Evaluating Visual Preferences of Architects and People Toward Housing Facades, Using Multidimensional Scaling Analysis (MDS)

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Abstract

One of the most important issues that have absorbed the public opinion and expert community during the recent years, is the qualitative and quantitative aspects of the housing. There are several challenges related to this topic that includes the contexts of the construction, manufacturing, planning to social aspects, cultural, physical and architectural design. The thing that has a significant importance in this topic, is the relationship between architects and the people. The role of their perception and mental images in making the decision is related to the architectural design of the housing. To Investigate the similarities and differences between what the viewpoints of architects and the people, is the main object of the research, that dedicatedly has been done on the facades by using multidimensional scaling analysis (MDS). The research implementation method is based on qualitative analysis of data from visual preferences from the viewpoint of architects and the people. The Statistical population includes 420 of people with a random sampling in the three areas in the central texture of Tehran and with 130 people of the architects that have been academic education and as well as work`s professional experience more than five years. The results indicated that subjective and visual perceptions of people and architects have considerable correspondence and distinctions with each other, which is recognizable.

Keywords: Visual Preference, Housing Facades, Multidimensional Scaling, Architect and People

1. Introduction

In all of the societies, "Architecture", especially the architecture of residential units reflects all of its normative and biological values, therefore, lack of identity and the rupture in the meaning has several visible and invisible damages. Generally speaking, bodies of residential buildings form the visual environment of the cities; they describe values and the taste of the society similar to a text, and they explain the identity and their distinctions (Golkar, 2008: 97). Two main poles of this representation are the architects and the people. "Architects" as the educated experts and intellectual elites, and the "people" as the instrumental elites and the final users play a role in this process. 1. It seems that the main topic in this context is the scattered ideas and the lack of a mutual subjective and subjective accordance between the architects and the people; which is assuredly raising the issues of "crisis in the meaning and identity" and intensifies the loss of meaning and formal visage of the cities. In the past, a number of unwritten agreements were existing between the architect and the people, as they would build whatever that was considered a norm. Architects and the people were not intending to make innovations and to create separate elements from those which were regularly used in the existing buildings (Ghaem, 1996: 23), therefore it is evident that the differences in the perception of meaning between the architects and the people are one of the specifications of the current age. Variations of current age have changed these relationships and the correlation between what the people want and build and the mentality and creations of the architects is lost (Lang: 2004: 70). It is obvious that the more their readings [interpretations] are closer to each other, creation of proper architectural plans, patterns and forms are more probable and we can state the opposite argument as a more distance between architects and the people makes their interactions much more difficult. This issue matters to a high degree to the architects since most of the researchers in this field including Rappaport, Alexander, Lang, and Nasr have considered self-relying of the architects as the main characteristic of the design in the current era (Alexander, 1964).

Studies in this field, introduces the "meaning" and the "formal attribute" as the main factor in reaction to the houses and the main context in the 'opposition' or 'interaction' between architects and the people. Therefore, the distinction between the designers and the people can be regarded as the result of the attention which is directed toward the formal attribute and the meaning, which is perceived in a different way by the opposite sides (Nasr, 2004: 24). It is evident that the building facade as the most evident zone in recognizing the formal attribute can include a number of meanings, too. Recognizing this content and to find shared contexts in the visual

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stimulation of the architectures and people that can lead to sets of patterns in designing the residential building facades is the main goal of this research; Solution which has the both specific visual capabilities for the perception of the public and their acceptance and to provide opportunities to improve the visual qualities in the viewpoint of experts, especially by the architects. The main question would be that 'how can we analyse the rendering of architects and people from the residential building facades using visual preferences?' and the main hypothesis of the research is based on the fact that evaluating the visual preferences of the architects and the people reflects different viewpoints regarding their perception of residential building facades. In other words, distinctions and similarities between the visual stimulation of the architects and their aesthetic tastes exist together with the public demand and perception which is recognizable. On the next step, by specifying these aspects we can argue how to reduce these distinctions and to focus on the similar perceptions.

2. Research Background

Evaluating the environmental and visual qualities dates back to more than half a century ago and it was more directed toward the urban landscape and natural landscape contexts. One of the fundamental theories in this regard is Kaplan's perceptual model. This model which suggests the main framework of visual preferences in the landscape, considers the "perception and cognition" of the users of the space and "discovery and search" as the two main demands of the users when facing the environment (Kaplan, 1989: 67). Also with an emphasis on the subjective dimensions of visual environment in the "Concise Townscape", Gordon Cullen (1961) and Kevin A. Lynch (1960) with a focus on the subjective image of the citizens have suggested definitions for the visual patterns in the urban spaces. Also in the field of architecture design, a number of studies offered communication framework between architects and people. Rappaport presents his "nonverbal communication" theory on the importance of the meaning and environmental association. He differentiates between the perception and association as two supplementary methods on the perception of the artificial environment. In his point of view, designers rely on the 'perception' while people rely on the 'association', in other words, what people perceive from the environment is a combination of what they in mind have from the real world and the associations that are shaped based on their experiences of the world that is shaped by the environment and other people (Rapoport, 1982: 26). In his article with the title of "listening to architecture", James S. Ackerman have mentioned the theoretical challenges between architects and the people and he elaborates as follow: "Architect try to grand something that he wants to deliver to the employed; or believes to be good for the employed. In this situation, employed selects an architect who is more flexible and thinks about reducing the execution fees with a less stringent character. Finally, a highly elected, architecture is created which follows the present fashions that lack the desirable qualities." (Ackerman, 1969: 48). Some of the studies in this field directly indicate the differences between the public and expert priorities. On evaluating the visual qualities, Jack L. Nasar (1989), refers to the dual style of "popular among people" and "popular with the architects" and describe its characteristics as follow: "A number of studies were done in this field, we researched for the evaluation of architects and non-designer experts toward the high-style and the popular style houses. The result was that people do not appreciate what architects like, and vice versa. They have different rendering from a single building (Devlin and Nasar, 1989: 318). Al Nasar refers to a variety of international studies in the context of measuring urban spaces in his book with the title of "evaluative subjective image of the city" and argues that evaluations of the people and architects or on other words people who are alien or familiar with urban spaces, differ from each other.

