An assessment of Aesthetics in Conceptual Properties and its Relation to Complexity among Architects and Non-Architects in Residential Façade Design in Iran

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A B S T R A C T

Architects and non-architects have different perceptions, and assume differently. Previous studies show that uniqueness, Novelty and originality depend significantly on the general aesthetics in the view of non-architects. Also, moderate complexity has been chosen as the most favorable complexity. This study aims at bringing together the architectural and non-architectural perception and also understanding the non-architects' significant criteria related to the aesthetics of the façade design. This research focuses on understanding the aesthetic differences and the relation between aesthetics and complexity in residential façades using qualitative methodology in Iran. The data have been collected using interview techniques and analyzed using content analysis.61 architects and 59 non-architects were examined. The results reveal that among the conceptual properties, properties such as simplicity and uniqueness are common to both architects and non-architects, however, there are differences that needs to be taken into consideration. The relation of complexity, as one of the most important conceptual properties, to aesthetics was examined; and it was revealed that medium complexity is the complexity level that satisfies both groups, and low complexity and high complexity are not so favorable. It is concluded that complexity plays a major role for non-architects when it comes to aesthetic judgments of a building.

Keywords: Perception, façade aesthetics, complexity in architecture, building

1. Introduction

Gifford, Hine, Muller-Clemm, & Shaw (2002) claimed that beauty should be felt not only by architects, but also by non-architects. As many current buildings are not pleasant to laypersons, they are pleasant in the eyes of their designers. Nasar (1992) reveals that the aesthetics of an environment is a separate educational field, and this environmental aesthetics focuses on the environmental values and how to create a pleasant perception (Carlson, 2000). Groat (1982) showed that architects and non-architects think differently when it comes to buildings. On the other hand, Ghomeshi and Jusan (2013) suggest that if an architect is interested in offering a design that satisfies not only the architects, but also the non-architects as well, it has to understand the perception and the preferences of non-architect, as this will be useful to the architects. Gifford et al, (2000) also noted that aesthetics has to be examined not only from the perspective of the architects, but from the non-architects as well. Following these statements, the aesthetic perception of the non-architects and their favorable physical cues has created several problems from architects' perspective. In order to solve these problems, the most favorable and unfavorable factors of a façade design in the view of non-architects need to be examined.

The aesthetics visual differences in the view of architects and non-architects are rooted in factors that are expressed by Mehrabian and Russell (1974). Among many personal and background factors that influence the general assessment and especially architectural aesthetics, the most important one is the observer's emotional response to buildings. Also, Hershberger and Glen (1969) believed that these differences are derived from experience and education.

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In another study, Ghomeshi, Nikpour, & Jusan (2012) identified the valuable aspects of the building among the architects. The researchers stated that though the judgments regarding the assessments of an environment can be made consciously or unconsciously, this knowledge is usually intertwined with the visual cognition of an environment and the emotional recollection of the same environment (Nasar, 2000; Kaplan, 1982).

Understanding these differences and applying them to architect's designs will create a more pleasant façade decreasing perspective differences between architect and non-architects. Therefore, it is important to understand the factors that matters the most among the two groups. Also, the façade complexity is one of the major emotional factors in the façade based on the architects and the non-architects' opinion (Ghomeshi and Jusan, 2013).

2. Methodology

The data in this research were gathered qualitatively using open interview techniques. 61 professional architects and 59 non-architects Due to the time and cost that affected this research, systematic random sampling was selected for this research. Therefore, every tenth student that entered the University was selected to take part in the sampling. 61 professional architects were systematic chosen randomly from Tehran universities students and architectural firms. According to O'Connor, (2008) aesthetic response to building attributes in general occur irrespective of age, gender, culture, occupation, socio-economic group and so on. Thus, selecting students as respondents would not be irrelevant for this study.

The qualitative data in this study were analyzed using content analysis. In this method, the results were based on frequency of mention, and the cut-off level of the frequency of mention was no 9. In order to implement this process, the researcher noted the details of each respondent's response, and organizes them according to the questions and responses. For instance, if during an interview, a respondent mentions wood cladding three times – once in the beginning, once in the middle, and once at the end of the interview - as an aesthetics factor, wood was counted three times (N=3).

