

Evaluation of the Visual Preferences in the Residential Façades; Case Study: Tabriz Twelve Historical Houses*

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ABSTRACT

The recognition and evaluation of the visual features and components in the perception process is a way for the aesthetic evaluation of a phenomenon. When facing an architectural building, its façade has the first impact on the observer's aesthetic experience process. Various physical components and visual qualities play a role in creating the architectural façade. Extraction of the visual preferences in the architectural façades and investigation of the forming components and elements of these preferences can lead to developing the criteria in the aesthetic evaluation. Consequently, studying these visual components in the architectural façades and investigating their aesthetic preferences are of significant importance. The current study aims to evaluate the observer's aesthetic preferences of visual qualities and components that forming the external façades of the residential buildings. The theoretical concepts and approaches were presented to reach the research purpose in the theory section of the research using a descriptive-analytical method. By studying the research background and explaining the considered research concepts in this part, a structure of the studies and evaluations on the visual components was introduced, and the theoretical framework was presented. In the practical section, using the preference tests, the relationship between the visual components and aesthetic preferences of the façades of twelve historical houses of Tabriz was measured using 320 respondents. Also, the preference scores of the respondents were analyzed by a descriptive-inferential method using SPSS software. The research results showed that two visual components of the diversity of the structure of the architectural elements and the forming levels of the architectural façades, as well as complexity (visual richness) and using the curved lines, have more impact than other visual qualities and components of the architectural façades. Considering and investigating the visual components, including the structure of the architectural elements and different levels of the façade can be used as criteria in the aesthetic evaluations and analysis of the façade of the residential buildings. These criteria can also be applied in architectural designs of the buildings' façade.

Keywords: Aesthetic Preferences, Visual Components, Architectural Façades, Empirical Aesthetics.

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1. INTRODUCTION

Analysis of the relationship between the visual components and structural features of the phenomena is an effective way of conducting perception studies. Generally, the studies are done based on the aesthetics criteria and seek to extract the observers' aesthetic preferences. The building façade is the first outward component of the building and connects it with the surrounding environment that has a significant impact on the residents' aesthetic experiences of the building and its environment (Mahdavejad & Nikoudel, 2016). The façade indicates the value and structure of the building. It is also the interface between the external and internal spaces that has a significant impact on the urban landscape and provides the observers with various experiences (Wahdattalab, Yaran, & Mohammadi Khoshbin, 2018). Studying and investigating the forming elements of the façade and the preferences of the architectural façades lead to developing criteria in the aesthetic evaluation. These criteria can also be applied as indicators in architectural designs.

The studies in this area can be done with two approaches. In the first approach, the research is based on the measurable objective factors and investigating their interactions. In the second approach, the study is conducted based on recognizing and evaluating the perceptual factors of the observers (or users) (Golchin Naroui & Masnavi, 2012). People-oriented evaluations are of high reliability. The internal validity of the quality criteria of the aesthetics is considerable in small groups to medium groups (5-30) of observers and reviewers (Palmer, 1997). In the current study, evaluation is based on the observers' preferences (respondents). The contextual factors of respondents, such as geographical and cultural contexts, can be influential in their visual preferences. Consequently, considering and studying this subject in different cultural and geographical contexts is necessary. These differences are highlighted in the built environment and architecture (Vessel, Maurer, Denker, & Starr, 2018).

The current study aims to investigate the relationship between the visual components that forming the architectural façade and the observer's visual preferences of the main façades of the historical houses of Tabriz. Two factors of structural diversity of the architectural elements and the forming levels of the façades are the distinctive characteristics of this study to the other studies in this area.

Researching and considering the visual components provide a method for the evaluation of the architectural façades. Also, it can improve the quality of the built environment by improving the aesthetic characteristics through design indicators, resulting in the desirability of the urban image.

2. RESEARCH BACKGROUND

The research literature includes a wide range of studies

in evaluating the visual components in artistic or abstract works. However, referring to all these studies is not possible in this short section. Therefore, in this part, the general titles related to the research subject are mentioned briefly.

Evaluating the visual qualities in artistic works and measuring them are in the scope of the researchers of the empirical aesthetics, and they seek to achieve the stimuli and relationships in these works. Galindo establishes a relationship between the environmental meanings and aesthetics by studying people's theories and introduces variables, such as visual richness, lighting, history, and spatial opening, as the characteristics of the beautiful and meaningful places (Galindo & Hidalgo, 2005).

Out of the studies in the visual qualities, the studies on density (Friedenberg, Umile, & Bailey, 2014), proportions (McManus, Cook, & Hunt, 2010), order, and complexity (Myszkowski, Storme, & Zensni, 2016), ambiguity (Forster, Jakesch, Goller & Leder, 2014; Hayn-Leichsenring, 2017; Markey & McManus), and symmetry (Jakesch & Leder, 2016; Christopher, 2005; Pecchinenda, Bertamini, Makin & Ruta, 2014; Weichselbaum, Leder, & Ansorge, 2018) can be mentioned.

