned four streets “Shirazi, Imam Reza, Navab Safavi, and Tabarsi” but to reduce the amount of information offered figure 4 as an example from the mental image of the inhabitants.



Figure 4: Locating signs in Imam Reza Street (Authors based on Google Maps)

Based on the perceptual maps of inhabitants, the table of signs specifications has been surveyed (Table 4). This table includes characteristics in literature review benefited for the investigation of the signs. The sample of surveying status of Mashhad signs that obtained from perceptual maps presented in table 4. This table shows analyses of study main factors in three signs of the streets as a sample.

Table 4. Surveying the status of Mashhad signs using Poor Jafari classification (Authors)

No.	Name	Number of repetitions	Reason for being outstanding	Function	Antiquity	Position of Establishment	Place of Establishment	Kind of Visual Symbol	Distinction in Form in Relation to the Surrounding	Materials
1	Naderi garden	25	Visual	Cultural	Yes	Solitary	Shirazi St.	3D	Have	Stone
2	Majd Commercial	21	Visual-Functional	Commercial	No	Solitary	Shirazi St.	3D	Have	Stone
3	Central Market	21	Functional	Commercial	No	Connected	Shirazi St.	2D	Have not	Brick

Having provided the perceptual maps of the interviewees, the information related to the signs (results) are specified in the table 4. The number of repetitions in the perceptual maps and analysis presented in Diagram 1 and 2. Despite the large number of signs in these four streets and specially in Imam Reza Street, interviewees mentioned to the elements that are closer to the Imam Reza Holy Shrine (Diagram 1 and 2).

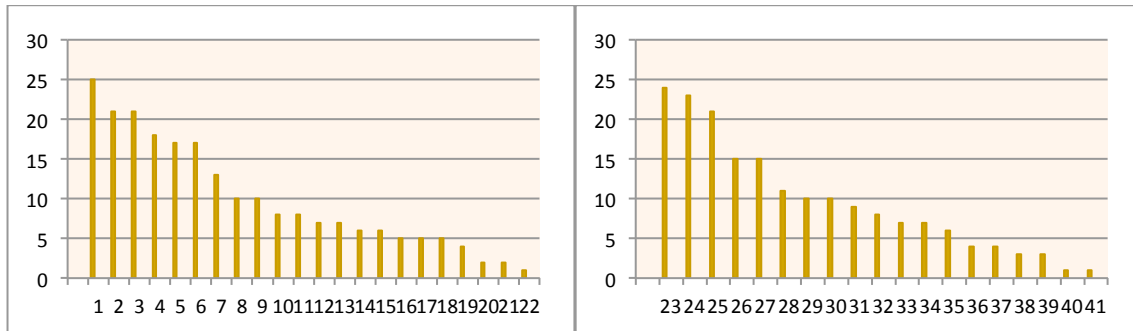


Diagram 1: Number of repetitions Shirazi (Left) and Imam Reza (Right) streets' signs

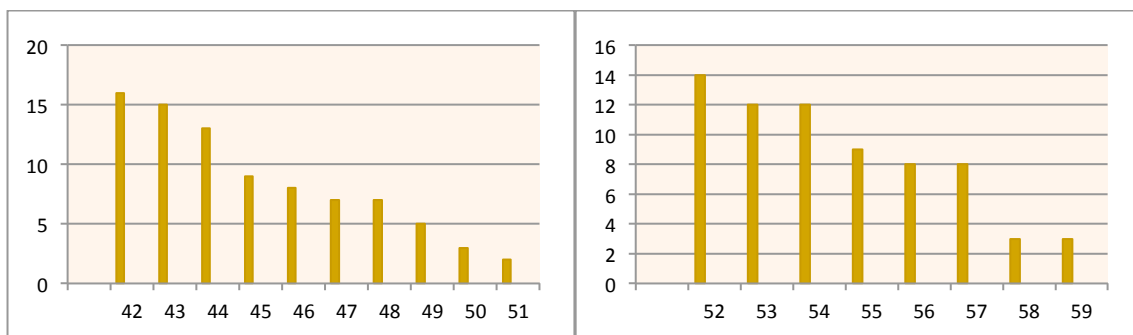


Diagram 2: Number of repetitions Navab Safavi (Left) and Tabarsi (Right) streets' signs

Regarding the reason for the signs being outstanding, more than half of the considered signs are outstanding from interviewee's point of view about visual-operational. 5% was visual and 56% was functional (Figure 5-Left).

The investigated signs are generally categorized into eight classifications for urban function. Around one-third of the signs are residential and one-third, commercial. 18 % are religious and the rest includes the cultural, administrative and treatment; and, only 2% are urban elements which is a small portion (Figure 5-Right).

