



**Investigating the Significance of Physical and Functional
Factors in the Vitality of Urban Squares (The Case of Sabzemeydan Square, Rasht)**
Investigando o Significado de Fatores Físicos e Funcionais na
Vitalidade de Praças Urbanas (O Caso da Praça Sabzemeydan, Rasht)

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Abstract

Climate, culture, and behavioral patterns has shaped the identity of cities. Culture and climate are two main factors that differentiate cities from each other. Finding significant cultural and behavioral patterns and interests of people is a prerequisite of understanding, introducing, and saving the identity of cities in order to save urban spaces. The current research by investigating the vitality reasons of Sabzemeydan Square in Rasht takes a step in this regard. The research method is a survey research and a comparison of two functional and physical aspects in the creation of vitality in this square. In the quantitative method 200 questionnaires were analyzed using SPSS and at the end the features and buildings were ranked using ANP technique. The results demonstrate that the presence of people in Sabzemeydan Square as one of the crowded areas of Rasht, mainly depends on the functional factors, which are the most effective ones in creating the sense of place.

Keywords: Vitality; Mixed Use; Context; Rasht; Sabzemeydan

Resumo

O clima, a cultura e os padrões comportamentais moldaram a identidade das cidades. Cultura e clima são dois fatores principais que diferenciam cidades umas das outras. Encontrar padrões culturais e comportamentais significativos e os interesses das pessoas é um pré-requisito para a compreensão, introdução e salvaguarda da identidade das cidades, a fim de salvar os espaços urbanos. A pesquisa atual, investigando as razões de vitalidade da Praça Sabzemeydan em Rasht dá um passo nesse sentido. O método de pesquisa é uma pesquisa de levantamento e uma comparação dois aspectos funcionais e físicos na criação de vitalidade nesta praça. No método quantitativo foram analisados 200 questionários utilizando o SPSS e, no final, os elementos e edifícios foram classificados utilizando a técnica ANP. Os resultados demonstram que a presença de pessoas na Praça Sabzemeydan como uma das áreas lotadas de Rasht, depende principalmente dos fatores funcionais, que são os mais eficazes na criação do sentido de lugar.

Palavras-chave: Vitalidade; Uso misto; Contexto; Rasht; Sabzemeydan

1 Introduction

Behavior is a reaction that people express facing events depending on their analysis and understanding of those events. Based on this definition, the behavior of people in public urban places can be studied from two different aspects: the effect of users' behavior on the context of urban space and its effect on the happenings within the space. The relationship between human behavior pattern and vitality as one of the main urban space qualities is of utmost significance. Quality of space can increase the possibility of the voluntary presence of people in a city. So, space can be designed and redesigned considering the behavioral patterns of people.

In Rasht, because of its climatic and cultural difference with the other parts of the country, some of the proposed rules and criteria for the creation of a "good" urban space have their own unique expression. In other words, the physical system of a city, as well as its social structure, have had a great impact on urban spaces. In this regard, the aim of the current research is investigating the amount of vitality in Sabzemeydan, Rasht. It is also to observe which of the either physical factors such as spatial closeness, vegetation, urban furniture and so on or functional factors are more effective. The result of this study regards vitality and consequently the presence of people in the square due to functional factors (including the routes connected to the square and the existing use around it).

Sabzemeydan square, built more than a century ago, in order to make a public space in a center of Rasht city. Although the square has modified gradually, but it is only place in the city which has preserved as a public space since 120 years ago. More than a hundred people spend their time on it and many old people enjoy gathering there. The location of Sabzemeydan Square is illustrated at figure one.

2 Material and Methods

This research is a survey research and of content analysis type. The research procedure is derived from the proposed model by Kiwi (1991) in his book; as follows:

1. The initial question: Are physical factors as one of the main aspects in the quality of urban spaces has the same role in urban spaces of the north of the country with a humid and temperate climate?
2. Exploratory study: The study process basically shapes the initial question. The study for finding the answer of this question needs a pre-defined procedure that a part of it has been mentioned in the literature review.
3. Theoretical plan of the research question: This plan considers how important the physical factors in the squares of the northern cities of the country are (the case of Sabzemeydan).
4. Collecting the people's opinions through 200 questionnaires and analyzing the data using SPSS.
5. Constructing an analysis model: The total important qualities were the basis for an analysis model using ANP (Analytic Network Process) software. The base of this model was the questionnaires filled out by 20 experts.
6. Data analysis: The data analysis both observed and studied ones paved the way toward a conclusion.
7. Conclusion
8. It should be noted that in this research two observation methods were used for the data collection. The first method was a direct method through a survey and the second one was an indirect one through a questionnaire. In the second part of the observation, the SPSS software was used for the data analysis of around 200 questionnaires. The two methods will finally lead to the design of an analysis method using the ANP3 software. This software studies the square from two functional and physical aspects to determine the importance of each of them regarding the quality of vitality.