In evaluating the visual qualities in the architectural façade, architectural style, building's age (Mura & Troffa, 2006; Stamps, 1994; Stamps & Nasar, 1997), color, visual volume (O'Connor, 2011), light, and brightness (Cubukcu & Kahraman, 2008) affect the observers' preferences. In a study on the influential components on the visual preferences in the architectural façades of Gorgan city, three factors of color, form, and proportions were introduced as the components that have the most impact on the preferences and can determine the visual preferences of individuals as the predicting variables. In this study, complexity, harmony, and compositions are introduced as the next variables in relation to the first three factors (Sadeghifar, Pazhouhanfar, & Farrokhzad, 2018). Also, the results of the research conducted by Reis, Biavatti and Periera showed that the buildings with a regular and particular compositions are perceived positively, and the buildings with the chaotic composition are perceived negatively (Reis, Biavatti, & Periera, 2012). According to the conducted studies in the empirical aesthetic, people prefer curved objects and enjoy circular forms more than the angular forms in architecture and the façade of the buildings (Bertamini, Palumbo, Gheorghes, & Galatsidas, 2016; Dazkir & Read, 2012; Gómez-Puerto, Rosselló, Corradi, Acedo-Carmona, Munar, & Nadal, 2018; Palumbo & Bertamini, 2016; Ruta, Mastandrea, Penacchio, Lamaddalena, & Bove, 2018; Vartanian et al., 2013).

Xu et al. in their research studied the use of wood in the buildings' façade and suggested 35-50% based on the observers' preferences (Xu, Li, Wu, & Kang, 2019). Hussein, Sarkar, and Armstrong (2018) studied the number of vertices in the buildings' façade and

obtained a specific relationship between the number of vertices and the visual preferences in the façades (Hussein, Sarkar, & Armstrong, 2018).

Tabatabaei addressed some of the influential factors and visual components in designing the architectural façades, such as the order of openings in the façades to create unity, the balance of the transparent and solid surfaces, avoiding creating large and overall openings, using proportions, creating visual balance, highlighting the windows by placing them in the edges and corners (Tabatabaei, 2010).

According to the studies conducted by Coeterier, people's evaluations of the historical buildings' façade are based on the form, information about the identity and building background, function, and familiarity. In the study, the attraction criteria of the

historical buildings' façade are introduced as color, materials, and proportions (Coeterier, 2002). Brown and Gifford (2001) introduced six cognitive factors of transparency, complexity, likable, originality, rigidity, and meaningfulness as the predictors of the preferences in the building's façade (Brown & Gifford, 2011).

Most researchers believe that evaluating the architectural quality of the built environment can be obtained based on physical structures and visual qualities. However, some studies stated that personal factors, including a person's emotions and consequently, the emotional responses of the observers, affect the preferences and their judgments concerning the architectural quality of the building (Gifford, Hine, Mullerclimm, Reynolds, & Shaw, 2000).

Table 1. Influential Visual Components on the Preferences Based on the Previous Studies

Visual Components				References
Style	Density	Façade's Age	Porosity	Akalin, Yildirim, Wilson, & Kilicoglu, 2009; Askari & Binti Dola, 2009; Bertamini, Palumbo, Gheorghes, & Galatsidas, 2016; Cubukcu & Kahraman, 2008; Dazkir & Read, 2012; Friedenberg, Umile, & Bailey, 2014; McManus, Cook, & Hunt, 2010; McManus & Christopher, 2005; Mura & Troffa, 2006; O'Connor, 2011; Reis, Biavatti, & Pereira, 2012; Sadeghifar, Pazhouhanfar, & Farrokhsad, 2018; Stamps & Nasar, 1997.
Elements	Ambiguity & Clarity	Shape	proportion	
Color	Surface & Levels	Decoration & Ornaments	Symmetry & Balance	
Texture & Details	Harmony	Light	Complexity	
Materials	Articulation	Contour	Composition	
Size	Meaning	Curved Lines	Order	

The cultural and climate contexts of each region not only affect the formation of the buildings' façade but also play a significant role in the development and personality of the residents of that region and creating their aesthetic experiences that can also be effective in the visual preferences of the individuals. Although some researchers believe that some of the form characteristics, such as symmetry, proportion, contrast, and complexity, have common origins and are universal preferences (Che, Sun, Gallardo, & Nadal, 2018), some others found differences in the visual preferences in their studies (Huang Xue, Spelke, Huang, Zheng, & Peng, 2018; Leder, Tinio, Brieber, Kröner, Jacobsen, & Rosenberg, 2019; Weichselbaum, Leder, & Ansorge, 2018). For instance, the results of the studies conducted by Leder et al. on the symmetry that is one of the common cases, showed the differences and disagreements on the preferences, considering the cultural background, experiences, and artistic expertise of the respondents. According to the conducted studies, most of the preference similarities are in nature and simple forms, and contextual characteristics play a more role in the visual preferences in the architecture and built environment that is related to the culture (Vessel, Maurer, Denker, & Starr, 2018). The intercultural studies on the visual preferences in the architecture area, in particular, are poor and require more attention. Therefore, considering the visual preferences in different cultural contexts of the

respondents is of significance.

