

# Examining the Role of Physical Factors in Nobahar Street's Livelihood in Kermanshah According to the Users' Opinions of the Space

Elham Bakhtiarimanesh<sup>a\*</sup> - Mahya Bakhtiarimanesh<sup>b</sup>

<sup>a</sup> Assistant Professor of Architecture, Department of Architecture, Faculty of Engineering, Razi University, Kermanshah, Iran (Corresponding Author).

<sup>b</sup> Ph.D. Candidate of Architecture, Department of Architecture, Faculty of Art and Architecture, Tarbiat Modares University of Tehran, Tehran, Iran.

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## ABSTRACT

People's presence, moving, and voluntary stops in urban spaces are some of the most important indicators of the vitality of these environments. According to these indicators, Nobahar Street is one of the most vital streets in the city of Kermanshah. However, it seems that people's presence in this environment, more than anything, is due to economic, social, and cultural factors, and the current architecture of the street has little importance in the matter. Therefore, the current study attempted to prepare the background for using the capacity of this factor to make this important urban hangout more vital by evaluating the architectural strengths and weaknesses of Nobahar Street based on the users' demands and opinions. The current study aimed to evaluate the Nobahar Street's physical strengths and weaknesses according to the required factors to create and strengthen the vitality of environment and to prioritize and balance this evaluation based on the users' opinions in order to provide the context to improve the environmental qualities according to the users' demands of this street. The study's approach was descriptive-analytical and the data collection method was a combination of written sources and field survey; in the first part, the architecture of Nobahar Street was evaluated using the vitality factors extracted from written sources. The results of this evaluation were examined according to the users' opinions using the in-depth interview and a questionnaire. For this, questions in 7 different areas were asked of 38 randomly chosen users. The repetition or verification of factors was the criterion for testing the hypothesis and prioritizing the physical strengths and weaknesses of the street according to the users' opinions. The results showed that the most important architectural strength of Nobahar Street was due to its geometry on macro-scale, whereas its weaknesses generally were in medium and micro scales. The users of this street considered the use of trees, soft and penetrable edges, and eventually its proper and observable width to be its most important architectural strengths while they recognized the architectural weaknesses to be associated with its unrecognizable inner parts, lack of awning windows above the ground floor, and eventually non-uniformity among the facades. Thus, according to users' opinion, improving the quality of architectural factors can be realized by considering medium and micro scales.

**Keywords:** Urban Spaces, Physical Factors, Vitality, Walkability, Nobahar Street of Kermanshah.

\* E\_mail: e.bakhtiari@razi.ac.ir

## 1. INTRODUCTION

Over the past few decades, criticism of modern urban planning has led to efforts to build more humane cities, create multifunctional spaces and vital urban hangouts, and strengthen walkability in cities. In the meantime, the discovery of the physical characteristics required by such spaces based on the needs and desires of space users can be very significant.

## 2. PROBLEM STATEMENT

A vital urban space is an environment, where a variety of people, in a relatively long interval, appears to do voluntary activities; the slowest presence possible and preferably on foot, so that social activities can be realized for them<sup>1</sup> (Gehl, 2016, p. 87). To achieve vitality, which is one of the indicators, and at the same time, a result of the quality of urban spaces, the space must provide the possibility for life events to happen and continue, and help define numerous and various behavior settings.

In modern urban planning, streets are the main forming units of the city. Although these units, more than anything, are used for easy transport on vehicles (Habibi, 2003, p. 163), in some cases, they have other social functions and become urban hangouts. Nobahar Street of Kermanshah is one of these streets that has become the most important urban hangout of Kermanshah in recent years. Various voluntary activities take place in this space. Moreover, this place is the location, where some seasonal activities, such as national celebrations and mourning the Imams take place. Therefore, Nobahar Street has most of the vitality factors on the micro-scale (Golkar, 2000, p. 40).

By a brief review of Nobahar Street, it seems that among the three factors, architecture, activity, and meaning that are effective in improving the quality of the urban spaces and their vitality (Golkar, 2000, p. 32), the role of architectural factor is not so important. In other words, the lack of high quality and habitable urban spaces in the city of Kermanshah, and as a result, the lack of experience of being in such spaces, has led to people welcoming this environment. Nevertheless, the positive memories of Nobahar Street in the minds of the people of Kermanshah, made through people's presence in this environment over time cannot be easily ignored. In this case, trying to improve the environmental qualities of this place seems logical. Recognizing the weaknesses and strengths of this architecture can prepare the background for making changes in the environment and making it more vital in the future.

The studies in this regard can be divided into two general categories: studies that state the necessity of this quality in urban spaces and mention some criteria for its realization and the studies that evaluate the level and method of realizing vitality in one or more case studies according to the mentioned criteria. The studies

of second category pave the ground for studying and understanding more local criteria of vitality, or in other words, giving weight to common criteria according to the local users' opinions and understanding, whereas very few researches have been conducted on this matter. Since the criteria mentioned in resources for evaluating urban spaces are general, it is essential that users' opinions be used in evaluating these environments. The question is that based on the users' opinions, which one of the architectural strengths and weaknesses of Nobahar Street is more important, and they have understood its effect on their presence in that environment?

To find the answers to the questions above, the environment's users' opinions were considered to understand, firstly, which one of the weaknesses or strengths that are theoretically allocated to this street is considered effective features by the user in their presence in that environment. Secondly, which one of these features is verified for the environment by the user. The current study's contribution was its focus on architectural factors, and no other effective factors, of an urban space according to the users' opinions to better understand the importance of the criteria for them.

## 3. RESEARCH BACKGROUND

At the beginning of the '70s, there was a change in patterns for correcting, reconstructing, and restoring urban spaces, the basis of which was the criticism of modern urbanism (Lang, 2012, p. 95). Among these criticisms, one of the main concepts was the need to strengthen the connection between people and urban spaces, which was categorized under the concept of vitality. Each one of the theoreticians defined vitality in their way and considered some criteria for them: Jane Jacobs (2018) introduced walkability, avoiding vehicle domination, mixed land use, avoiding dividing the uses into different regions, supporting urban complexities, referring to the citizen and avoiding abstract decisions as features of vital urban spaces. She also believed that a street's vitality depends on preparing the possibility of useful interactions between people and watching others (Choay, 2005). According to Lang, public social places are places that provide comfortable spaces for sitting, proper lighting, and the possibility to meet others. (Lang, 2012) Kevin Lynch also considers vitality as one of the main features of a city and associates it with the forms of places supporting human needs, especially biological needs. (Ali Ghanbari & Nasr, 2016, p. 1; Lynch, 2002). However, Henry Lennard considers the possibility to watch people and hear their voices, the possibility for unofficial gatherings of people in public spaces, and the possibility for kids and teenagers to socialize in these spaces to be effective in making cities vital (Timmer & Seymoat, 2005).