In the literature of architecture and urban design in Iran, a number of studies were conducted with similar goals. In a survey which analyses the impacting factors on the environmental quality from the viewpoint of resident citizens, Tayyebian and Mansouri introduce "identity" as the most impactful social factor (Tayyebian and Mansouri, 2013: 12). Latifi and Sajjadzadeh focus on the role of qualitative capabilities of the environment and their advantage in comparison with the quantitative and technical factors through the viewpoint of residents in an article which analyses the relationship between environmental qualities and human behavioral patterns in the city parks (Latifi and Sajjadzadeh, 2014: 5). In a research which is done on the recognition of complexity in the prevalent traditional residential building facades in a spectrum between two poles of students in the field of architecture and students in other fields, Bomanian et al, concludes that the level of complexity recognition and also the extent of affection in the highest and lowest rates of it is equal in the two groups of students in the field of architecture and the students in other fields but has differences in their central layers (Bomanian, Shahbazi, and Oryaninejad, 2016: 126). Golchin et al have also paid attention to the evaluation of visual quality based on the priority of the users in the educational spaces. REsults of this research indicate that the crowded visual nature of the space and the lack of visual balance between the artificial and natural elements are some of the most important criteria which lead to the drop in the quality of landscape in the premises of educational spaces (Golchin, Naroui, and Masnavi, 147). Shahinzad et al., have studied the evaluation of women from the visual preferences of the urban spaces and have endeavored to specify the environmental qualities which are impactful on the visual preferences. Urban landscapes are not independent, abstract aesthetic phenomena, but they are dependent on the evaluation of the people who constantly experiencing them; this study concludes that to enforce the environmental qualities, we must consider some of the environmental specifications including the association, its natural essence, and proper preservation, etc. (Shahinzad, Radian, and Pourjafar, 2015: 22).

3. Theoretical Framework

A number of determining elements are at work for the perception of information and interpretations that each individual makes about his or her surroundings. Edward Hall considers the "Culture" as the most important factor in this regard as he elaborates as follow: "This pretense that two individuals belong to a specific culture mean that they interpret the world in a unique way. And they are able to describe their thoughts and emotions in a way that makes meaning for each other. (Hall, 2012: 18), therefore culture which is embedded in the options for the architects and the citizens can play a decisive role in the interpretation of meanings. Peter Zumthor believes that the buildings become approved when they can attract our "impression and perception" to themselves, impression and perception have roots in the past, therefore we should respect the "recalling process" (Zumthor, 2006: 24). On the other hand, the theory of ecological perception (Gibson's ecological study [/Gibsonian theory of development] pattern), considers the selection of individuals as a multi-quality topic in which people know and in most of the instances, learn to search for specific things, and perception of meaning is based on the subjective schemas (Lang, 1987: 108) (Therefore, recognizing the factors that architects and people start to build and chose, has a special complexity as it includes a broad spectrum of personal learnings to social beliefs. These factors are defined separately according to the ideas of the experts in this field for the architects and the people.

1. Factors Of Visual Stimulation

Although the human-environment connection is done by different senses, 80 percent of it is done by "looking". Therefore, watching the landscape and a perception toward it by the human has a great role on his or her perception and cognition from the environment and satisfaction or dissatisfaction toward it (Porteous: 1996: 88). Donald Appleyard considers three reasons as the main factors on the perception of the environment, these three factors include formal attributes, visibility attributes and use and significance. Formal attributes have a special importance and they include the visible area of the building. If the building has a visible and clear area and it is distinguishable from its surrounding environment, it can be perceived and recognized in a better way in its environmental context (Appleyard, 1979). Therefore, it is evident that the main impactful factor in the preferences for the building facades would be its "form" in addition to the conduct of meaning. According to Lawson, the visual stimulation of the forms follows specific structural rules under the titles of redundancy and entropy. Redundancy is the foreseeable, conventional, orderly and repetitive message which makes the form more readable and perceptible. This attribute stands as the opposite to the "entropy" which is described based on the innovation, complexity and more energy of the form. It is anticipated in this content that the rules for the visual preferences of the architects and the people follow the stimulation rules of redundancy and entropy. People prefer the facades that are familiar and perceptible for them based on the similar elements and architects are willing to create a situation with high entropy and focus on the diversity and freshness of the form.