In the area of visual qualities and components, most studies investigated them in simple forms, and few studies are conducted on the visual components in architectural buildings. It is because the built environments cannot be reduced and manipulated in their usual forms to some variables in a laboratory, and consequently, extracting the components and qualities of the architectural building cannot be done easily. Furthermore, one of the research gaps in this area is neglecting the structural diversity, the position of the architectural elements in the architectural façade, and the number of forming levels of the façade that are one of the significant components in the visual perception. These components are studied in the current research. The visual qualities and aesthetic characteristics in the buildings' façade increase the desirability of the urban image. Evaluating the visual preferences and identifying them in the façade can be applied as indicators and criteria in the design of the building's façade, which is another purpose of this study.

3. RESEARCH METHOD

In the first part of this paper (studying the relevant literature and identifying the determining components of the research), a descriptive-analytical method was used. The information collection methods and research background included survey studies in addition to the library studies and documents, which have been used

in codifying the research literature and conceptual framework.

In the second part of the research, align with the main research question, the study addresses the effect and role of the visual components in the preferences and judgments of the residential buildings' façade. The relationships between the research variables are investigated using correlation and empirical test methods.

The research subject is to evaluate the preferences of the visual components in the façades of the architectural residential historical houses of Tabriz City. In this regard, twelve southern façades of the historical houses of Tabriz city were selected. The criteria for selecting the façades were the features of the historical style of the architecture of Tabriz before the contemporary evolutions. The style here means its definition in the empirical aesthetics approach that having similar physical characteristics and visual components are of its features. Another criteria for selection and quantity of these samples was the required diversity and frequency in the visual components to evaluate and compare them in the preference tests.

Due to the location of the historical houses of Tabriz, and since the contextual characteristics of respondents (gender and personality traits, visual knowledge, and cultural factors) can affect the visual preferences, the statistical population was selected from the central historical area of Tabriz city. Also, considering the uniformity of the social class of the statistical population, a simple probability sampling method was used. Samples were selected in approximately equal between male and female participants and individuals with artistic expertise and ordinary individuals.

Data collection was done through the choice preference test with rating method. The rating method requires fewer items (visual stimulation) for the experiment.

In the preference rating method, the respondents are asked to value the visual stimuli based on their aesthetic preferences according to the Likert Scale. The visual stimuli (indicators) in these tests are the simplified models of the buildings' façades (Fig. 5), in which the control variables (light, color, texture, decorations, and materials) are removed. The independent variables are classification, shape, symmetry, and complexity, in addition to the contextual characteristics of respondents, such as gender and visual knowledge. The dependent variable in these experiments is the observer's visual preferences of the façades of the architectural buildings that the respondents reflects influenced by the independent variables.

The preference tests were implemented through the questionnaire with visual stimulies from 320 people (149 males, 171 females, 162 experts, and 158 ordinary people) based on the five-point Likert scale in twelve façades of the historical houses of Tabriz city (Qajar and Pahlavi eras). There were four visual stimuli on each page. Based on the previous studies, the placement and orientation of the visual stimuli in the test pages might affect the preferences, out of every experiment, four different tests with stimuli in different places of the pages were distributed equally among the tested. Also, to have the same situation and the emotional status of the people, the tests were conducted in similar conditions.

The visual components were evaluated based on the preference scores of the respondents. Cronbach's alpha method was used to observe the principles and techniques of the research work and measure the reliability in codifying and setting the questionnaire in SPSS software. According to the obtained data, the reliability coefficient of the questionnaire was obtained at 0.936. The Paired Sample Statistics and Freidman's non-parametric test were used to analyze the data.