3 Conceptual Model

3.1 Findings

3.1.1 Research Background

Jacobs (1961) considers four main factors of vitality of a street in a city:

- 1) The district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common;
- 2) Most blocks must be short and provide permeability of urban texture; and opportunities to turn corners must be frequent;
- 3) The district must mingle buildings that vary in age and condition, including a good proportion of old ones so that they vary in the economic yield that they must produce. This mingling must be fairly close-grained;
- 4) There must be a sufficient congestion of people, for whatever purposes they may be there.

In the above-mentioned criteria, he has paid attention to functional and physical variations as well as the density of people and their types. It can be then concluded that the appropriateness and attractiveness of uses and facades and, in a larger scale, social, cultural, and economic factors have effective roles in the vitality of an urban society (Montgomery, 1998).

Lynch at “Good City Form” (1981), considers vitality as an important factor beside five other factors in shaping a good city form. Other factors are fit, sense, access, control and justice. He describes some of them as: vitality - the support of biological requirements; sense - mental perception and differentiation of a settlement; fit - the match between pattern and behavior; access - being able to reach resources and control- control of the use of the settlement (Lynch, 1981).

Paumier (2007) talks about what makes a city successful having vital places: Successful city centers do not just happen. Nor are they necessarily the result of fortuitous history, geography, or

economics. They come about because individuals and agencies within the public and private sectors make decisions and take a series of actions (Paumier, 2007).

Pakzad, an Iranian theorist, considers three main qualities for each urban square including spatial determination, vitality, and flexibility (Pakzad, 2004); from among which vitality is of the highest significance, so that lack of people’s presence in different hours in a space with a defined periphery cannot shape an urban space. Pakzad believes that inconsistent activities of street vendors, urban furniture, appropriate equipment in squares, suitable lighting, and flooring, etc. are those factors that make people stay there longer (Pakzad, 2012).

Gehl (2011) relates the quality of outdoor space to three types of outdoor activities:

- Necessary activities: Those activities that are compulsory, such as going to school or work, shopping, running errands, etc. these activities take place throughout the year.
- Optional activities: Those activities “that are participated in if there is a wish to do so and if tie and place make possible”. These include sunbathing, going for a stroll, and sitting;
- Social activities: Those activities that develop in connection with the other activities because people are in the same space, meet, pass by one another or are merely within view such as short meetings and conversations, diverse group activities and the most popular social activity: passive activities; to see and to be seen (Gehl, 2011).

	Necessary	Optional	Social
Inducement	Obligation, necessity	Free choice	Spontaneous
Sort	Functional Going to school, shopping, etc.	(mostly) Recreation Take a stroll, etc.	Interactive Playing, greeting, conversation, passive, contact
Influence of physical environment	Minimal	Vast	Indirect Result from the first two categories.

Table 1 Types of outdoor activities (modified from Gehl, 2011).

It can be said that the vitality of an urban space is directly connected to social and voluntary activities and their causal factors. If people are going to be involved in social life of squares, it should be tried to possibly increase the variety in functions, activities, the time of using a space, and groups dealing with a space. Leisure time uses such as cinema and restaurant, considering the time of different activities, are more attractive than state offices and buildings with restricted-time activities. Access to parking lots, public transportation, and various services affordable for all walks of life are solutions that guarantee the longer presence of people in the space (Gehl, 2011).

There are five fundamental aspects of great, livable cities: strong neighborhoods, walkability, and a network of attractive public spaces, affordability, and regional connections. There is a direct connection between community design and public health. Simply put, in places where it is hard to walk, people exercise less and are less physically healthy. Public health officials are increasingly recognizing this connection (Shifu, 2007). A successful city must balance social, economic, and environmental needs: it has to respond to pressure from all sides. A successful city should offer investors security, infrastructure (including water and energy), and efficiency. It should also put the needs of its citizens at the forefront of all its planning activities. Parks and greenbelts act as sinks for carbon dioxide (CO₂) and counteract the heat island effect of large built-up areas. They also provide essential open space for urban residents, flora and fauna, counteract traffic noise and improve the general 'livability' of a city. Cities which integrate the environment in urban planning and management benefit in many ways. Such cities prove more livable, more equitable, and more inviting to investors. Their citizens are healthier, and fewer working days are lost to environment-related illnesses (Shifu, 2007).