Therefore, in recognizing the visual stimulation of the architects and the people, the important point is that we find out the balance-point which is located on the peak of upside-down U, which is the position which is a level of appropriate stimulation proportional with the pattern of environment utilization (Lawson, 2012: 21), in a way that is is not weary and soulless due to the high redundancy and also not stressful and infuriating due to the intensive entropy. (Figure 1) Therefore, on surveying the regarded concepts, indexes and criteria of this research, identifying the spectrum of this stimulation is considered for evaluating the notions of architects and the people toward the residential building facades

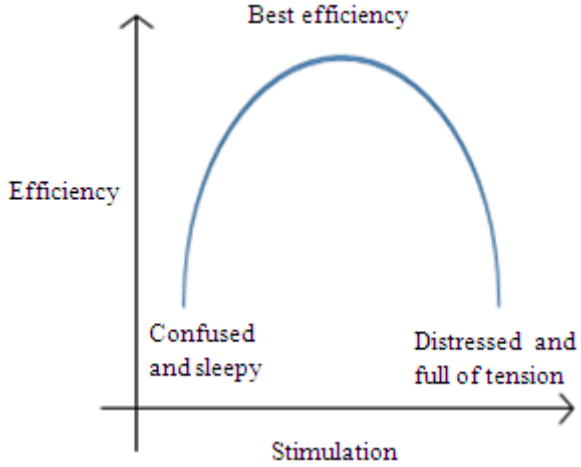


Fig. 1. Upside-down U curve, indicating the balance point between the visual stimulation factors of redundancy and entropy (Source: Lawson, 2012: 21)

2.3. Basis for the Visual Stimulation of the Architects

Architects perceive more significances because of the various concepts that they have learned about the artificial [man-made] environment s compared to the people. Developing 'similarities and distinctions' is one of the desirable visual components of the architects. John Lang argues about this topic as follow: "Each architect is a member of two cultures, one is the general social culture and the other is the special expert culture. Some of the architects accept the cultural environment that they live inside as a member, but some other designers are willing to develop instant changes (Lang, 2004: 253). Lawson believes that the goal of designers in this field is to pay attention to the questions regarding what exists, and not the quality and reasons behind them, they work with the type of concepts that are possible, can be created, and is mandatory (Lawson: 2005: 147), therefore selection based on the "intuition and expert knowledge" is one of the impactful components in visual stimulation of the designers. In this context, "knowledge of the designer" is official [formal] and clear. This knowledge is "conscious" and we can argue that it is implanted artificially in the mind. (Lawson, 2012: 208), On the formulation of visual methods in design, architects pay attention the cohesion, internal order of the form and iconic language, therefore they don't put enough redundancy into the building.

"Abstraction" which is based on an internal order is another impactful component on the choice of architects that leads to the "brevity and Minimalism" in their visual preferences.

2.3. Basis For The Visual Stimulation Of The People

The basis of the stimulation of the people is highly normative which is constructed on the experience and modeling. "The experimental nature" of the environmental perception process is based on the "reference" or "expertise" of it depending on the artistic commitments, is an evident contradiction between the architect and the people. It is obvious that people measure their issues with their own - or other people's - values, therefore, the dependent components of social and cultural issues fit in the contexts of this topic more than others; in a way that for the case of women it is usually shaped accordingly with the decisions of the families which depend on their facilities and perceptions (Tavassoli, 287), Herbert Guns (1967) argues about the same issue as follow: "People prefer houses with variety in their facades. To reduce the uniformity in the facade of the buildings, develop "personal signs" for their houses (Lang, 2004: 168). Theorists of the Postmodern era, including Robert Venturi, bestow the first priority to the experimental contexts, where the perceptions of people and their subjective images are the main reference for the creation (Lawson, 2005L 194). It is obvious that this "public knowledge" which people earn through applied experimentation is structureless, general and devoid of theory. One of the other components which are considered by the people in the visual preferences is the "symbolic aesthetic" instead of "formal aesthetic". The subject of formal aesthetic is a type of visual abstraction which is developed based on the sense of enjoyment from the recognition of some schemes, proportions, and shapes which designers have introduced and recognize. But for the case of symbolic aesthetic or "associative" significances, we work with the ideas that are related to the subjective background of the people. Aligned with this point, Broom believes that people are somehow conscious about their demands, but they can not embody it, or introduce it to others. Therefore, they turn into schemes that act like types of prototypes as people can explain their demands through them (Broom, 2005: 69). This is why the meaningful signs and schemes which has its proportion and coordination spread in the expanse of the society will be employed and becomes continually repeated. We can argue that the visual stimulation of the people is shaped by relying on primary components like association, modeling and connotative language and leads the least choices in familiar and nostalgic elements for the case of the visual preferences. The collection of stimulative factors of architects and the people, which are evaluated as the main indexes of this research is indicated in a set of two comparative spectra in the Image 2. In the terms of contents, we can consider binary groupings for the factors which have similar connotative values.