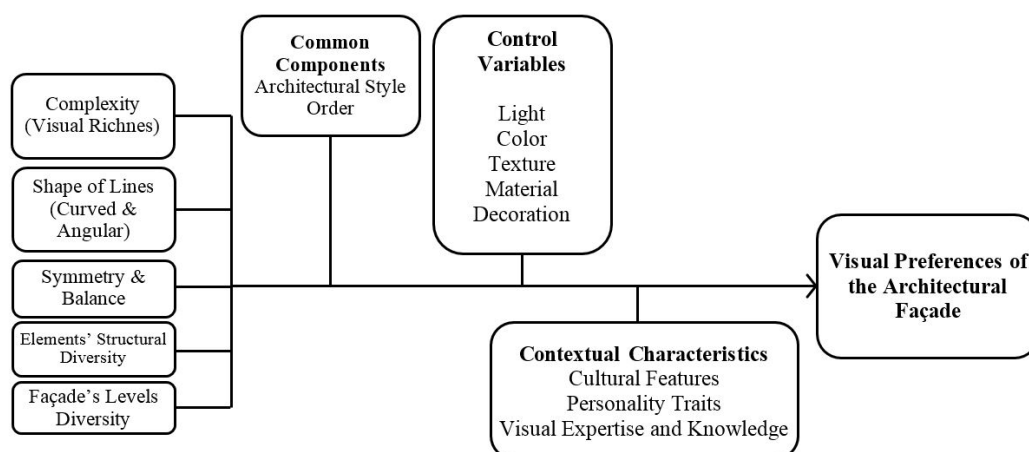


Fig. 1. Research's Conceptual Model

4. VISUAL COMPONENTS IN ARCHITECTURAL FAÇADES

The visual qualities and components, such as shape, order, symmetry and complexity influence the visual

preferences of architectural façades. Most of these were investigated and explained in different studies in detail. In this part, the components, such as the architectural elements' structure and Façades' levels, are addressed that were studied and considered less.

4.1. The Structure of Architectural Elements

The architectural elements of the façade have formal, semantic, and functional variety. The elements of the architectural façades can be classified into three groups: the horizontal, grid, and diagonal in terms of shape and structure (Wahdattalab, Yaran, Mohammadi Khoshbin, 2018). This kind of classification based on

the physical variety of the façades is an appropriate method for structuring the architectural elements. Also, there are one or several classes of these elements in every architectural façade. The number and placement of these elements and different shape and structural classes can be evaluated and investigated as a visual component.

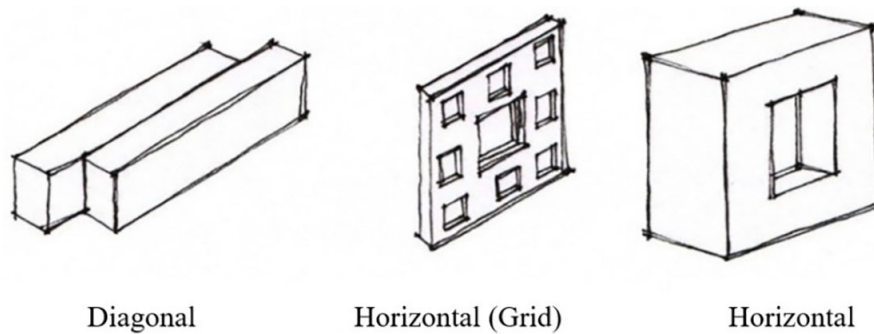


Fig. 2. Classification of the Façade's Architectural Elements
(Wahdattalab, Yaran, & Mohammadi Khoshbin, 2018)

4.2. Façade's Levels

The architectural façades might consist of various levels. These levels aside from various types (transparency, material, etc.) can be classified in terms of their position. In this regard, the different levels of the façades can be divided into main level and dependent (secondary) levels. The main level of the façades is the dominant level of the building, which is considered non-transparent. The main level is generally the first level of the façade, except in cases where the

façades has a protrusion level (Wahdattalab, Yaran, Mohammadi Khoshbin, 2018). The dependent levels are divided into two groups of recess and protrusion. Accordingly, the façades presented in Figure 3 in terms of physical levels, are divided into three different types. According to images, the hachured part is the main level. In Figure (A), there is only the main level. There are the main level and recess in Figure (B1). Also, in Figure (B2), there are the protrusion level and the main level, and in Figure (C), there are three levels of protrusion, main and recess.

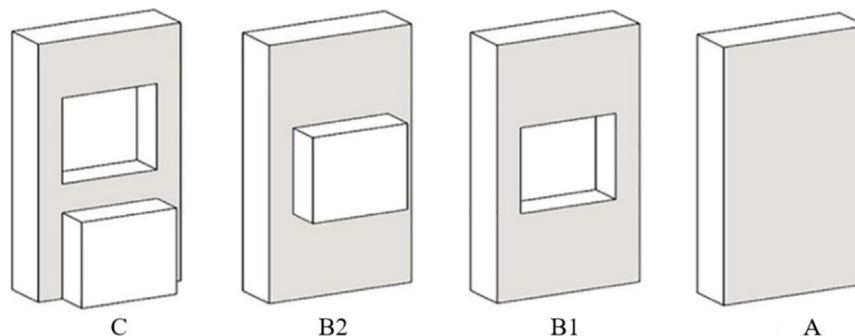


Fig. 3. Façades with Different Levels

5. THE FAÇADES OF THE HISTORICAL HOUSES OF TABRIZ

The research samples are the façades of the historical houses of Tabriz in this study. Twelve façades were selected considering architectural style and visual

components. These houses are located in the historical and central part of Tabriz city. Their location in Tabriz has been presented in Figure 4.