4 Urban Space

Yi-Fa as a human geographer defines space as a place for calm and valuable settlements. On the other hand, he considers space as a dynamic existence become rich by objects and the identity of space. Fa believes that the quality of a space is something that should be experienced (Karimnia, 2012). However, what is an urban space? Thompson

(2002) connects the topic of urban space due to the existence of cities and says:

Cities exist for the sake of the benefits that accrue from living in close proximity to a large number of other people. A definition of urban space has thus to account for the basic conditions for the possibility of realizing these benefits. Thompson in Urban Task Force report (1999) says:

“[...] to achieve urban integration means thinking of urban open space not as an isolated unit – be in a street, park or square – but as a vital part of urban landscape with its own specific set of functions. Public space should be conceived of as an outdoor room within a neighborhood, somewhere to relax, and enjoy the urban experience, a venue for a range of different activities, from outdoor eating to street entertainment; from sport and play areas to a venue for civic or political functions; and most importantly of all a place for walking or sitting-out. Public spaces work best when they establish a direct relationship between the space and the people who live and work around it. [...]” (Thompson, 2002, pg. 25).

In the definition of urban space it should be said that an urban space is an organized, neat, and orderly construct that acts as a context for human behavior and activities (Pakzad, 2008). Pakzad divides urban spaces into three categories depending on the type of activity and defined territory of every society including 1. Private spaces, 2. Semi-private/semi-public, 3. Public.

The main condition for considering a public space as urban space is the social interaction happening in it. Thus, those soft spaces and hard spaces that do not provide social interactions are not called urban spaces (Pakzad, 2008). People to express social behavior need stimuli in space that motivate them to do it. Is life divided into three categories of home life, social life and activity, these stimuli are provided in the third category called urban space (Carmona *et al.*, 2010).

4.2 Urban Square

Elements (buildings) collected and gathered together around a space cause the creation of a square. Human activities “in any form either cultural or economic are shaped in related elements or spaces. This is why the unity of square has been saved through ages” (Tavassoli, 2009).

Zucker (1970) believes that square as a live and dynamic part of a city is continuously changing. He also believes that a square in contrast to a painting or sculpture do not come to the end in a specific time with the last action of an artist but the elements of a square and the confining buildings change through time.

Davies defines urban square or plaza as “any large open urban space, often linked to a prestigious building”. Concurrently he defines urban square, as “an urban public open space, often planted or paved, surrounded on all sides by, in front of or between buildings” (Davies, 2008).

Carmona believes that the dynamic presence of people is a factor for changing the space in a city to an urban space. Thus, the social aspect of urban design, related to the effective role of people, is an index for measuring the ideality of space and the presence of people, consequently.

In this respect, urban squares have a social aspect regarding its public dimension and a spatial aspect due to its physical organization. Scholars further detailed the definition of urban square (Jackson, 1985). Plaza is defined as an open urban public space which is paved mostly with hard materials, to which entering of automobile is forbidden, and mainly there is a space for walking, sitting, relaxing, eating and drinking, and looking at near views (Rezvani & Rezvani, 2004).

5 Case Study

The case is located in Rasht, Guilan in north of Iran, 120 km of western north of Tehran. It is humid and temperate and from the topography perspective is a flat city with a mild slope.

5.1 Introducing the Square

Sabzemeydan (Figure 1), expanded in 17500 square meters and having various spaces and

nice and huge trees, today as an urban square, is considered as a desirable place. It has been built in Qajarieh era, when Naseredinshah, the king of Iran, with incentive policies, encouraged the land-owners of Shaft and Fouman to build two-story buildings around the square, so caused urban development (Safardoost, 2005). Around 120 years ago, the then governor of Rasht, decided to develop this area. In this already surrounded square with streets around it, he made gardens and planted trees, and called it Sabzemeydan. He covered the open ditch near the square with brick vaults, and gave the adjacent vast lands to the volunteers when they accepted to build houses or suitable shops. In the southern side of Sabzemeydan, he built a two-story school where plays of Lumiere, the French writer, were performed at nights. This building was later destroyed to expand the southern street of Sabzemeydan by the municipality in 1966. In historical documents, Sabzemeydan was called the National Garden.