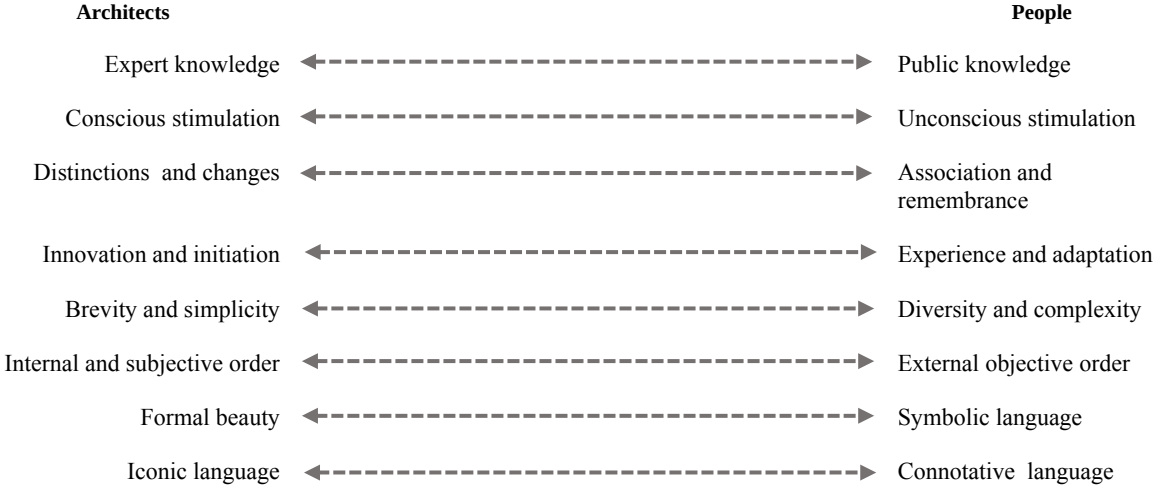


Fig. 2. Comparison between the components of visual stimulation for the architects and the people (source: authors)

3. Research implementation method

3.1. Data Collection Method

The following field research is based on the diagnostic interviews in two distinct statistical population including the architects and the people. Collection of data is performed by a number of trained interviewer which had enough familiarity with the research basis and goals. A number of 420 people and 130 of architects were tested, and data from a number of 408 of people and 122 architects were reported as suitable for the data analysis. Group of people was selected with a 'random categorization' in three different northern, central and southern zones in the textures of Tehran city. Group of architects was also selected with a random method among the architects with a more than 5 years of professional experience with a minimum of at least one executive project during their careers. The octet images of the facades (Table 1) was simultaneously offered to the addresses and the rest were of images categorized based on the first priority after electing them. Offering predefined images to the addresses of the questionnaire gives the permission to discuss the selection of objective instances with deliberation. Therefore, in order to reduce the faults in the answers, the interviewers remind people and architects that there is no right or wrong answer, in this case, and the goal is to become informed about their

aesthetic tastes. Since the personal and experimental differences of the addressees may lead to distinctions in the results of the research, their social standing, ages, stages of life, genders are considered as important. In the statistical population of the people, 46.9% of the people include women while 53.1 of them include men in the terms of gender. The most age efficiency of the participants with a percentage of 57.8 belonged to the people between the 25 and 35-year-old people. Most of the participants had the master degree or a higher level of education and 45% of them resided in houses with less than 10 years of age. The statistical population of the architects includes 40.3% of women and 59.7% of men in the terms of gender. The age groups between 25-35 had the most frequency with the rate of 67.2% in the sample group of the architects who hold the master degree or higher with the rate of 67.1 in the terms of education level. As it was mentioned before, the evaluated data in this research includes 8 selected pictures from the facades in residential units. The selection of these images was based on the general content of the research from two spectra of 'architect-based' and 'prevalent facades'. When we talk about the architect-based facades, we refer to those which are developed with the direct intervention of the architect in the design and implementation process, and when we talk about prevalent facades we refer to the same cliche facades which have not passed an expert process for design and it is only constructed based on the regular nowadays instances. In order to reduce the fault rates, and to have a better implementation of the research process, the ideas of three expert critics were used to select more readable images. For the facades in the first group, we searched through the architect-based facades among the contemporary facades which have gained standings in architectural awards and eventually selected 15 images which were selected based in an omissive method based on the main indexes of the research in this section (change and distinctions, brevity and simplicity, innovation and creativity, formal beauty and iconic language), a number of four facades (A, B, C, D) was elected with a mutual accordance. In the second group, 15 images of prevalent nowadays facades were selected with the same method and they were appointed after presenting them to three experts as the four facades of (E, F, G, H), they indicated as in the spectrum with the most public application. Table1. shows the spectrum of the images after the final selection.

Table 1
Visual spectrum of the surveyed residential building facades

A	**B**	**C**	**D**
			
Architect-based facade, Dowlat building, Prize winner of architect prize 1998..	Facade of a traditional house building, Gates of the Zint-ol Molouk house in Shiraz.	Facades with integrative characteristics, Khane do Doost, Winner of the architect prize, 2001.	Architect-based facade, Baraka building, Winner of architect prize 2014.
E	**F**	**G**	**H**
			
Prevalent facade, designed before the construction process.	Prevalent facade, designed before the construction process.	Prevalent facade, designed before the construction process.	Prevalent facade, designed before the construction process.