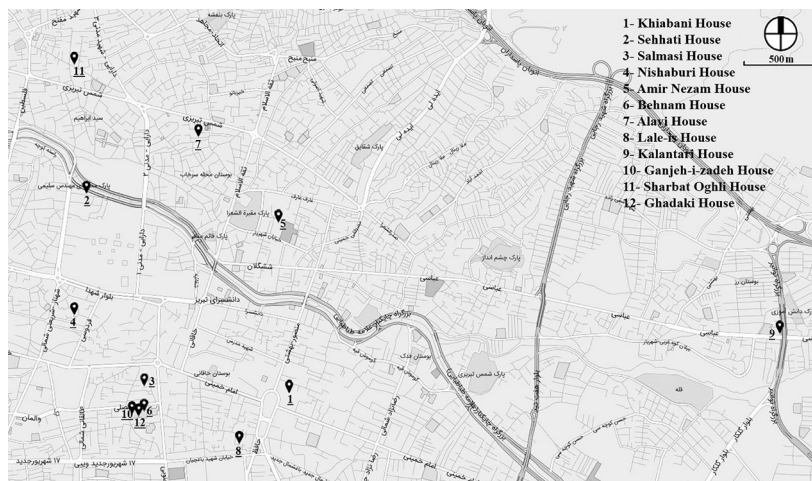


Fig. 4. The Location of the Selected Historical Houses in Tabriz City Map

In this study, to investigate the preference scores corresponding to each façade and their relationship with the visual components, only the common components and, therefore, comparable, are discussed.

These visual components, which are more prominent in some architectural façades and influence the observer's preferences more, are shown in Table 2.

Table 2. Visual Components Corresponding to Each Façade

Historical Period of Construction		Late Qajar and early Pahlavi	Late Qajar and early Pahlavi	Qajar	Pahlavi 1st	Qajar	Late Zandieh and early Qajar	Qajar	Pahlavi 1st	Qajar	Qajar	Qajar	Qajar
Visual Components		Khiabani	Sehhati	Salmasi	Nishaburi	Amir Nezam	Behnam	Alavi	Laleh-is	Kalantari	Ganjeh-i-zadeh	Sharbat Oghli	Qadaki
diversity	Elements' Structure		*						*			*	
	Monotony (Non-Diversity)												
	Low Diversity	*			*					*	*		
	Medium & High Diversity			*		*	*	*					*
	Façade's Levels												
	Main Level	*	*	*	*				*				
	Main & Protrusion												
	Main & Recess						*	*			*	*	*
	Main, Recess, & Protrusion					*				*			
	Angularity & Curvature												
	Angular		*	*					*				
diversity	Medium	*			*	*				*	*		
	Curved						*	*				*	*
	Symmetry			*				*					
	Asymmetry	*	*		*	*	*		*	*	*	*	*
	Symmetry												
	Complexity					*	*	*		*	*		*
	Simplicity	*	*	*	*				*			*	