Based on the concept of vitality, vast studies have been conducted on strengthening the bond between people and the city. William H. Whyte has done research

about how some places attract people (Gehl, 2016, p. 52). Clare Cooper Marcus' focus was on the social and psychological aspects of the spaces on the interaction between public life and public spaces. She examined the lack of women and children and seniors' presence in cities (Ibid, p. 54). Through Donald Appleyard's studies about urban spaces, the impact of the amount of traffic on the reduction in the flow of social life in urban spaces was recognized (Gehl, 2016, p. 55; Appleyard, 2003). The impact of the architecture of urban spaces on microclimate and the impact of microclimate on life in urban spaces were studied by Peter Bosselmann (Gehl, 2016, p. 57). Christopher Alexander has done research about the effect of the building edges on the favorable function of public spaces. Also, among the 253 patterns that he presents, some are related to the effective physical factors on improving the quality of the urban spaces between buildings (Alexander, 2008, p. 32). Jan Gehl is another one of the critics of ignoring the social aspect of urban spaces and reducing life between buildings (Gehl, 2016, p. 61). He considers the indicator of favorable urban spaces to be the amount of people's presence and stops in these environments (Ibid, p. 106). Also, as a result of his studies on these spaces, he has achieved some effective factors on increasing the people's presence and stops in urban spaces.

Golkar (2007) concluded that vitality, along with 16 other components, is effective in creating and improving the quality of urban spaces. He considers this concept to be raised in two micro and macro scales; in micro-scale, diverse voluntary activities in public spaces is realized in different and proper behavior settings and in macro scale, the population density of pedestrians in the environment, seasonal activities, and diverse users are effective in making the urban spaces more vital (Golkar, 2007, p. 69). By reviewing the definitions presented for vitality, Dadpur (2012, p. 3) concluded that vitality, in its common sense, includes "the possibility of the place to provide a diverse range of activities and users to create diverse experiences and social interactions in a way that security, equality, and comfort are provided for all users". Some studies consider special factors of this concept important and, to an extent, dependent on local-environmental features and residents (Allison, Georgopoulas, Gilchrist, Moore, Nadel, Simonsen, Vanderslice, & Williams, 2005). The second category of studies has also been conducted to make these criteria more practical based on evaluating some samples of the urban spaces. For example, Safar Abadi & Mirzadeh (2016) compared and criticized the health of the urban spaces and extracting its subcriteria in some of the streets in Shiraz. Sarrafi et al. (Sarrafi, Razavian, Taliban, & Akbari, 2019) examined Vali-Asr Street in Tehran according to the livability criteria of the street. Haghighi Borujeni et al. (2014) introduced the concept of using cost-efficient and early-efficiency designs to make the streets more sociable. For instance, they studied open cafes in

Chahar Bagh Street in Isfahan. Bagheri Beheshti et al. (2014) examined the relationship between security and vitality in LaleZar Street in Tehran and eventually introduced approaches to increase security in this street by making it more vital. Habibi et al. (Habibi, Nastaran, & Mohammadi, 2015) introduced environmental, social, and economic vitality criteria of urban spaces concerning required qualities for youths' lives, and they evaluated Nazar Street in Isfahan using these criteria. Jalaladdini and Oktay (2012) compared two streets in terms of utilizing social and spatial vitality indicators. Samavati, Nikookhooy, and Izadi (2012) studied the effect of vitality on improving the walkability of urban boulevards. Khasto and Saeedy Rezvani (2010) examined the relationship between a walking shopping center and the vitality of urban space as a sample (street). Dadpur (2012), by deliberating on vitality indicators and comparing two parts of a street in terms of these indicators, introduced more local criteria of vitality in the city of Tehran.

The necessity to make urban spaces vital based on two categories of the above mentioned studies in the most developed countries has been manifested as a practical experience untitled "Pedestrian comprehensive plans".

#### 4. METHODOLOGY

The paradigm of the study was qualitative. Aim-wise, the methodology was applied, and content-wise, it was a combination of theoretical studies and field surveys, which would be mentioned in a descriptive-analytical fashion.

Urban vitality conditions, and especially physical factors that are effective in creating and strengthening these conditions, were classified according to the written sources. In the next step, referring to the physical features of Nobahar Street and comparing it with the mentioned criteria, some results about its physical strengths and weaknesses were theoretically achieved that were assumptions that must be tested according to the users' opinions. Also, they must be prioritized according to the users' opinions, so that it is known which of these physical features, according to the users, is more effective in their tendency to be present and stay in a place.

To get the users' opinions, in-depth interviews and questionnaires were used in combination. 38 users of Nobahar Street, 19 men and 19 women, ranging from teenagers, youth, middle aged, and seniors, were randomly chosen for conducting the interview. It should be noted that the users of this street can be divided into 5 groups according to their activities in this street: 1. Residents of the surrounding alleys, shopkeepers, employees and people who work in this street, 2. People who visit the area for shopping and use the other facilities of the street, 3. People who only use this street as a means of transportation and reaching the neighboring streets, 4. People who visit the area for activities, like socializing with friends, sitting and

watching others, etc., 5. People who visit the area for watching the street itself, walking, and visiting urban events. For the interview, the groups 1 and 3 were removed, and members of the remaining groups, whose target was the street itself, were interviewed. The interviewer engaged in conversations with every single person from the statistical population and asked them to talk about anything that makes them want (or not want) to be and stay in this place. It is obvious that if in any case, during this conversation, any physical factors were mentioned, those factors would be the most important in the users' opinions. Physical factors

mentioned by the users in this stage were qualitatively coded and compared with the criteria extracted through theoretical foundations to be put in their categories.