Then on the rest of the process, the statistical population of the architects and the people were respectively asked to replace these images based on their own visual preferences in an octet spectrum of (High desirability, comparatively desirable, desirable, low desirability, somehow undesirable, undesirable, comparatively undesirable and highly undesirable. Each image should be placed a section of the spectrum to make possible a comparison between them. The primary data of the grading test based on the priorities of the two questioned group reflects the fact that the facade F is the first choice of the people with a considerably high difference with the next choice (highest priority for 182 of the people), while the facade A is the first priority of the architects among

other facades. Table 2 and 3 reflects the frequency and score of the facades from the viewpoint of people and the table 4 and 5 reflect the very same data from the viewpoint of architects.

3.2. Data Analysis Method

3.2.1. Visual Preferences Technique

Interviews and observations are some of the main methods for the acquisition of data in order to compose design and planning theories. These methods are widely used to perceive the use of people from the environment. A number of negative criticisms are directed toward the interview method, including the fact that it is difficult for the people to speak about their personal feelings. Therefore these issues can be adjusted by considering a number of schemes (Lang, 2004: 28). Visual evaluation techniques include some of these schemes which are suitable for perceiving some parts of the theories and aesthetic values of the people although they face some limitations. Visual preferences is a technique for evaluating photos which can be considered as the result of a complex process that includes the observation of image and perceptions of the space and connotation of meanings. This process, is followed the reaction of individuals depending on their subjective capacity (Kaplan: 1989: 67), preferential studies usually take place based on two main approaches. The first approach has a focus on the identification of objective factors and the factors which can be measurable, and the second approach works based on the recognition of subjective and stimulative factors of the observers. The second approach is considered in this research because the preferences of both groups on selecting the face highly rely on the visual preferences in respect with similar facades. To control the possible errors, it is rational to harness the view angle of the image together with other external factors that lead to errors in the answers. In the following research, all of the images related to the facades of residential buildings are selectedwith similar quality in which the aesthetic specifications are spread in a uniform manner and those which posses indexes like backgrounds, foregrounds, view quality were selected.

Table 2
The frequency of visual preferences of the facades through the viewpoint of people**.**

	Priority 1	*Priority 2*	*Priority 3*	*Priority 4*	*Priority 5*	*Priority 6*	*Priority 7*	*Priority 8*
A	68	91	77	66	43	28	33	13
B	48	55	42	39	43	50	53	89
C	46	65	51	43	53	77	48	36
D	23	45	70	77	77	57	46	24
E	29	53	69	71	77	77	35	8
F	182	78	49	44	27	24	11	4
G	13	31	45	56	74	56	110	34
H	8	3	13	23	26	51	84	211

Table 3
Rank ordering according to scoring the preferences of the people

	Priority 1	*Priority 2*	*Priority 3*	*Priority 4*	*Priority 5*	*Priority 6*	*Priority 7*	*Priority 8*	*Scores*	*Rank*
A	544	637	462	330	172	84	66	13	2308	2
B	384	385	252	195	172	150	106	89	1733	6
C	368	455	306	215	212	231	96	36	1919	4
D	184	315	420	385	308	171	92	24	1899	5
E	232	371	414	355	308	231	70	8	1989	3
F	1456	546	294	220	108	72	22	4	2722	1
G	104	217	270	280	296	168	220	34	1589	7
H	64	21	78	115	104	153	168	211	914	8

Table 4
The frequency of visual preferences of the facades through the viewpoint of architects

	Priority 1	*Priority 2*	*Priority 3*	*Priority 4*	*Priority 5*	*Priority 6*	*Priority 7*	*Priority 8*
A	25	28	22	15	9	7	2	2
B	26	22	15	17	11	5	10	5
C	27	18	16	14	11	11	8	5
D	12	20	32	16	14	12	3	2
E	2	8	6	14	23	20	25	12
F	12	10	14	21	21	11	8	14
G	3	3	5	9	13	20	34	23
H	0	3	2	4	8	21	24	48

Table 5
Rank ordering according to scoring the preferences of the architects

	Priority 1	*Priority 2*	*Priority 3*	*Priority 4*	*Priority 5*	*Priority 6*	*Priority 7*	*Priority 8*	*Scores*	*Rank*
A	200	196	132	75	36	21	4	2	666	1
B	208	154	90	85	44	15	20	5	621	2
C	216	126	96	70	44	33	16	5	606	4
D	96	140	192	80	56	36	6	2	608	3
E	16	56	36	70	92	60	50	12	392	6
F	96	70	84	105	84	33	16	14	502	5
G	24	21	30	45	52	60	68	23	323	7
H	0	21	12	20	32	63	48	48	244	8

3.2.2. Multidimensional Scaling (MDS)

Multidimensional analytic scaling tool is an adaptive and exploratory method which makes the multi-dimensional processing and spatial configuration by different data (Torgerson, 1958). In a simple definition, MDS is a set of statistical analysis techniques which describe the similarity or distinction between the variables; it turns the variable as a “node” in a multi-dimensional configuration