The purpose of interviewing the architects and the non-architects was to identify the factors in which they were interested in a façade and those that made a façade unbearable. The "ideal complexity" and "inappropriate complexity" were also asked during the interview, and finally, the factors influencing the complexity of the buildings were also examined.

The architects were selected from the graduates and postgraduates of the universities in the city of Tehran. Non-architects were selected randomly from laypersons with the degrees of higher than diploma. None of the non-architects had any experience in architecture. The responders were divided into two groups: architect (N=61), and non-architect (N=59).

30 residential buildings façades were chosen from famous architectural magazines of Tehran (figure 1). It was important that the selected buildings were from well-known architects of Tehran and were nominated for the architecture of the year competitions. Besides, the facades were chosen from different architectural style (such as contemporary design or Roman style architecture) which were conducted or proposed for Tehran city. The facades were given to 5 university professors' experts in the field of architectural aesthetics. The experts were asked to select the façades based on their aesthetic judgments which they thought that had aesthetics value. The experts selected 12 facades based on their aesthetic judgments (Figure 2). The selected facades were given to the respondents. Accordingly, they answered the questions based on the given facades. The respondents were asked to select their ideal facades based on their aesthetic judgments, once the facades were selected the complexity level of the selected facades were examined. No data was given to the interview in advance.

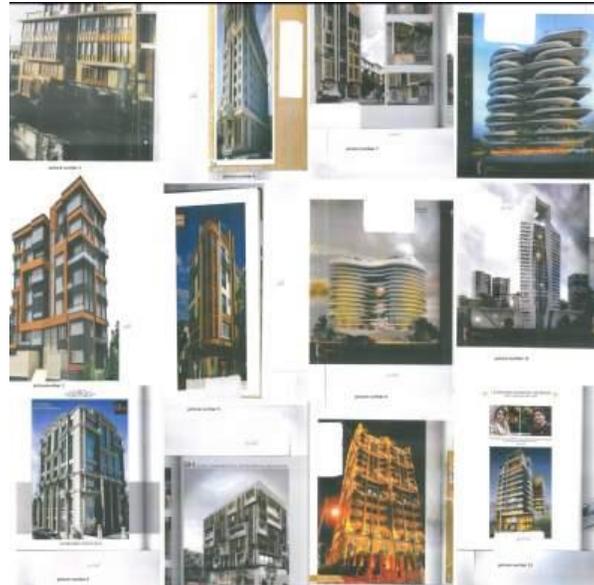*Figure 1. 30 facades from Iranian Architectural facade*

Figure 2. Selected facades based on the judgments of the 5 professionals

3.   Results

3.1 Findings from architects' perspective

As shown in Table 1, the influencing factors in liking a façade by an architect were as follows: vertical elements, vegetation, modern design, Proportion, uniqueness, and simplicity are the most important factors that the architects

take into account based on their aesthetic judgments. In this judgment, vertical elements and vegetation were categorized in physical cues and modern design, Proportion, uniqueness, and simplicity were considered as conceptual properties. The results reveal that the most important factor was uniqueness (n=37). Also, the architects did not like the repetition of façade, roman façade style for Tehran, and inappropriate color (n=0). The curved form (n=8), low number of materials (n=6) and the number of articulation (n=2) were also mentioned, but dropped out, because their frequency of mention was lower than 9.