In the following, some direct questions, which were designed in seven parts based on theoretical foundations, were asked of every single member of the statistical population to examine whether Nobahar Street benefits from the strengths or weaknesses mentioned in the primary evaluation. In this stage, too, the frequency of the approved factors by the users proved its existence. (Fig. 1)

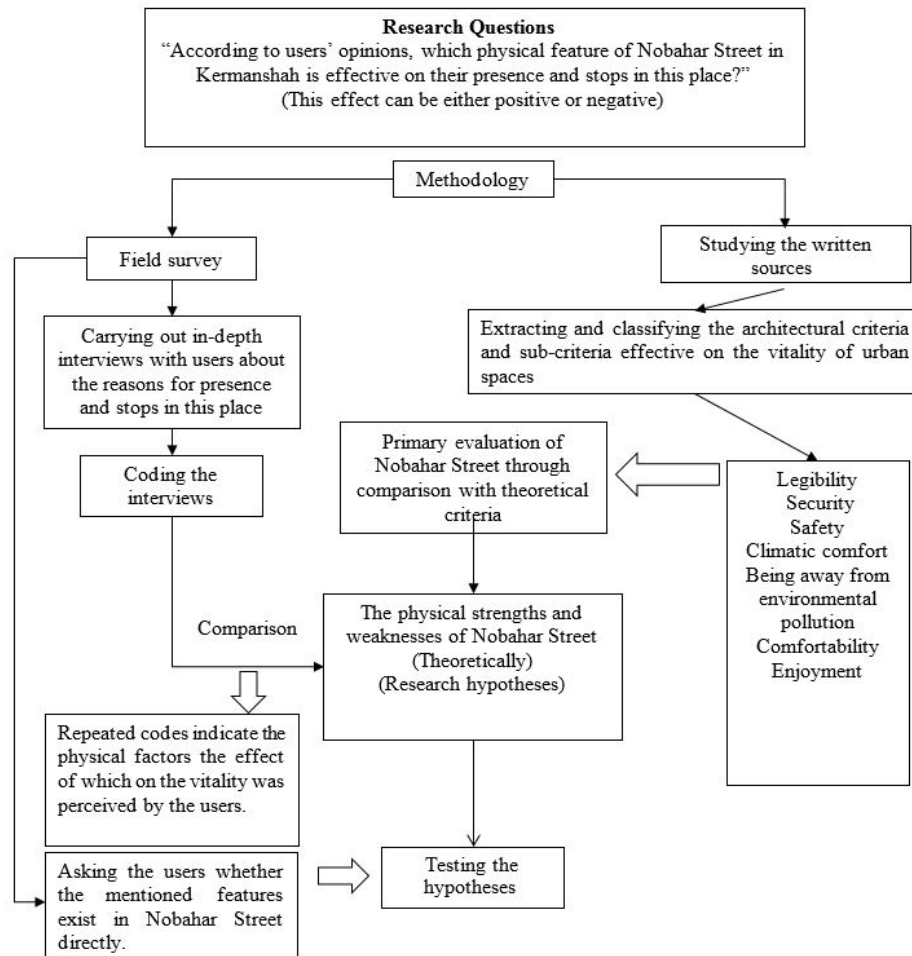


Fig. 1. The Research Process

## 5. THEORETICAL FOUNDATIONS

In the most recent fundamental perspectives in designing urban spaces, which started in 2000, “cities being more humane has been mentioned as an important index in evaluating their quality” (Whyte, 2013, p. 18; Gehl, 2016, p.14). Since vehicles lead to the most limited type of interactions, which usually appear competitive, aggressive and destructive (Hall, 2014, p. 210), in this perspective, humans and vehicles in interaction with each other and environments with humans at their center, and walkability as their priority will be designed<sup>2</sup> (Moeini, 2006, p. 18). A vital city

needs diverse and complex urban life; a place where leisure and social activities<sup>3</sup> are combined with a place required for walking and the possibility to participate in urban life (Gehl, 2014, p. 63). Nevertheless, in this study, among all the theories that have presented a definition of vitality and some criteria for evaluating it, Jan Gehl’s definition will be the base of this research because of its inclusiveness. Jan Gehl considers a vital or high-quality urban space to be a space, where people like being and staying there (Ibid, p. 21). Therefore, according to him, three important conditions for a space to be vital are as follows: “being protective”, “being comforting”, and “being enjoyable”. These



three conditions have been chosen as the basis for classifying physical criteria that have been mentioned in different theories and will be provided in tables in the street evaluation chapter for further studies.

### 5.1. The Role of Architecture in Preparing the Conditions Required for the Vitality of Urban Space

Providing the possibility for useful interactions between people, the possibility to watch people, comfortability, having proper lighting, compatibility between the environment and activities, meeting humans' biological needs, the possibility for unofficial gatherings, accessibility, flexibility, etc. (Dadpur, 2012), all of which can be mentioned in the form of the conditions that Jan Gehl considered: "being protective", "comfortability" and "enjoyment" for users in an urban space. Architecture can be effective in realizing these conditions to an extent through its geometry, sizes, and furniture. To achieve physical sub-criteria to evaluate the vitality level of Nobahar Street, three of the conditions mentioned above have been considered the principle of classification in the current research. (Tables 1, 2, & 3)

### 5.2. Protective Environment

People must "feel" safe in an urban space. Physical factors are considered in three groups:

First: physical factors that improve "security" by reducing the settings for criminal activities the most important of which is the "eyes on the street" (Jacobes, 2018, pp. 34, 97; Timmer & Seymoat, 2005). Second: physical factors that increase the users' safety by protecting their bodies in accidents (Gehl, 2014, p. 91). The most important factor of this kind is prohibiting vehicles from entering the space or reducing its speed through architectural design (Bahreini, 2014, p. 91). Moreover, the environment's compatibility with human's physical limitations, especially among vulnerable social groups, i.e. seniors, children, and disabled people, is of great importance (James Sorensen, 2015; Alexander, 2008, p. 437). Third: physical factors that help the environment's legibility (Allison et al., 2005). The most important factors in this category are

the paths, edges, and district's distinguishability, and also the existence of landmark and strong nodes in the environment (Lynch, 2002).