and it reflects the and similarities and distinctions between the variables as distances between the nodes. This method extracts the correlated abstracted components by reducing the existing dimensions in the data in a meaningful statistical method (Hejazi and Naghsh, 2013: 173). Unlike the factor analysis, this method can evaluate the relationship between a number of variables in cases which there are no previous data about the presumptive dimensions. On the other hand, while factor analysis has a more application on reducing the dimensions of the primary variables, the multidimensional scaling tool help to provide a list of similarities or distinctions between the variables considering their distance with a central intercept (with two staple axes) to morph. In evaluating the final coordination, a collection of nodes are visible in the form of clusters. These clusters, are sets of maxims (images of the building facades in this research(which are closer to each other compared to other maxims (Jaworska, 2009: 4). This method is suitable for developing a general model of individual specifications and proper environmental experimentations, in which the analysis of the similarities and distinctions is a difficult task. The multidimensional scaling has a number of advantages compared to other statistical methods. The first one is that it is comparatively simple and its visual outputs are objective and clear for the purpose of interpretation. The second advantage is that it can indicate a number of findings that are not even anticipated in the formulation of hypothesis due to the establishment of a non-linear or multidimensional relationship between the variables (Farmani, 2012: 34). The third advantage is that the multidimensional scaling puts forward a practical coordination on the analysis of dimension variables which is usually not affected by the issues related to the null data, and the assumption of regularity (normal) is not mandatory in the variation-covariation matrix equation. This method also has disadvantages, which are related to the interpretation of derived dimensions from the axis analysis which is the full responsibility of the researchers as an exact route is not defined to validate the interpretation of derived dimensions. One of the outcomes of multidimensional scaling which is applied to evaluate fitting of the model is presented as the 'S' (Kruskal Stress) and R2 as the square of the correlation coefficient. Stress indicates the difference between the proximity of the input and the distance in the output model and it is presented as the most prevalent instrument for the nomination of the model fitting. The amount of stress is between zero and one which reflects the least conduct of the proper fitting for the model. The stress amount over 0.2 is considered as weak, as a medium amount between 0.1 and 0.2 and goof between 0.1 and 0.0.5 while it is excellent between the rates of 0.0.5 and 0.0.25. The index of correlation square is another fitting factor which reflects a desirable amount of the amounts higher than 0.60 (Meyer, 2007: 97). Kruskal stress in the fitting of the final model in this research is calculated as 0.0.1 and the correlation square coefficient as 0.96 which indicates an acceptable fitting for the model.

Distance model is used in order to illustrate the proximity data in multidimensional scaling method; in which the Euclidean distance was used for this research. The proximity data in the following research is from the qualitative and nonparametric in the ordinal levels which demands the order measurement levels. Data collection for the use of this instrument in this research was a 'conditional rank ordering' type in which all of the variables are offered in a simultaneous triable way, then a variable is chosen as the criteria and the other variables are ordered according to that criterion in a free structure. Data from the prioritization are sorted in a rectangular matrix in which triable variables are located in a row and variables are in a column.

4. Analysis Of The Findings

On the first analysis which was done based on the rank order, the first to the eight priority of the architects and the people was specified from the images of the building facades. Table 6 reflects these priorities.

Table 6
Comparison between the octet visual preferences of the architects and people from the building facades

	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Priority 6	Priority 7	Priority 8
Architects	A	B	D	C	F	E	G	H
people	F	A	E	C	D	B	G	H

By discerning the main components of the study which considers the relationship between the visual stimulation basis from the viewpoint of architects and the people (Figure. 2), we can extract these general points from the rank ordering test:

- The two set of audiences have not preferred the facade H, G which are included as the cliche facades as they are ranked in the 7th and 8th standing respectively. It seems that these two facades are fundamentally lacked the innovation and renovations (considered by the architects) and also lack the visual elements for the association and remembrance (considered by the people), and they were not favored by any of these two groups.
- Architects and people consider an equal importance for the facade C, and they ranked it in the fourth standing. This facade fits into the groups of architecture-oriented facades and includes characteristics like brevity, simplicity which is considered by the architects and

symbolic beauty and the meaning language considered by the people that justify this choice.

- Rank ordering of the images shows that the facade A which was the first instance of architect-based images is the first priority of the architects and the second priority of the people. Although this choice seems close, with a simultaneous comparison with the Facade F (From the prevalent facade types, Roman facade), which was the first priority of the people and the fifth for the architects it is specified that the attitude of the people and architecture is different for two different facades. According to the main mentioned components in the fundamentals of the research, it seems that the facade F is a facade with diversity and complexity together with meaningful signs and based on an unconscious and general stimulation through the viewpoint of the people, but it is not a favorable facade for the architects that are after conscious stimulation based on the expert knowledge, they are willing to have innovation and initiation.
- Standing of two facades D and E in the ranking is implicitly focusing on the considered components of the research. The facade E is related to the cliche facades. People considered the same priority as the priority that architects have considered for the facade D for this facade (Facade of Baraka building, winner of the architect prize in 2014). In other words, we can argue that formal specifications and iconic language of these two facades are perceived as close to each other while they have a significant distance for the architects according to the focus on the distinction and change component.
- The image B which is the facade of a traditional house, has the priorities of both types of audience in this regard, it seems that architects consider this facade as containing internal characteristics by relying on their mentality and expert knowledge but people find it underdeveloped by relying on their objective specification together with external stimulation and does not accept it as desirable.