Table 1. Frequency of mention by architects

Conceptual Properties	Likes	Dislikes
Vertical elements	9	0
articulation	2	0
vegetation	19	0
modern design	18	1
Proportion	10	1
The low number of material	6	4
uniqueness	37	0
simplicity	23	7
curved form	8	4
Architectural style	0	12
Repetition	0	16
inappropriate color	0	13

As shown in chart 1, for the architects, the factors influencing the complexity of a façade include repetition (n=20), number of windows (n=9), decorations (n=24), lighting (n=10), number of elements (n=11), number of materials (n=24), and the number of colors used in the façade (n=18).
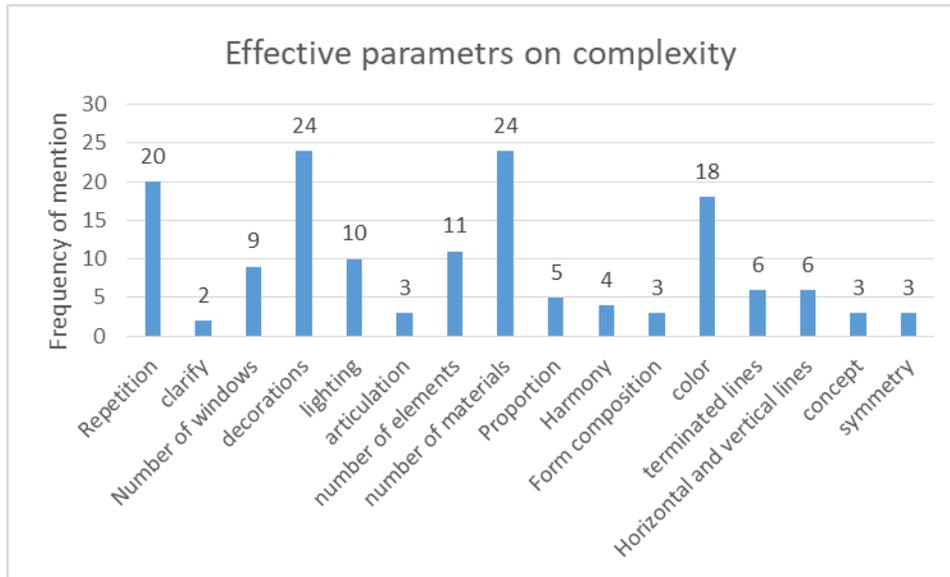
Chart 1. Effective factors on complexity by architects

Moreover, as shown in chart 2, medium complexity (n=39) was the preferred complexity level from architects' perspective, whereas low or high complexity was not approved by them. This confirms the study by Berlyne (1974) regarding the U shape of satisfaction level regarding complexity.
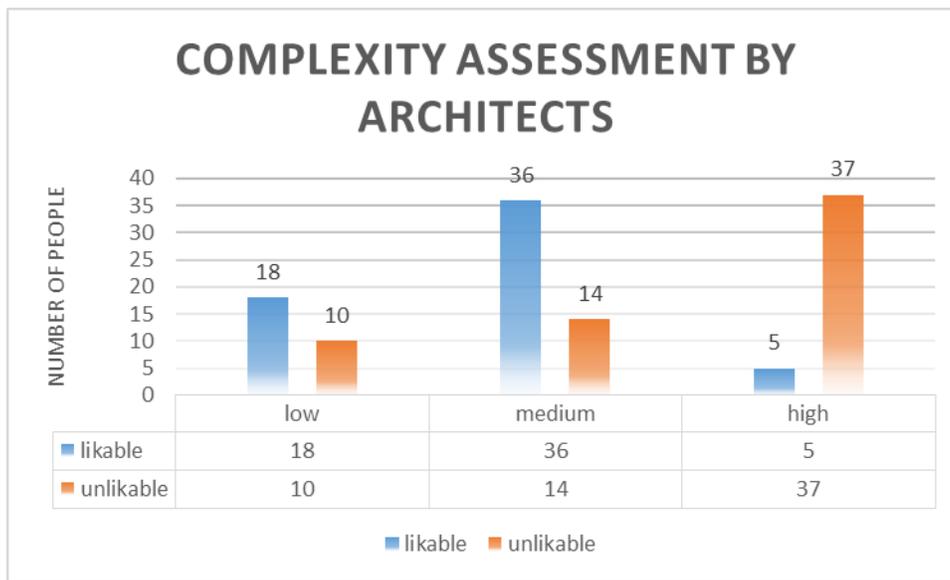

Chart 2. Complexity assessment by architects

This research demonstrates that after medium complexity, low complexity (n=17) has more popularity. This finding contradicts other studies such as Berlyne (1974) and Imamoglo (2000) which suggest that the architects would prefer high complexity after medium complexity. The findings suggest that for architects, the most important preferred factors were uniqueness, and simplicity, while they did not prefer Roman façade style, and repetition. They consider medium complexity as the favorable emotional response for the building's façade.