### 5.3. Comfortable Environment

In a vital environment, people's bodies are in balanced temperature and humidity ranges and are protected from unfavorable weather conditions (Gehl, 2014, pp. 68, 172; Carmona, Heath, Oc, & Tiesdell, 2006) as well as keeping them away from pollutions (Golkar, 2007, p. 69). In this environment, physical human needs, such as resting, eating, drinking, etc. are taken into consideration, and some facilities such as places to sit or laying down are provided to fulfill these needs (Whyte, 2013, p. 39). In addition, providing secondary places to sit, like bases, stairs, stones, public restrooms, food and drink shops, water fountains, etc. are some of the measures that make an urban space more comforting. Compatibility between the environment's proportions and human proportions is also effective in this matter (Allison et al., 2005), especially when facing the limits of the vulnerable groups (Whyte, 2013, p. 51; Gehl, 2014, p. 142).

### 5.4. Enjoyable Environment

If the environment can "present joyful data for different human senses", it will be more enjoyable (Gehl, 2014, p. 178). This is possible through the environment's flexibility and diversity and by having aesthetic proportions in the environment, elements with a local identity, and preserving green corridors (Carmona, Heath, Oc, & Tiesdell, 2006; Timmer & Seymoat, 2005; Allison et al., 2005; Barton, Grant, & Guise, 2003). In addition, the existence of physical and visual permeability is effective on people enjoying the urban spaces (Carmona et al., 2006), because one of the most joyful events is the possibility to observe the activity of other users of space like watching children play (Jacobs, 2018, p. 37; Gehl, 2014, p. 139). Also, the possibility to carry out some collective and individual activities that gather groups of different ages and genders in the environment makes the urban space more favorable (Gehl, 2016, pp. 22-23; Madani pour, 2008, p. 194; Alexander, 2008, p. 437).

Table 1: Physical Criteria and Sub-Criteria Effective on the Environment's Protection

Required Conditions for Making the Environment Vital	Physical Factors Effective on Vitality	Sub-Criteria	Sources
Protective Environment	The Legibility of the Architecture	Distinguishable place as a path or district Distinguishable edges of a place Strong nodes at the beginning, end, and inside of the environment Strong landmarks at the beginning, end, and inside of the environment	(Lynch, 2002; Allison et al., 2005)
	The Security of Architecture	Adjacent land uses to the environment, in which people spend more time, like residential land use, commercial land use, such as restaurants, cafes, etc.	(Carmona et al., 2006)

Required Conditions for Making the Environment Vital	Physical Factors Effective on Vitality	Sub-Criteria	Sources
Protective Environment	The Safety of Architecture	The lack of cozy and unobservable spots	(Timmer & Seymoat, 2005; Jacobs, 2018, p. 35)
		Implementing soft and permeable edges	(Gehl, 2014, p. 79; Carmona et al., 2006)
			(Barton, Grant, & Guise, 2003)
		Implementing transparent facades, big windows, abundant openings, active forefront for the buildings	(Gehl, 2014, p. 79) (Carmona et al., 2006)
		Harmony between the width of the space and height of its edges and human's visual limitations, so that the whole width of the places is observable from the edges.	(Gehl, 2014, p. 35)
		Sufficient light sources in proper distances and height	(Gehl, 2014, p. 89) (Jacobs, 2018, p. 43)
		Separating vehicle, pedestrian and bicycle paths	(Alexander, 2008, p. 345)
		Higher level of sidewalks than vehicle paths	(Alexander, 2008, p. 361)
		Sufficient light sources in proper height	(Gehl, 2014, p. 89)
		Avoiding unnecessary surface-level differences in the flooring.	(Gehl, 2014, p. 128; Carmona et al., 2006)
		Implementing standard stairs and ramps	(James Sorensen, 2015)
		Non-slippery flooring materials	(James Sorensen, 2015)
		Non-reflective materials	(Gehl, 2016)

Table 2: Physical Criteria and Sub-Criteria Effective on the Environment's Comfortability

Required Conditions for Making the Environment Vital	Physical Factors Effective on Vitality	Sub-criteria	Sources
Comfortability of the Environment	Providing Climatic Comfort through the Environment's Architecture	Orienting the environment to avoid sunlight during the summer, and shadows during the winter	(Gehl, 2014)
		Proportions that help avoid sunlight during the summer, and shadows during the winter	(Gehl, 2014, p. 68)
		Orienting the environment to avoid inconvenient winds, and provide openness to favorable winds	(Gehl, 2014)
		Avoiding creating wind tunnels around tall buildings	(Gehl, 2014, p. 172)
		Utilizing green corridors to balance the climatic conditions of the environment	(Alexander, 2008, p. 341; Barton, Grant, & Guise, 2003)
		Implementing horizontal canopies over seats and standing spots	(Gehl, 2014)
	Reducing Environmental Pollution through the Environment's Architecture	Limiting vehicle access (reducing lead pollution)	(Golkar, 2007, p. 69)
		Implementing stop spots away from vehicle paths	(Golkar, 2007, p. 69)

Required Conditions for Making the Environment Vital	Physical Factors Effective on Vitality	Sub-criteria	Sources
Comfortability of the Environment		Providing barriers such as trees etc. between the stop spots and vehicle paths.	(Golkar, 2007, p. 69)
		Locating the trashcans, restrooms, etc., considering the wind and radiation directions, and also other land uses to avoid unfavorable smells and views	(Golkar, 2007, p. 69)
		Sufficient trashcans, restrooms, etc. in proper distances	(Golkar, 2007, p. 69)
	Providing Welfare Facilities Through the Environment's Architecture	Providing places for sitting	(Gehl, 2016, p. 84; Whyte, 2013, p. 48)
		Avoiding unnecessary surface-level differences in the flooring	(Gehl, 2014, p. 128; Carmona et al., 2006)
	Compatibility Between the Environment's Architecture and the Human Proportions	Implementing standard stairs and ramps in necessary locations	(James Sorensen, 2015)
		Taking human scale into consideration	(Allison et al., 2005)