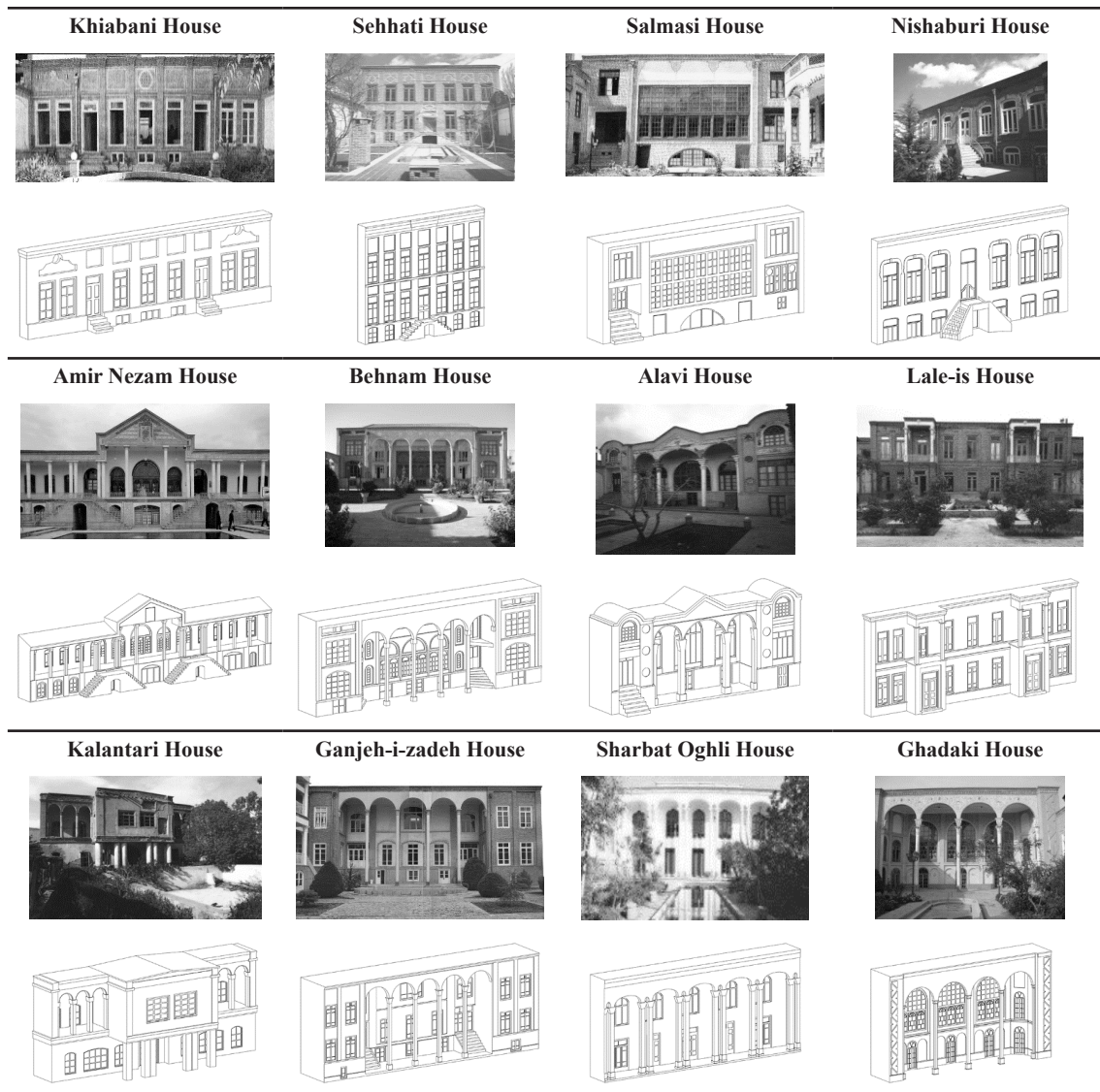


Fig. 5. Simplified Models of the Selected Façades

6. FINDINGS

The findings of the experiments were obtained through

the questionnaire, which was mentioned in the previous part that have been presented by the graphs of Figure 6 and Tables 3 and 4.

Table 3. The Frequency and Frequency Percentage of the Respondents Separated by Gender, and Expertise

Gender	Frequency	Frequency Percentage	Expertise	Frequency	Frequency Percentage
Male	149	56.1%	Experts	162	50.6%
Female	171	43.9%	Nonexperts	158	49.4%
Sum	320	100%	Sum	320	100%

Table 4. The Mean of the Preference Scores of the Respondents to the Visual Components

Statistical indicators	Visual Components												Complexity	Simplicity
	Diversity of façade's Elements and façade's Levels							Angularity & Curvature			Symmetry			
	Elements			Levels										
	Monotony (non-diversity)	Low diversity	Medium & high diversity	Main Level	Main & protrusion	Main & recess	Main, recess & protrusion	Angular	Medium	Curved	Asymmetry	Symmetry		
Mean	2.77	3.04	3.66	2.62	3.10	3.66	3.44	2.69	3.20	3.66	3.33	3.21	3.70	2.76
Std. Deviation	0.785	0.695	0.678	0.813	1.09	0.697	0.823	0.773	0.663	0.718	0.825	0.609	0.654	0.70