The reasons for choosing Sabzemeydan as the case study are:

1. Having a historical background in people's mind;
2. People's presence throughout the day;
3. Used by diverse age and gender groups;
4. Various use.

The reasons that will be introduced here will be the classifications of uses, typology of plants, age of buildings, and the number of floors.

Use: The location of squares in central part of a city and being close to Shahrdari Square (Municipality Square) and the main bazar has changed this place to one of the busiest part of the city. The uses around the square include commercial, administrative, educational, cultural, religious, and services.

Plants: Plant types used in Sabzemeydan are Spindle, White magnolia, Caucasian oak, Sweet Alyssum, Caucasian elm, Siberian dwarf pine, Chinese arborvitae.

Height of buildings: The buildings around the square are one-storey to seven-storey buildings that in some cases have made an intense irregular skyline (Figures 2 and 3).

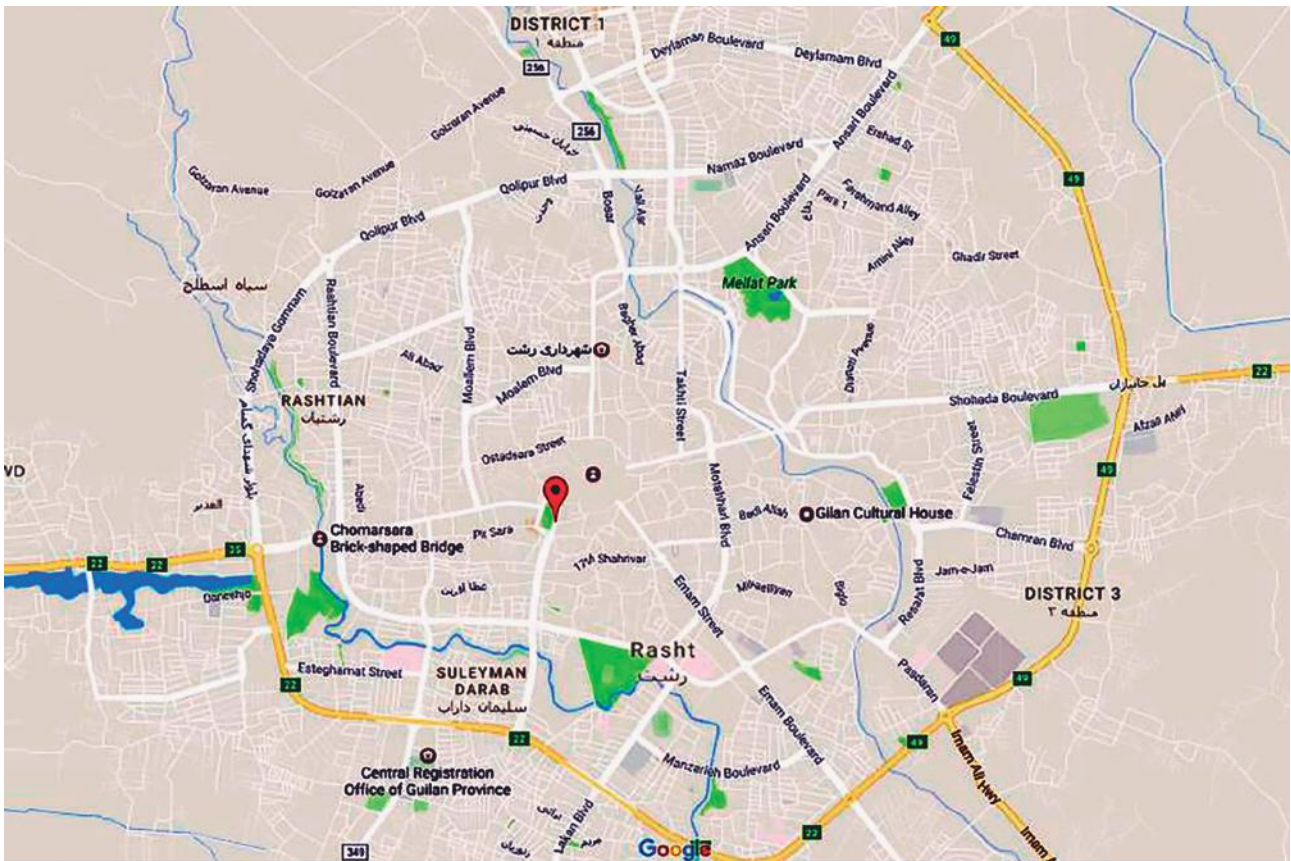


Figure 1 Location of Sabzemeydan Square in the Rasht City.