**Table 3: Physical Criteria and Sub-Criteria Effective on the Enjoyable Environment**

Required Conditions for Making the Environment Vital	Physical Factors Effective on Vitality	Sub-criteria	Sources
Enjoyable Environment	Providing Pleasant Data for Sense Through the Architecture of Environment	Harmony among neighboring buildings	(Carmona et al., 2006; Allison et al., 2005)
		Stepped and diverse skyline	(Timmer & Seymoat, 2005)
		Utilizing plants	(Alexander, 2008, p. 342; Barton, Grant, & Guise, 2003)
		Proper and beautiful lighting	(Carmona et al., 2006)
		Materials' eye-catching colors	(Carmona et al., 2006)
		Using materials and textures with enough details in close distance from the user (like flooring and walls at the ground level) to be seen and touched	(Gehl, 2014, p. 35; Salingaros, 2008)
Architectural Flexibility and Diversity		Dividing the place into smaller spaces	(Timmer & Seymoat, 2005; Barton, Grant, & Guise, 2003; Allison et al., 2005)
		Dividing the place in to smaller spaces, using trees, etc.	(Timmer & Seymoat, 2005; Allison et al., 2005)
Architecture with Identity Hierarchy		Using local motifs in the facades	(Timmer & Seymoat, 2005)
Architectural Facilities for Observing Positive Events		Components in 2:7 ratio	(Salingaros, 2008)
		Implementing soft and permeable edges <sup>4</sup>	(Gehl, 2014, p. 79; Carmona et al., 2006; Barton, Grant, & Guise, 2003)
		Implementing corners for sitting and standing next to the walls and watching the environment	(Gehl, 2016, p. 84)
		Green spaces and places for sitting or standing adjacent to each other, and overlooking favorable events	(Alexander, 2008, p. 342)
Physical Facilities for Participating in Positive Individual and Collective Activities		Green spaces adjacent to pause spaces, where there is the possibility to participate in activities	(Alexander, 2008, p. 342)

## 6. INTRODUCING NOBAHAR STREET IN KERMANSHAH

Nobahar Street is located in the northeast of Kermanshah. This street was built in 1962 from north to south based on the grid system.

This street includes four parts: two 5-meter wide

sidewalks on two sides, two 11-meter wide two-way roads for vehicles, a 5-meter wide sidewalk in the middle, and two lines on the borders of the sidewalks and the vehicle roads for stopping vehicles. Along the path on the sidewalks, a row of trees is planted. 8-meter wide alleys are perpendicular to the street from two sides and cross it due to a grid system. (Figs. 1 & 2).

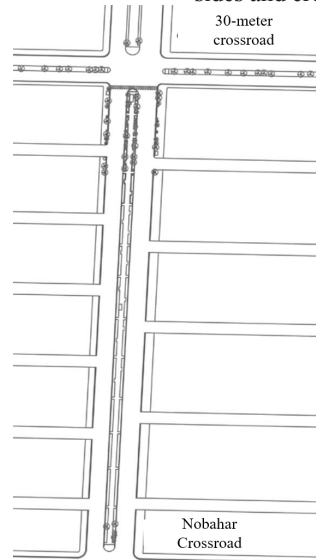


Fig. 2. Nobahar Street's Plan

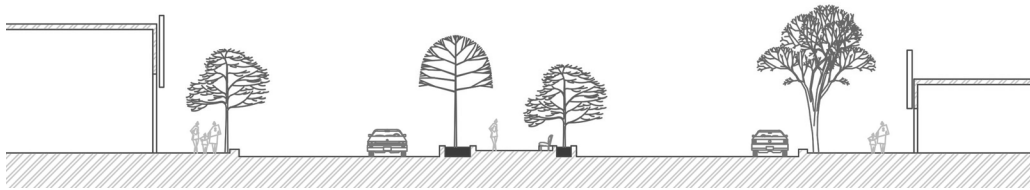


Fig. 3. Cross Section of Nobahar Street

The results of the primary evaluation of Nobahar Street, which are achieved by comparing it with the

existing theoretical criteria, can be considered as the physical strengths and weaknesses of this street.



Fig. 4. The View of Nobahar Crossroad from the End of Nobahar Street, View to the South, 2019



Fig. 5. The Intersection of One of the Secondary Roads



Fig. 6. The View of 30-Meter Crossroad from the End of Nobahar Street, View to the North, 2019





Fig. 7. Skyline and Nobahar Street's Edges



Fig. 8. The Position of Sun and Shadow in a Critical Spot of Nobahar Street, source; authors, 2019



Fig. 9. Sitting Places in Nobahar Street



Fig. 10. Lack of Harmony in the Walls of Street



Fig. 11. Micro-spaces Created by Trees

## 7. EXAMINING THE USERS' OPINIONS ABOUT NOBAHAR STREET'S ARCHITECTURE

These results were asked as seven open questions of 37 users of this place, who willingly chose to be present in this street. The topics of these questions were legibility, security, safety, climatic comfort, being away from pollutions, comfortability, and enjoyment. The interviewer engaged in a conversation with the user

about every one of these topics and tried to guide the interviewee towards talking about the physical features of this street. Eventually, interviews were recorded and coded. In some cases, these codes showed the existence or lack of the strengths and weaknesses, which were the results of the primary evaluation according to the opinions of the users, and in other cases, the repetition of a code showed the importance of some of the physical strengths or weaknesses according to the users' opinions. (Tables 4 & 5).

Table 4. Physical Strengths of Nobahar St. Compared with the Theoretical Criteria and the Users' Opinions

Required Conditions for Making the Environment Vital		Primary Evaluation (Based on Theoretical Criteria)		Physical Strengths of Nobahar St. (According to the Users' Opinions)			
		Physical Strengths of Nobahar St. (Through Comparison with Theoretical Criteria Provided In Tables 1, 2, and 3)	Causes	Number and Percentage of the People Who Verified These Features.		Number and Percentage of the People Who Perceived the Effect of These Features.	
Protectiveness of Nobahar St.	Legibility	Recognizable place as a path	1:10 ratios	29	78	-	-
		Strong nodes at the beginning and the end of the street	Existence of two important crossroads	21	67	-	-