3.2 Findings from Non-architects' perspective

As shown in Table 2, the influencing factors from non-architects' perspective were as follows: using stone cladding (n=11), modern elements (n=41), simplicity (n=15), curved forms(n=46), and uniqueness (n=46) as well as Roman

style (n=11) were the most important factors that the non-architects take into consideration are based on their aesthetic preferences. Using stone cladding, curved form, and roman style were considered as physical cues and simplify, uniqueness and modern elements were in the conceptual properties category.

Table 2. Frequency of mention by laypersons

Conceptual Properties		
	Likes	Dislikes
Stone cladding	11	0
Vertical elements	2	0
articulation	0	0
vegetation	7	0
modern design	41	0
Proportion	10	1
The low number of material	1	4
uniqueness	46	0
simplicity	15	11
Curved form	12	2
Roman style	11	1
Repetition	0	16
inappropriate color	0	23

The most important factor turned out to be uniqueness (n=46). Thus, the non-architects as the final users of a building were interested in uniqueness and originality of the façades. They also did not prefer the usage of inappropriate color in the façade (n=23). Non-architects consider oldness or what might be called old fashion designs as the major foible of a façade. Using green architecture (n=7), and low number of materials (n=1) were also mentioned, but were dropped out, because their frequency of mention was lower than 9.

Considering the chart 3, it has showed that repetition, color, number of windows, decoration are the factors which are affected complexity by non-architect.
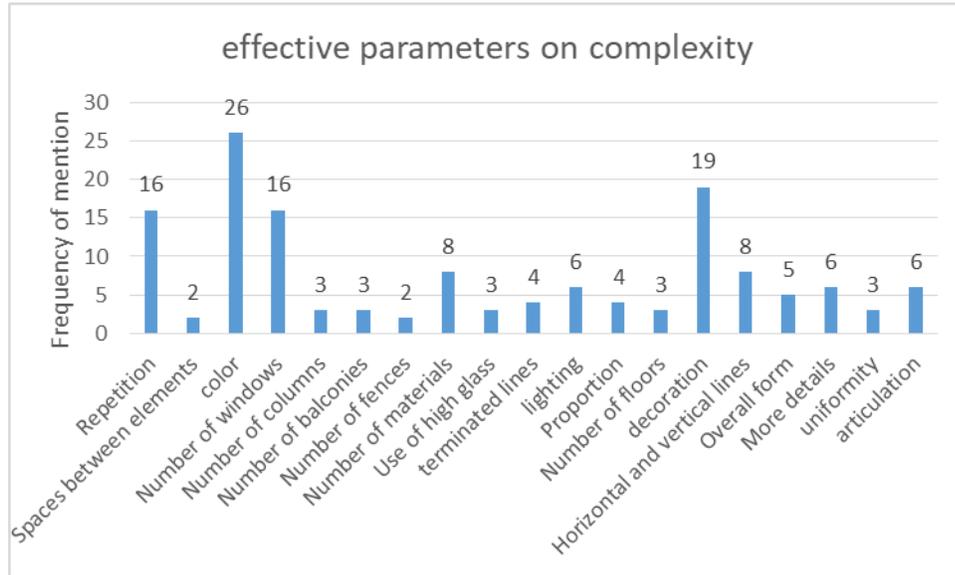

Chart 3. Effective factors on complexity by non-architects

Also, as shown in chart 4, medium complexity created the highest satisfaction among non-architects (n=36), whereas neither high nor low complexity were approved. This confirms the study by Berlyne (1974) regarding the U shape of satisfaction level among non-architects.