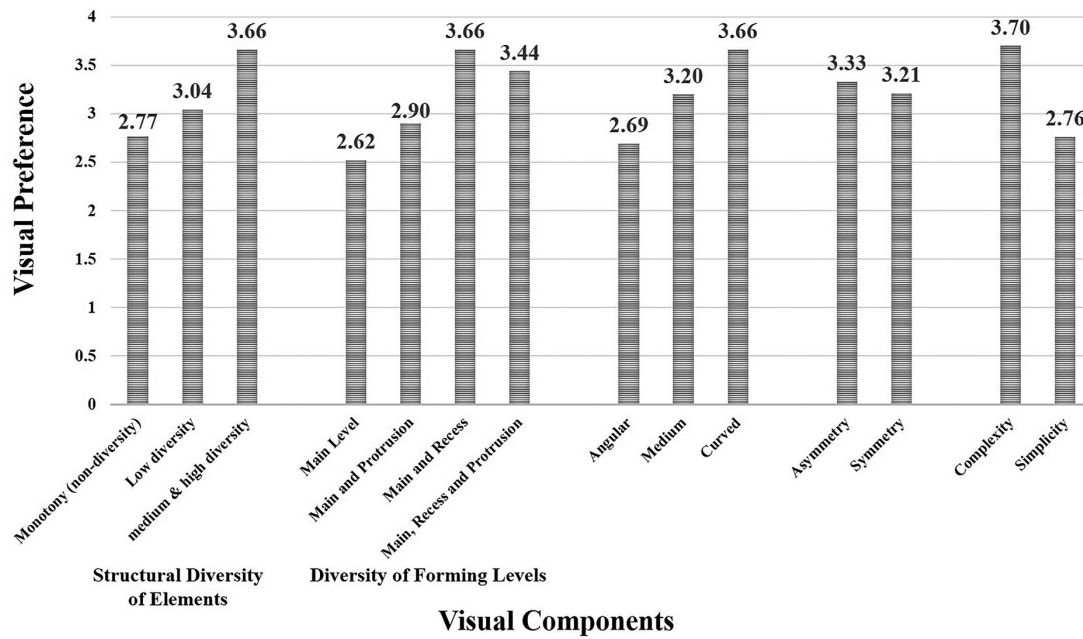


Fig. 6. The Graph of the Respondents' Preference Scores to the Visual Components

6.1. Structural Diversity of Architectural Elements

The evaluation and investigation of the architectural elements are of significance due to their diverse forms and functions. By classifying the elements, the diversity of their form structure can be compared and analyzed in terms of visual preferences. Accordingly, the architectural façades are divided into three groups of non-diversity, less diversity, and finally, high and medium diversities. The mean of the preference scores shows that the façades with less diversity are scored 3.04, and the monotonous façades (non-diversity) are scored 2.77. Also, the façades with high or medium diversity of 3.66 have the highest preference scores. All the experimented façades have a similar visual order and proportions.

6.2. The Diversity of Levels in the Architectural Façades

The architectural façades can be divided into four groups based on the forming levels. The number and manner of these levels form the perception and aesthetic experience of the observer, and consequently, affect the observer's visual preferences. The obtained scores from the preference tests show that the façades with only one level have the least score of the preference (2.62). Three surfaces (main, recess, and protrusion) with the mean value of 3.44, and the façades with two levels (main and recess) have the highest score with the mean value of 3.66. The façades with two surfaces of main and protrusion are ranked next (3.10).

6.3. The Shape of Elements' Lines, Symmetry, and Complexity

The shape of the lines of the architectural elements can affect the preferences. In the current study, the façades with angular lines had lower preference scores than others. According to the findings, the façades with the curved lines had higher preference scores than the angular lines (Table 4). By increasing the curved lines and elements in the façade, the preferences were added and reached its highest score (the mean preference of 3.66).

On the effect of symmetry in the visual preferences of observers, the symmetric façades had slightly higher scores than the similar asymmetric façades. However, in general, by comparing the preference scores of symmetric and asymmetric façades, the mean preference scores of the symmetric (3.21) façades are lower than the asymmetric façades (3.33), although this difference is partial.

The perceived complexity affects preferences since it stimulates a sense of curiosity. In the current study, complexity means visual richness. According to the findings, the less complicated façades or simple façades had lower preference scores (2.67 in comparison with 3.70 in the more complex façades).

6.4. Contextual Characteristics

The contextual characteristics of respondents, such as gender, artistic expertise, and cultural features, affect aesthetics preferences. In the current research, the respondents were selected from Tabriz residents that control the effectiveness of the cultural features.

Table 5. The Mean of the Preference Scores of the Simplified Façades Based on the Contextual Characteristics (Gender and Artistic Expertise)

Contextual Characteristics (Gender And Artistic Expertise)	Number	Visual Components													
		Diversity of Façade's Elements and Façade's Levels							Angularity & Curvature			Symmetry		Complexity	Simplicity
		Elememts				Levels									
		Monotony (non-diversity)	Low diversity	Medium & high diversity	Main Level	Main & protrusion	Main & recess	Main, recess & protrusion	Angular	Medium	Curved	Asymmetry	Symmetry		
Male	149	2.80	3.02	3.64	2.51	3.26	3.67	3.53	2.67	3.20	3.66	3.28	3.21	3.73	2.72
Female	171	2.74	3.05	3.67	2.72	2.97	3.64	3.35	2.71	3.20	3.66	3.37	3.20	3.66	2.80
Expert	162	2.68	2.98	3.65	2.58	2.93	3.65	3.36	2.63	3.15	3.65	3.32	3.16	3.66	2.71
Non-Expert	158	2.85	3.09	3.66	2.66	3.29	3.66	3.52	2.76	3.26	3.67	3.33	3.26	3.72	2.81

The mean of the given preference scores to the visual components in Table 4 shows that the female respondents gave the higher scores to more simple, less, medium and high structural diversity façades, façades with only one level, angular lines, and asymmetric façades. Also, they gave lower scores to the façades with more visual richness, monotonous, symmetric, and façades with more than one level in comparison with male respondents. The male respondents like the higher visual richness in the façades of the architectural elements in comparison with the female respondents. Also, the effect of structural diversity in the preferences of the female respondents is more than

male respondents. According to Table 4, individuals with artistic expertise and visual knowledge gave lower scores to the visual stimuli than the individuals without artistic expertise on average.

6.5. Inferential Findings

According to the results presented in Table 6 that shows data of each one of the research variables, the Kolmogorov-Smirnov test is higher than 0.05 for all the variables, and sig is lower than 0.05. Therefore, the data distribution in the variables is not normal, and the non-parametric test was used for the inferential analysis of the data.