Required Conditions for Making the Environment Vital	Primary Evaluation (Based on Theoretical Criteria)		Physical Strengths of Nobahar St. (According to the Users' Opinions)			
	Physical Strengths of Nobahar St. (Through Comparison with Theoretical Criteria Provided In Tables 1, 2, and 3)	Causes	Number and Percentage of the People Who Verified These Features.		Number and Percentage of the People Who Perceived the Effect of These Features.	
Security	Strong landmarks in Nobahar crossroads	Existence of the Nobahar Park Old Pine trees	30	81	-	-
	Strong landmarks for better understanding the direction in 30-meter crossroads	The open view of the path toward northern mountains	15	40	-	-
	Direct geometry and lack of unobservable corners	Being located in a straight street with the length of 370meter	24	68	-	-
	Soft and permeable edges	Numerous entries of houses and shops	-	-	35	94
	Transparent edges with a lot of openings	Shops with glass display windows	-	-	35	94
	The possibility to observe the whole width of the street due to proportions between its width and height	1:4 ratio	30	81	-	-
	Sufficient light source and proper placement	Shops being open until late night Tall electric light poles in the street Short electric light poles in sidewalks	11	33	-	-
Safety	Higher level of sidewalk than vehicle path's surface	Separating pedestrian and vehicle path, and creating surface level difference	-	-	25	75
	Sufficient light sources and proper placement	Providing drivers' view: Tall electric light poles in the street Providing pedestrians' view: Short electric light poles in sidewalks	11	33	-	-
	The northern-southern orientation of the street <sup>5</sup>	Providing the best direction of radiation Avoiding freezing of the paths during winter Creating shadows in the mornings and evenings during summer	-	-	8	26
Nobahar Street's Comfortability	Climatic comfort	The northern-southern orientation of the street	-	-	8	26
		Utilizing green paths to balance the climatic conditions of the environment	-	-	17	45

Required Conditions for Making the Environment Vital		Primary Evaluation (Based on Theoretical Criteria)		Physical Strengths of Nobahar St. (According to the Users' Opinions)			
		Physical Strengths of Nobahar St. (Through Comparison with Theoretical Criteria Provided In Tables 1, 2, and 3)	Causes	Number and Percentage of the People Who Verified These Features.		Number and Percentage of the People Who Perceived the Effect of These Features.	
Nobahar Street's Enjoyment	Being away from Pollutions	Implementing barriers using trees, etc. between stop spots and vehicle paths	Implementing barriers with trees, etc. between stop spots and vehicle paths	-	-	30	90
	Comfortability	Enough restrooms, and trashcans	Standard benches with backrest Setback benches in accordance with sidewalks	20	62	-	-
	Enjoyment	Utilizing trees	Limiting the view to discordant building facades Creating micro spaces in the main space	-	-	29	96
		Soft and permeable edges	Existence of numerous shops	-	-	35	94
		The possibility to sit and watch street activities	Existence of benches	13	38	-	-
		Trees with proper height	creating human scale	20	55	-	-
		Types of trees	Touching the leaves	-	-	13	38

**Table 5. Physical Weaknesses of Nobahar St. Compared with the Theoretical Criteria and the Users' Opinions**

Required Conditions for Making the Environment Vital		Primary Evaluation (Based on Theoretical Criteria)		Physical Strengths of Nobahar St. (According to the Users' Opinions)			
		Physical Strengths of Nobahar St. (Through Comparison with Theoretical Criteria Provided In Tables 1, 2, and 3)	Causes	Number and Percentage of the People Who Verified These Features.		Number and Percentage of the People Who Perceived the Effect of These Features.	
Protectiveness of Nobahar St.	Legibility	Weak and undistinguishable edges on two sides of the street	The lack of prominent architectural indicators	26	74	-	-
		Weak and undistinguishable nodes in the environment	At the intersection of the street and secondary roads Similar geometry	34	91	-	-
		Weak landmarks in the environment	Abundant and uncoordinated signs	29	78	-	-
	Security	Lack or absence of windows on the floors above the ground	Emphasis on the commercial land use	-	-	31	88
		Interference of trees' leaves with some of the light sources and reducing the light	Disregarding trees' location	-	-	-	-

Required Conditions for Making the Environment Vital		Primary Evaluation (Based on Theoretical Criteria)		Physical Strengths of Nobahar St. (According to the Users' Opinions)			
		Physical Strengths of Nobahar St. (Through Comparison with Theoretical Criteria Provided In Tables 1, 2, and 3)	Causes	Number and Percentage of the People Who Verified These Features.		Number and Percentage of the People Who Perceived the Effect of These Features.	
Nobahar Street's Comfortability	Safety	Not separating the pedestrian and vehicle paths	Too many intersections between sidewalks and vehicle paths at the secondary roads' beginning	-	-	20	64
		Unsafe environment for cyclists	Not allocating any paths for cycling	-	-	32	94
		Vehicles' high speed on the roads	Lack of bumps on the roads to lower the vehicles' speed	-	-	-	-
		Increased chance of facade materials dropping	high facades Unstopped skyline	-	-	-	-
		Tree leaves interfering with light sources and reducing the lighting	Disregarding trees' location	-	-	-	-
		Difficult movement for strollers, wheelchairs, and people with disabilities	Unnecessary differences at surface levels of the flooring	-	-	-	-
		Absence of standard stairs and ramps	Disregarding special people's needs	-	-	-	-
		Slippery surface materials in some areas	Using improper materials with climatic conditions	-	-	1	2.5
		Using materials that are weak against pedestrians' weights, vehicles, etc.	Improper materials Improper infrastructures	-	-	1	2.5
		Too many intersections between roads and alleys, and the possibility of unfavorable winds in these areas during winter	The eastern-western orientation of alleys along with unfavorable winds directions	-	-	-	-
		Wide streets, compared to the walls' heights A large part of the middle of the environment is exposed to unfavorable radiations	1 : 4 ratios	12	50	-	-
		Creating wind tunnels, and unfavorable shadows during winter	The existence of a 12-story building	-	-	-	-
Being away from Pollutions	Climate Comfort	The architecture of the environment does not protect people against radiations and rain/snow	Absence of horizontal canopies	31	91	-	-
		People are exposed to pollutions	Trashcans are located at the entrance of the alleys	21	63	-	-
		Lead pollution caused by vehicles	Pedestrian and vehicle paths are not separated	28	84	-	-