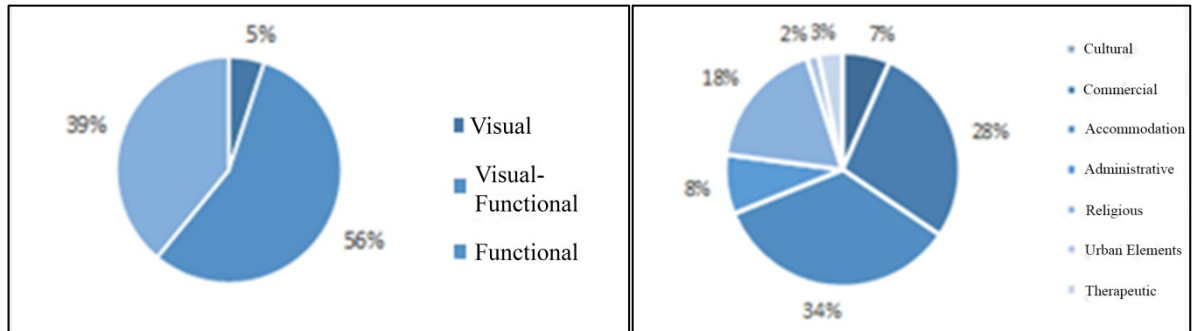


Figure 5: Reason for being outstanding (Left) and function (Right) of urban signs

About 70% of the signs are the new signs; of course this does not imply the insignificance of the historical monuments, but it denotes the fact that the new and high buildings attract to the public attention (Figure 6-Left). Although the singleness is extremely important in being outstanding and visible, around 55 % of the signs are in affiliation with the background and the surrounding buildings. This issue illustrates the impact of other factors other than the position of establishment (Figure 6-Right).

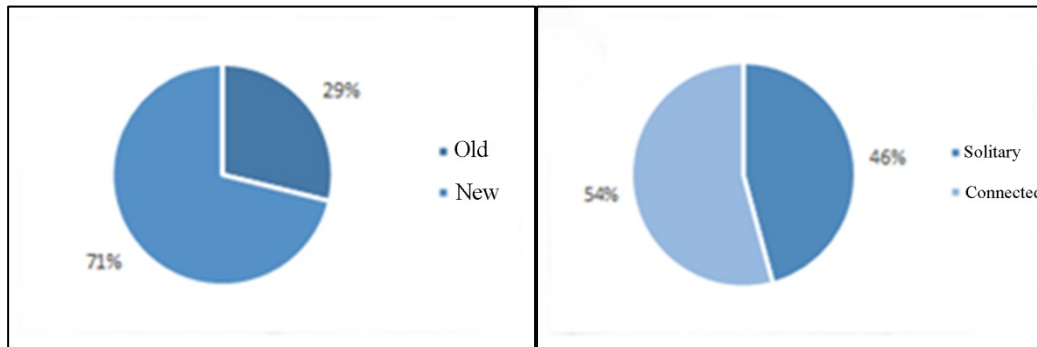


Figure 6: Antiquity (Left) and position of establishment (Right) of urban signs

Considering the diagram seen that about 40% of the signs are located in Shirazi Street; 30% in Imam Reza Street and the rest are equally distributed in Navab and Tabarsi streets (Figure 7-Left). The classification of three dimensional signs which have three discernible physical dimensions and distinctively are more visible, consist 60% of the drawn signs with this dimension. The other 40% are two dimensional and indeed had other noticeable characteristics (Figure 7-Right).

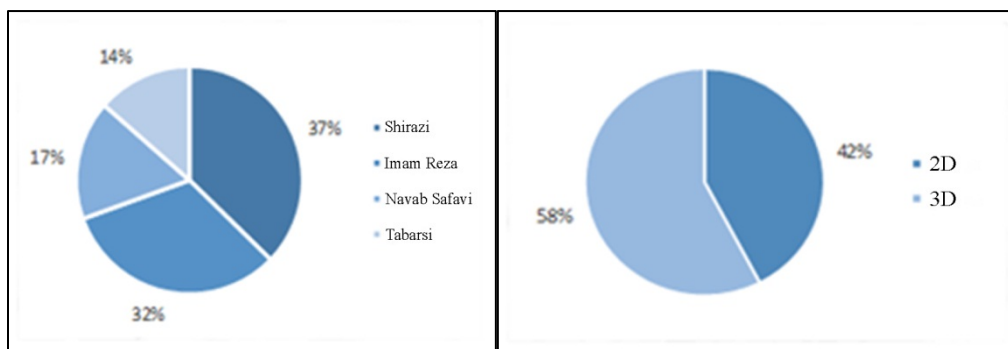


Figure 7: Place of Establishment (Left) and kind of visual symbol (Right) of urban signs

Distinction in form is one of the important factors in determining the significance of the sign. About 60% of the considered signs are of formal distinction and the other forty per cent do not have a distinct and specific form. Regarding its impact on insignificance of the sign, this classification includes a noticeable portion (Figure 8-Left). One of the important factors is material of building façade. Stone with a significant amount of 50% is the first and after that is brick with thirty per cent and the rest are materials like glass, cement, composite, and bronze (Figure 8-Right).