Table 6. The Results of the Kolmogorov-Smirnov Test of the Research Variables

Statistical Indicators	Visual Components												Complexity	Simplicity
	Diversity of Façade's Elements and Façade's Levels							Angularity & Curvature			Symmetry			
	Elememts				Levels									
	Monotony (non-diversity)	Low diversity	Medium & high diversity	Main Level	Main & protrusion	Main & recess	Main, recess & protrusion	Angular	Medium	Curved	Asymmetry	Symmetry		
K.S.	0.103	0.106	0.112	0.088	0.177	0.099	0.166	0.131	0.079	0.117	0.146	0.057	0.113	0.076
Sig.	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a	0.000 ^a

a. Lilliefors Significance Correction

In this study, due to the non-normality of the data, the non-parametric Friedman statistical test was used to

rank the research variables and the extent of their effect on visual preferences.

Table 7. The Results of Friedman's Test in the Ranking of the Research Variables

Table 10: Descriptive Statistics of Façade's Level in the Ranking of the Descriptive Variables														
Statistical Indicators	Visual Components												Complexity	Simplicity
	Diversity of Façade's Elements and Façade's Levels							Angularity & Curvature			Symmetry			
	Elememts				Levels									
	Monotony (non-diversity)	Low diversity	Medium & high diversity	Main Level	Main & protrusion	Main & recess	Main, recess & protrusion	Angular	Medium	Curved	Asymmetry	Symmetry		
Rank	4.57	6.10	10.59	3.76	7.10	10.45	9.04	4.13	7.72	10.39	8.28	7.49	11.47	4.33

Chi-Square: 1661.654

df: 13

Sig.: 0.000

According to the results of Table 7 that is related to the results of Friedman's ranking test of the research variables, the Chi-square value was obtained as 1661.654 at the error level of lower than 0.010 and the confidence level of 0.99. Therefore, there is a significant difference between the preferences of each one of the research variables. The results of the mentioned table also show that according to respondents, the lowest rank is related to the main level variable (3.76), and the highest ranks are related to the complexity (11.47), medium and higher structural diversity (10.59), façades with main and recess levels (10.54), and curved lines (10.39).

7. CONCLUSION

The visual components are influential in the observer's visual preferences. Identifying, describing, and investigating these cases can provide the opportunity for the aesthetics evaluation of the architectural façades. The architectural façades consist of physical components and various qualities. In the current study,

the relationship between the visual components of the façades of the historical houses of Tabriz and the observers' visual preferences was investigated. The evaluated visual components include the qualities such as symmetry, shape of lines, complexity, and physical characteristics such as structural diversity of elements (different than the number of architectural elements) and the forming levels of the façades. As mentioned previously, the studies on the visual preferences in architecture are less considered by the empirical aesthetics researchers due to the difficulty in reducing the built environment into the measurable variables. The empirical aesthetics tests require the construction of the proper visual indicators and the proper description of these variables. Structuring the formal and functional diversity of the built environment is a way to achieve the visual indicators (stimuli). Therefore, the classification of the architectural elements and studying the number of levels in the architectural façades studied in the current study are significant to evaluate the visual preferences.

Table 8. The Visual Components with the Highest Influence on the Preferences Based on the Research Findings

	Visual Component	The Mean of the Preference Scores	Friedman's Test Score
1	Complexity	3.70	11.47
2	Medium & high diversity	3.66	10.59
3	Main & recess levels	3.66	10.45
4	Curved Lines	3.66	10.39

The findings showed that using the curved lines in the façades increases visual preferences. Although on a case by case basis the symmetric façades are slightly preferred than the asymmetric façades, there is no specific relationship between the symmetry and the visual preferences. The few numbers of the asymmetric study samples might be the reason that requires further studies. Complexity is another visual quality that had a direct relationship with the preferences, and by increasing the complexity (visual richness), the preferences of the observers of the architectural façades increase as well.

Furthermore, the results showed that there is a particular relationship between the aesthetic preferences and the structural diversity of the architectural elements and the forming levels of the façades. By increasing the structural diversity, the visual preferences of the façade considerably increase. Also, studying the preference scores showed that the number of the façades' levels

and recess, in particular, as the desired factor, play a significant role in the visual preferences of the façades. Therefore, the components of the structural diversity of the architectural elements and the forming levels of the façades can be used in the aesthetics evaluation of the architectural façades. These strategies are practical since do not require particular arrangements and are implementable in terms of economy. They also improve the quality of the external walls of the buildings (architectural façades). Also, applying these leads to the creation of a methodical model in the design and construction of the architectural façades and contributes to form an identity in the residential buildings, resulting in the more desirable urban image. Studying the effect of these components on each other and other visual components (such as color, texture, and materials) in the architectural façades can be the research subject of future studies.

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