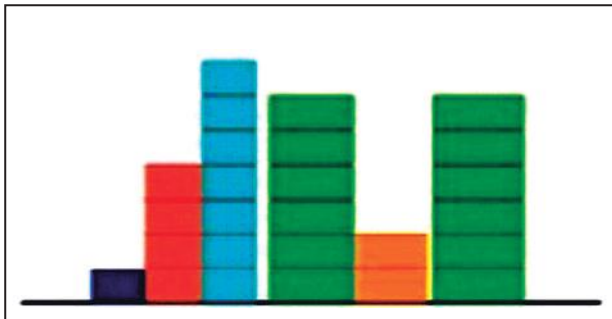


Figure 2 Skyline of the Western Front.

Age of buildings: The divisions done in this section are based on the time division of Soltanzade (2006) in the book “The contemporary Architecture of Iran”. The first generation of architects has begun since the 1910s, the second generation pioneers has begun since the 1960s, the second generation latecomers has grown since the 1970s, and finally the third generation was formed in the late 1980s concurrently with new modernists in Iran (Figures 3-5).

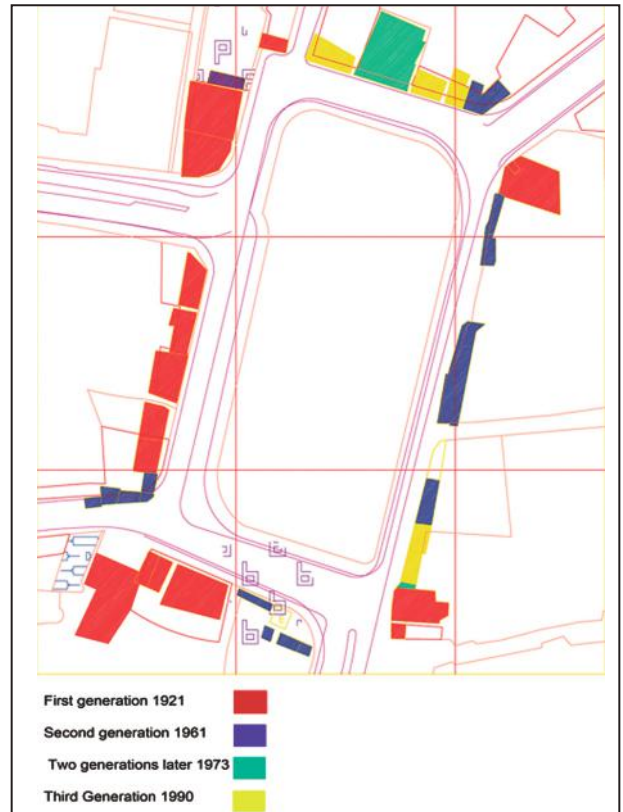


Figure 3 Building age.



Figure 4 Building built in 1929.



Figure 5
"22 Bahman"
cinema

Closeness: Based on the admitted criteria for determining the closeness, by studying the proportion of heights of buildings to width of pathways, it can be concluded that the square does not have such a noticeable closeness. The view is completely open to sky. As Tavassoli (1998) claimed, the desirable dimension for squares is 22m in width and 9m in height, lacks the sense of closeness (Figure 6). Therefore lack of closeness can be seen in this square, which is appropriate for the climate. Temperate climate with high degree of humid does not require closeness as hot and dry climate needs. In Rasht city climate, it is necessary to make a wind circulation in order to keep the weather fresh.

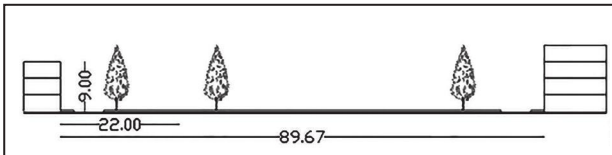


Figure 6 Size of the square and the cooperation with closeness requirement.

6 Findings

6.2 The Questionnaire for Studying the Amount of Vitality in Sabzemeydan

In this research, to understand the reason of people's presence in Sabzemeydan a questionnaire was used. The outcome of the analyzed data through SPSS are as follows.

The results of the questionnaires demonstrate the major reasons of the people's presence in the square is the existence of commercial use and catering units (hypermarkets, retail, malls, restaurants, etc.), administrative and cultural centers, green environment (vegetation, fountain), and locating in the city center. Figure 7 displays the statistical reports of the reasons that people spend their time in the square. As a result of it, column A is for spending leisure time in the Sabzemeydan; column B is for shopping; column C is for administrative affairs and the last column D is for educational affairs. Option B has received the highest votes.