Required Conditions for Making the Environment Vital	Primary Evaluation (Based on Theoretical Criteria)		Physical Strengths of Nobahar St. (According to the Users' Opinions)			
	Physical Strengths of Nobahar St. (Through Comparison with Theoretical Criteria Provided In Tables 1, 2, and 3)	Causes	Number and Percentage of the People Who Verified These Features.		Number and Percentage of the People Who Perceived the Effect of These Features.	
Comfortability	Noise pollution caused by vehicles	Pedestrian and vehicle paths are not separated Not using sound-obstructive measures Traffic in the area	28	84	-	-
	Difficult movement for strollers, seniors, and people with disabilities	Too many obstacles and unnecessary differences at surface levels	21	63	-	-
	Uncomfortable during rains/snows and solar radiation	Absence of horizontal canopies	31	91	-	-
	Traffic on paths Traffic on curbs as seats	Lack of standard seats and places to stand Presence of peddlers Interference of the trees' location with the electric light poles at the sidewalks Lack of separating the movement and pause spaces	23	62	-	-
Nobahar Street's Enjoyment	Enjoyment	The lack of possibility for favorable visual enjoyment	26	74	31	88
		The architecture does not belong to the context	-	-	-	-
		Monotonous view of the sky	-	-	-	-
		Not following aesthetic factors in lighting	29	87	-	-
		Not using diverse textures on the walls	-	-	-	-
		Not following the hierarchy in dividing the facades	-	-	-	-
		Lack of diversity in observational activities	-	-	-	-
		Feeling of abandonment	-	-	-	-
		Not using the odor of plants	-	-	-	-
		Insufficient green spaces	26	72	-	-
		Lack of seats and places to stand	23	62	-	-

## 8. DISCUSSION

The primary evaluation of Nobahar St. based on the environment's vitality criteria shows that this place is relatively, and on average, legible. This street's strength on a macro-scale is its general proportions, i.e., the two nodes at its two ends, which are strengthened with the help of some landmarks. Whereas on the medium and micro scales, i.e. where inner divisions of the street, nodes, and symbols in this environment and the consistency among its walls in defining the edges become relevant, the chance of the street's legibility reduces (Table 4). However, the users have difficulty in distinguishing the interior components, especially by-lanes from the main street (refer to Table 5). The visual axis towards the northern mountains, while moving is not perceived as a landmark in peoples' minds. The architecture of the street plays a significant role in providing its security because its general geometry lacks fracture, the edges on the ground-floor are soft, permeable and with a lot of openings, the general proportions provide the opportunity to observe the edges, and the light sources are enough. The abovementioned factors cause the feeling in users that first, when in danger, some people might notice them and help them, and secondly, the criminals are exposed by the shopkeepers and pedestrian. Some users consider the intersections between the alleys and streets the unobservable corners, and, as a result, they are prone for criminal activities. Even if no criminal activity takes place in these areas, it reduces people's sense of safety and security. Moreover, most of the users, who have experienced being in this environment during nighttime, believe the lighting is not enough. When the shops are closed, the lighting reduces as well, and the lighting is reduced, and the transparent edges lose their functions during this time. Users' opinions also verify this result. Most of the interviewees have understood the measures taken to separate the sidewalks and vehicle paths, i.e. higher surface of the sidewalks, and consider it effective on their safety. However, at the same time, they are unsatisfied by the lack of more efficient separation of these two paths, and especially the existence of too many intersections between these two at the beginning of the alleys. The users also believe the current conditions of this place are not suitable for cycling, and their entrance to this area reduces safety. The improper and weak materials on the surface and edges were noticed only by one interviewee. The reason may be that there are too many physical factors that are effective in reducing the safety of this environment, that people's sensitivity does not cover all of them, and some of them remain unknown. Factors, such as too much and unnecessary differences in surface levels, lack of stairs and ramps where needed, obstacles, etc.

One of the main physical strengths of this environment in protection against unfavorable climatic conditions is its northern-southern orientation, which was

not perceived by the users. Although the street's orientation is in line with Kermanshah's optimal climatic orientation, but, on the one hand, the street's low enclosure on a macro scale, and on the other hand, the lack of horizontal canopies on a micro-scale, leads to insufficient protection against sun radiation. Concerning the effect of the street's orientation in protecting people against the winds, the existence of too many intersections between the street and the surrounding alleys, and the existence of a 12-story building in this place are the main reasons for its physical failure. Almost half of the interviewees considered the existence of trees effective in creating a comfortable atmosphere in this environment. In the primary evaluation, Nobahar Street is not considered to be able to protect people against pollutions. The users believe it is mostly caused by the lead and noise pollution caused by vehicles passing through this area, and also because stop spots are adjacent to vehicle paths. Nevertheless, the existence of trees in the gap between vehicle paths and sitting spots has been considered positive and effective in reducing pollution. The users, also, mostly do not consider this place to be "comfortable"; the lack of seats and standing spots, too much and unnecessary surface-level differences that cause difficulty for disabled people and seniors, and moving strollers are some of the main problems mentioned by the users. Nevertheless, most of the users believe facilities, such as restrooms and a few trashcans are sufficient.

In the primary evaluation, it seemed that Nobahar Street's architecture, utilizing some of the features, can relatively provide the requirements for people to enjoy this environment, and be a relatively positive factor itself in attracting and making people make stops in this place. However, referring to users' opinions was modified this conclusion. It was concluded that most of the users go to this place because of non-physical factors. Although a large number of the interviewees considered the use of trees and soft and permeable edges in this street to be enjoyable and effective in making them want to make stops in this place, they believe this place lacks enough spots for stopping, and secondly, it lacks enough topics to watch and enjoy. Also, the users prefer if the trees were more diverse and taller than they currently are. Moreover, most of them consider the inconsistency among the facades on two sides of the street an important factor for not enjoying the architecture of the environment. According to the users, there is not enough green space on this street, and aesthetic factors are not taken into consideration in designing the lighting of this place.

## 9. CONCLUSION

The results of the theoretical part showed that the most important physical strengths of Nobahar Street, which are related to its vitality, are related to the geometry of this place on a macro-scale; features like general

geometry on the horizon, and orientation. Whereas most of the weaknesses occurred on a medium and micro-scale; the most important weaknesses are in designing the edges, not benefitting from favorable heights and consistency among components. Whereas the intersections between the alleys and the street are some of the most sensitive and vulnerable spots in its edges. Study of the users' opinions also verifies these results; people list the positive physical features effective in making them want to visit this street as follows: utilizing trees, soft and permeable edges with a lot of openness, and proper and observable width of the path. They also consider the features, such as undistinguishable interior components of the street, lack and absence of windows on the floors above the ground, and inconsistency among the facades, to be negative features of the architecture.