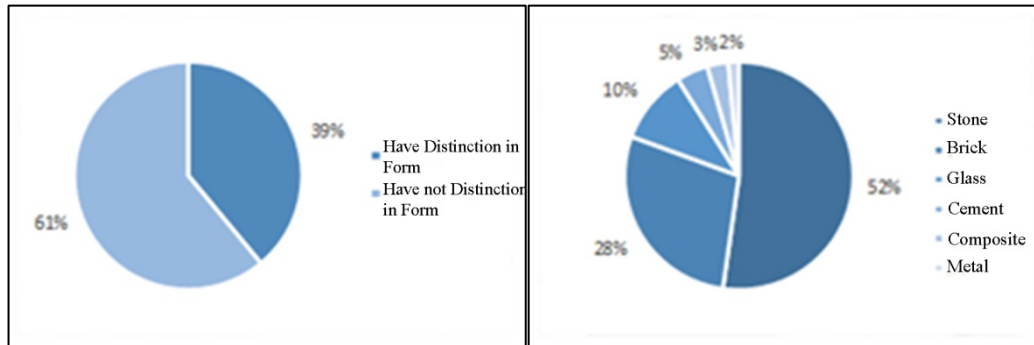


Figure 8. Distinction in Form (Left) and Façade Materials (Right) of urban signs

CONCLUSION AND SUGGESTIONS

In this study, the importance of signs and its effects in the mental map was identified. The results of this research are essential for making the buildings outstanding and turning them into the urban signs, and state also the rank of the signs significance from different aspects. According to schematic investigations the specifications extracted from the perceptual maps of the citizens in the region, the following results have been obtained:

The visual aspects are not the only factor for the urban signs to become outstanding. Most inhabitants remember the monuments which had both visual and operational aspects. Therefore, paying attention to this is an important issues which this being one-sided, being visual or operational does not influence significantly on a sign becoming outstanding. In relation to the results of visual and functional respect, study presented the significance of functional more than visual view.

Having been located one-third of the signs in Shirazi Street and one-third in Imam Reza Street states the more significance of these two streets in relation to the other two. Thus, it is better for designers and employers to offer their plans in these two streets to make them equal in significance to Imam Reza and Shirazi streets. Of course there are many new projects being constructed in Navab Street; but they have not yet become a sign for the people of these regions. Although the singleness is extremely important in being outstanding and visible, around fifty five per cent of the signs are in affiliation with the background and the surrounding buildings. This illustrates the fact that for the inhabitants and residents of the region, the singleness is not very important in comparison with other factors for becoming a sign.

Distinction in Form unlike previous studies, it was not important in people minds. Thus, designers should take both sides into consideration. The function of the signs consists of more numerous cases of which one-third is residential and one-third is commercial. And due to the area under study this is natural and understandable; because the Imam Reza Holy Shrine is a place for pilgrimage and the role of these factors will be highlighted. Since the number of buildings has reached to its required level, it is recommended for the designers to work on other aspects of being outstanding in order to expand the range of the signs.

In contrary to literature about significance of the historical monuments the study demonstrated that the new and high buildings attract to the public attention. These results may be due to deterioration of building's façade. Also traditional buildings in the city's plans and developments have been ignored. In the other side, building materials (stone and brick) as vernacular material was important for residents. The reason can be because of uniformity of new materials in building's façade. So the results showed that a good image is based on improvement, not demolition, even at historical buildings. The urban materials can lead to signs distinction and this region is not an exception in this regard.

Most of the selected signs are of the third dimension of height. This denotes the significance of breaking the skyline and tall building in becoming outstanding and visible. It is recommended for the designers to use the masses higher than the surrounding environment. This suggestion is surely for the better visibility and may not be approved from other aspects (from the architectural point of view, tall buildings should not be allowed to be constructed around the Holy Shrine, because this will reduce the significance of the main sign i.e. the Imam Reza Holy Shrine). Creating the distinction in form for the designed signs is an important and inevitable issue. More than sixty per cent of the signs in the region are formally differentiated. This differentiation can be in plan, mass, or its height.

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