The output which was extracted from the multidimensional scaling tool approved and developed the results of ranking on the next step. Results of the test in this part were taken from three different outputs. The preferences of people and their probative coordinations were extracted from the images of facades (Figure 3), and on the second stage, data about the architects together with their preferences were extracted (Figure 4), and in the third stage, the first and second extracts were adapted with each other and the evaluation of the architects' and the people's notions were inscribed alongside each other (Figure 5). It is pertinent to describe that as it was mentioned in the research method, outputs of the multidimensional scaling analysis tool includes a plane with two staple axes in which a variable is indicated with a node, proximity or distance of these nodes, together with their position in respect to the center of both coordinate axis will be analysed in the findings of the research. These general topics are extractable from the scattering rate of the nodes in the output coordination for the preferences of the people (Image 3):

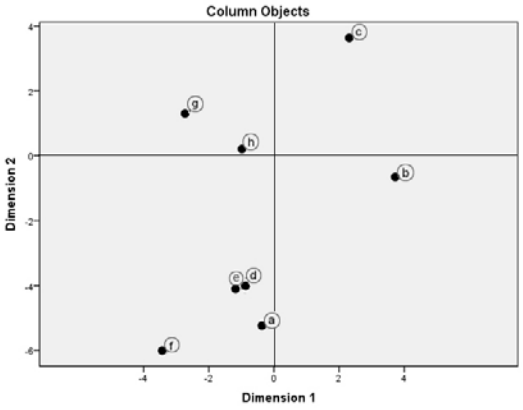


Fig. 3. Distinctions and similarities of facades from the viewpoint of people, illustrated using the instrument of multidimensional scaling analysis.

- To interpret this image, from the higher frequency in the presence of nodes in the bottom zone in the left side, we can figure out that these facades (F, A, E, D) are perceived with more similarities in respect to each other. Facade A and D are in the category of architect-based facades and the facade E and F are considered to be fit in the categorization of prevalent facades. This equal priority can indicate this point that innovation in the building material and the form together with the diversity and complexity is important for the people more than any other component.
- Also, facades G and H are closer together, and they are located in a cluster, but the distinction in their priorities is evident with their distance to the four antecedent facades. It seems that the two facades of G and H are categorized in the prevalent facades, possessing exceeding rates of repetition and uniformity and they don't develop any sense of association and stimulation in the unconscious of the people.
- Facade C and B are located on the right side of the coordinate axis and it is certain that there is a discord about it comparing with the two previous clusters. In other words, different people have not taken similar and certain decision toward them.
- Generally speaking, if the distance of a node to the center of coordinate axis is interpreted as the rate of building favorability, facade H has the lowest distance and higher priority and Facade F has the largest distance and is the most desirable facade through the viewpoint of the people, in respect; it is evident that facade A stands on the next position.

In the figure. 4, the output from the analytic instrument of multidimensional scaling indicates the visual preferences

of the architects, these coordinations expresses these fundamental points:

- Upon the first observation, two major clusters are recognizable, one is related to the prevalent type of facades (E, G, H) and the other is related to the dual architect-based facades of A and D, Facades E, G and H are perceived as similar in the sense that they all include shared characteristics like external objective order, formal uniformity and they use different materials, therefore they are not favorable to the architects as they are not considered as possessing significant distinctions in their points of view.
- Also, the two facades (A and D) are favorable by the architects due to the possession of characteristics like simplicity and internal order together with iconic language and are perceived with the least amount of differences in spite of the distinctions in their colors and employed material. Implementing conscious theoretical and stimulative knowledge is another testifier of this argument.

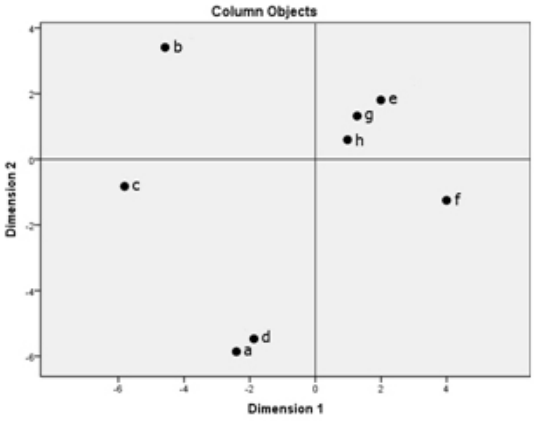
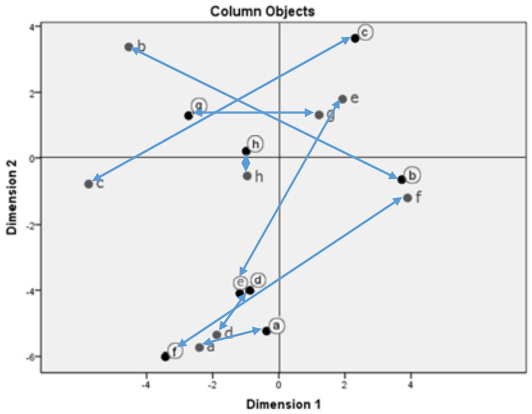


Fig. 4. Distinctions and similarities through the viewpoint of architects with the multidimensional scaling analysis tool