The comparison of the theoretical results and field survey results shows that, as expected, users' understanding is more associated with the components and relations on the medium and micro-scale. Therefore, it can be said that making this environment more vital, more than anything, relies on paying attention to the medium and micro scales. There are three main approaches for doing so that are as follows: increasing the edges' height up to five stories and not higher, making the edges components consistent, and eventually, special consideration about the design of the edges at the intersection of the alleys and the street (Table 6). Since a relatively large number of buildings on the edges of this street are low-rise and are expected to be renovated or rebuilt in the following years, implementing standards to determine the height limit and façade design patterns, is a good opportunity for improving the environmental qualities of this place. Different methods, such as utilizing special trees,

changing the type or the arrangement of materials on the walls and surface, defining new land uses, turning the vehicle paths from alleys to the street into dead-ends, etc. can be used.

The comparison of the results of the current study with similar studies, evaluating a place based on users' opinions, shows that in most of the previous studies, either the physical factors were evaluated "generally" as effective components along with other components, or if the sub-criteria were taken into consideration, the criteria were not prioritized according to the users' opinions. For example, in a study by Sarrafi et al. (2019), where the conditions of livability components of Vali-Asr Street in Tehran were evaluated according to the users' opinions, physical criteria, under the name of livability component, were introduced as one of the six effective components. According to the users, this component was the strongest feature of this place. However, it was not clarified how the sub-criteria were prioritized according to the users' opinions. Also, in a study by Habibi et al. (Habibi, Nastaran, & Mohammadi, 2015), where the vitality of public places (Eastern Nazar Street as the case study) was evaluated according to the youth, the environmental component is one of the three components that were evaluated, which according to the youth, was more effective than the other two components. In this study, the sub-criteria of the environmental components were classified to some extent, but the most important environmental criteria were not determined from users' perspective. Therefore, the results of the current study are significant because of referring to the opinions of the users of a place, to understand the priority of the physical strengths and weaknesses effective on the environment's vitality according to them.

**Table 6. Opportunities and Threats of Nobahar Street's Architecture in Providing the Vitality Conditions**

		Threats	Opportunities
Protectiveness	Legibility	Increasing the height of the edges up to 4 or 5 stories with consistent skyline and facades to strengthen the enclosure and edges. Making signs consistent to create strong landmarks. Being pedestrian- oriented and limiting vehicle traffic to strengthen "being a path" Making the buildings around Nobahar and Thirty-meter crossroads consistently taller to increase the enclosure, strengthen the edges, and secondary nodes.	Irregular increase in the walls' height, and increasing the chaos in walls Blocking the visual axis towards the northern mountains by buildings and signs Increase in the number of inconsistent signs and symbols, creating weak landmarks, increase in disorder.
	Security	Increasing the height of the walls to 5 stories, and allocating residential land use (24 hours) to the upper floors	
	Safety	Building stepped facades for the buildings that will be built from now on to reduce the possibility of materials dropping Removing the unnecessary surface-level difference, and implementing standard ramps wherever needed Making pedestrian-oriented paths, and limiting or prohibiting vehicles from entering from the alleys to the street Correctly implementing the materials, especially on the flooring Determining a path for the blind by changing the surface materials	Increase in the edges' height without following the structural and execution principles, danger during earthquakes Deterioration of The façade and surface materials, and not replacing them on time.

	Threats	Opportunities
Comfortability	<p>Blocking the intersections at some of the alleys by buildings, at least on the higher floors to control the unfavorable winds and light</p> <p>Increasing the height of the edges to 5 stories to provide shadows over the street during summer</p> <p>Removing the unnecessary surface-level difference, and implementing standard ramps wherever needed</p> <p>Implementing setbacks to make space for sitting and standing</p> <p>Implementing secondary seats, like edges and stands</p> <p>Implementing deep enough canopies in the edges and the middle sidewalk</p> <p>Removing obstacles in the way</p> <p>Turning a large part of the path into a sidewalk to make walking easier to reduce noise and air pollution</p> <p>Increasing the number of trees that provide shades</p>	<p>Removing trees</p> <p>Buildings becoming taller than 5 stories, so the whole street is in shadow</p>
Enjoyment	<p>Defining micro-scale spaces with furniture and trees</p> <p>Increasing the height of the buildings on edges up to 5 stories to create a consistent skyline</p> <p>Planting flowers along the path to strengthen smelling</p> <p>Turning the path into a sidewalk to reduce noise, and provide the possibility to listen to birds, and also to increase the chance of participating in humane activities and watching these activities</p> <p>Making signs and symbols, etc. consistent to create visual aesthetics</p> <p>Defining spaces through lighting and therefore making the path beautiful</p> <p>Implementing setbacks in the walls to make place for sitting, standing and observing</p> <p>Utilizing local and suitable forms in the facades</p> <p>Observing the 2:7 ratios in dividing the interior facades</p>	<p>Destruction of trees</p> <p>Visual disorder due to increase in inconsistency among facades, signs, and symbols</p>

## END NOTE

1. There is a favorable limit to people's presence in the city, and it must not lead to traffic. Traffic is a cultural factor and must be limited according to the society's culture, so that people enjoy being in a space (Pakzad & Bozorg, 2012, p. 255).
2. There are two reasons that vehicle traffic in urban spaces is unfavorable: first, vehicle transportation speed is much faster than the pedestrians' speed, and it is in conflict with increasing the people's presence in the environment and paving the ground for new experiences, and as a result, making the environment vital. Second, while using vehicles, the physical distance between people is ten times more than when walking (Alexander, 2008, p. 106).
3. According to Jan Gehl, activities in urban spaces can be divided into three categories: purposeful activities, absolutely voluntary activities, and leisure and social activities (Gehl, 2014, p. 20).
4. Since people's attention is more focused on the horizontal axis than to the vertical axis (Gehl, 2016, p. 104) the walls, especially on the ground and first floors, have the most relation with the users of the space and are the most effective part of the edge in attracting people. If this part of the walls is designed in the form of "soft edges", i.e. to be able to enter them to some extent, or gather some information from within them, sensory exchange between the inner and outer areas occurs more properly (Gehl, 2014, p. 79) (Table 3).
5. The analysis of the related graphs (Kasmai, 2013, pp. 199-202) shows that orientation toward the south, 15 degrees toward the west rather than 45 degrees toward the east, is the optimal orientation for receiving solar energy in Kermanshah (Table 4).



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