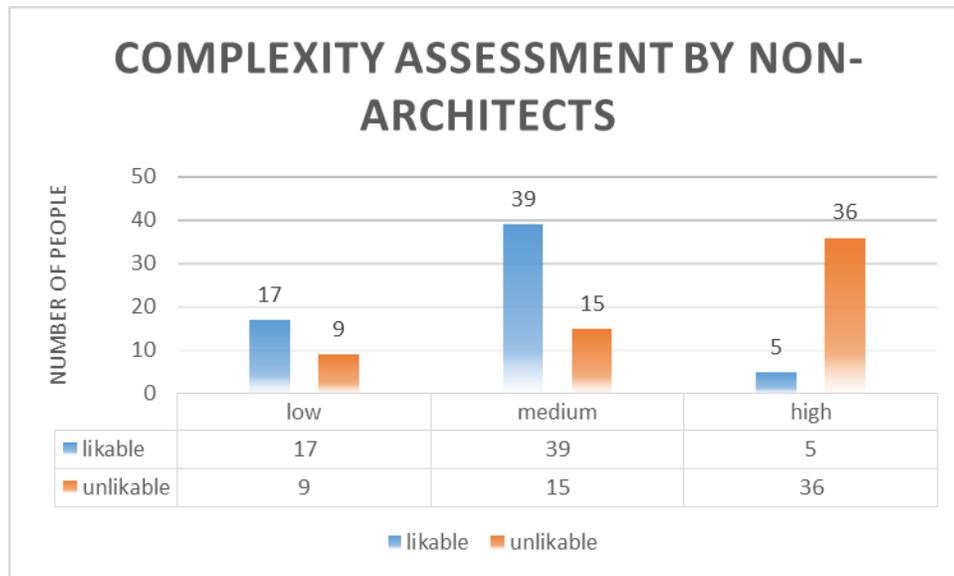|	low	medium	high
■ likable	17	39	5
■ unlikable	9	15	36

Chart 4. Complexity assessment by non-architects

As it is seen, for non-architects, modernism and uniqueness have a high value in the building's façade. Non-architects highly emphasize modernism, while considering old fashion designs as the major unfavorable factor in the façades. Common with architects, non-architects too consider medium complexity as the ideal complexity.

4.   Conclusion

According to the findings of this research, proper understanding of complexity in both concepts of simple and complex architecture leads to a better understanding of preferences of the lay persons in order to improve the design perception.

It could be concluded that though simplicity is a common factor influencing façade's aesthetics for both architects and non-architects, this simplicity does not mean absence of complexity in the façade; it rather indicates medium complexity of a façade. In other words, simplicity equals medium complexity, which confirms Ventury (1977) who states that aesthetics of simplicity derives from mental satisfaction. It is valid and profound when it is related to complexity. In fact, when complexity is removed, the design will have triteness and dullness instead of simplicity.

This study actually confirms studies by Gifford (2000) and Ghomeshi et al (2012) whom suggested that uniqueness, innovativeness, and originality greatly influence the non-architects' total aesthetics judgments. This study adds using stone cladding, modernism of the façade, simplicity of the façade, circularity of the elements, and the façade's volume to the existing physical building attributes.

This paper also confirms the study by Imamoglo (2000) who concludes that for both architects and non-architects, medium complexity produces highest satisfaction, whereas low or high complexity produce the lowest, which in turn confirms the U-shape theory of Berlyne.

5.   Recommendations

For the future studies, an examination of the accurate definition of medium and low complexity among architects and non-architects is suggested. This will greatly help the architects in proper understanding of complexity.

Other recommendations are as follow:

- It is recommended that architecture should understand the non-architects' preferences in the planning stage process and not the design stage of the building. This could clearly decrease the cost of re-designing and modifying the suggested design based on the non-architects' preferences.
- Connecting the conceptual properties of the buildings to the physical building attributes could help the architects to understand the non-architects' aesthetic judgments of the buildings.
- Architects should not see the building as an opportunity to show their design capabilities without taking into consideration the non-architects preferences. The architects must understand that the non-architects are the end users of the buildings and their preferences is essential when it comes to decision making. Therefore, it is recommended that for further studies, the decision making of the non-architects with respect to aesthetics judgments should be investigated.

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