- Also, the situation of facade C with these two architect-based facades (A and D) in a single zone indicates the perceptual solidarity of the architects toward them. (Three award-winning buildings of the architect prize are located in a single zone).
- The situation of this cluster along with the facade B in a shared side of the coordinate axis has an emphasis on the point that in the viewpoint of architects, historical buildings can be developed into the new-fashioned facades to possess equal preferences with this spectrum.
- Facade F (Roman facade) is situated on the right side of the coordinate axis and as it was anticipated it was considered as the building with unfavorable facades in the viewpoint of architects, but according to the long distance with the rest of unfavorable facades (E, G, H), as it is located in a different zone, we can deduct that it has a different stimulation in respect to these three and it has at least some distinctions with other prevalent facades in the terms of formal aesthetics and iconic language.



viewpoint of architects and the people at the same time

Figure 5. Shows the visual preferences of architects and the people at the same time. The letters that are bound in the circles are the preferences of the people and the letter which lack the bounding circles are the preferences of the architects. The analytic tool of multidimensional scaling has the capability to calculate the relative distance between them in addition to zoning of the data based on the similarities and distinctions, therefore the results of this overlap are interpretable and meaningful for the researcher (This distance is indicated with bi-directional arrows in the image). The following points can be deducted from the analysis of this image:

- People and the architects have the most mutual idea about a desirable facade in the facade A and D, since these two facades are in a single zone and they have the least distance (arrow with the least size). It is definite that factors like the new and fresh qualities together with order and depth in the surfaces, highlights and visual connection of the building with the surroundings, variety in the view and the simplicity in the form at the same time are one of the desirable points in the two groups.
- People and the architects have the same solidarity of meaning for the case of unpleasant facades, as they have a mutual agreement about the facade H. Characteristics like dissimilar material, monotonous geometry, repetitiveness and lacking specifications for an association or nostalgic implications at the same time, can be the reasons for this stimulation.
- The most significant difference in the viewpoints (arrow with the longest size) exists in the preferences of two groups in the Facade F and B. The facade F is the most popular through the viewpoint of people while it is the worst [least desirable] through the viewpoint of architects. Due to its formal specifications, this building includes a type of modelling, association of meaning and unconscious stimulation for the people which is rejected by the architects despite the fact that they

find it as accurate or inaccurate, it is obvious that architects perceive the meanings beyond the forms which have evident distinctions with the perceptual conduct of meaning for the people. Expert knowledge of the architects paves the way for them, as they can consider abstraction, internal order, brevity, and simplicity more than other factors, a type of components that are not present in facade F.

- Also in the case of facade B which is the facade of a historical house, the distinctions in these preferences is evident, although this facade has the most [intuitive] sensory, associative and nostalgic values, but it is not prioritised due to its direct reference to its body, we can argue that the public knowledge cannot answer the development of these types of facades, but architects do not agree with them and consider this facade as a reference due to its formal beauty and [intuitive] sensory value.
- Distances also the indicators of this contents about the fact that preferences of people and architects regarding the facade C and E have a meaningful difference. The facade C, is recognized in the category of architect-based facades and in spite of their formal distinctions, they include characteristics like conscious stimulation, brevity and simplicity
- The facade C is perceived as similar to the Facades A and D in the category of architect-based facades and in spite of their formal distinctions, they have specifications like unconscious stimulation, brevity and simplicity, internal order and iconic language, they are approved by the architects. But it is perceived as similar to the material of the facade B and its skeletal specifications do not bear stimulation values. With a similar comparison, facade E is considered as the similar facade with the facade G. This mode of perception reflects the fact that structureless forms and the form without theories are not favorable for the architects, while in the viewpoint of people, the facade E is placed on concurrence with the facade D which is a fully architect-based facade and their skeletal distinctions like their different structural order, the different number of material and different casement frames, flat surfaces are not considered.

5. Conclusions

Findings of the research approve the fact that the group of people has different and similar ideas on the perception and recognition of the visual aspects of the building decades in the residential units. Choice and ideas of the people are aligned with the architects to the point that innovation and freshness, formal beauty and visual diversity stays the result of design. Choices of the people are based on the existing instances, patterns, and prototypes that they have seen before. This reaction is usually unconscious and based on the inclusivity which is directly rendered from the skeletal form. Ideas of the architects are based on the instructions that follow the initiation, changes, and distinctions in identical rates compared to the ideals of the people. What architects focus on, are the correlated visual components which are shaped in a coherent and orderly internal structure, and what people rely on are the meaningful, associating signs, with miscellaneous lines. We can clearly figure that people learn the hidden meaning behind the forms from one another in the society and they pay attention to this mode of looking and learning rather than to rely on an internal theory which looks through the lens of meaning in forms. People are basically after finding the skeletal distinctions of forms rather than to distinctions in the contents, while architects refer to their instructions in their preferences to rely on the formal brevity and abstraction, simplicity, aligned stripes with variant texture and material. What is rendered from the results of this is research is that each visual content that is considered as new and fresh with qualifications like repeatability is preferable for [/by] the people. We can accept the fact that the reaction of people to this subject, is a logical and foreseeable which the common knowledge shares with them. Although, we should not disregard the fault of public taste due to a partial knowledge of innovation and modeling and the ultimate selection of fashion and obligatory tendencies instead of them; we would neither miss the probable errors and faults which are the results of isolation and self-reliance in the choices of the architects. It seems that using objective methods which refer to an image from unseen issues can bring resolutions to this issue. A type of resolution that help the people to see ideal patterns more frequently and for the architects to consciously develop more meanings [significances] and qualities in the forms.

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