Figure 7 confirms Figure 8 that determines the space of Sabzemeydan in minds of people. In this

figure the selected space is the pedestrian space from its curbs to windows of shops. Column A is the whole space of the square from facades to the central green space of the square including the pedestrian way and the surrounding car way. The Column C is the car way surrounding the park.

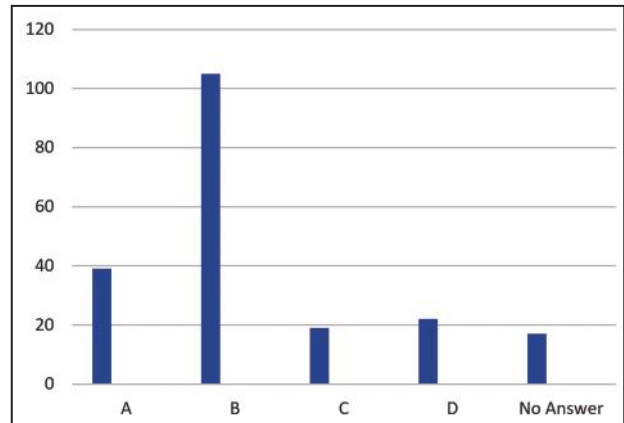


Figure 7 Reasons of people for their presence in the square

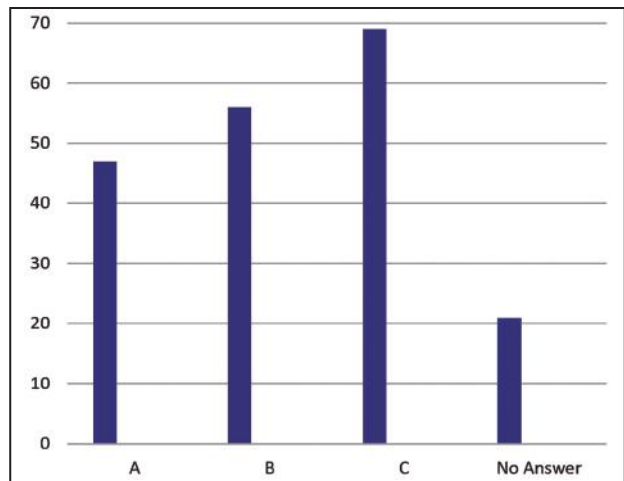


Figure 8 Definition of the space of the square from a mental viewpoint

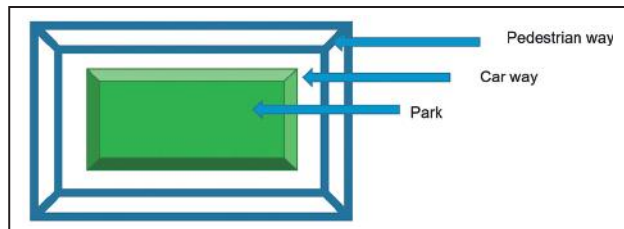


Figure 9 Symbol of square.

In the questionnaire, a descriptive question about the annoying behaviors and a comment section for the citizen's opinions had been predicted. The noticeable point in response to the two mentioned sections was that the presence of taxis around the

square was reported as the most annoying activity. It is interesting that for the majority of people, any infrequent activity (street vendors, food carts, etc.) is accepted and normal. In fact, these people are not aware of the inappropriateness of street vending in urban passages despite being dissatisfied of the narrow width passages. The narrow pavements, considering the volume of pedestrians around the square cause the pauses in front of vendors interfere with the movement performance and make chaos. One of the attractive elements for people is the vegetation of the square. Under the shadows of trees, a group of retired people gather and talk while their presence create a specific community in the square. In the sample of this study, for the elderly and retirees avoided filling in the questionnaire, their number has not been presented in Figure 10. However, the lack of square in their point of view was urban furniture for playing chess or gathering. In Table 2, between 10 am- 1 pm is the busiest performance hours, and the number of users between 8 pm-1 am is the highest. In Figure 11, the busiest hours of the people's presence can be seen.

Commercial	Educational	Leisure Time	Offices	Hours
	X		X	8 AM to 10 AM
X	X	X	X	10 AM to 13 PM
X		X		8 PM to 1 AM

Table 2 Most crowded hours.

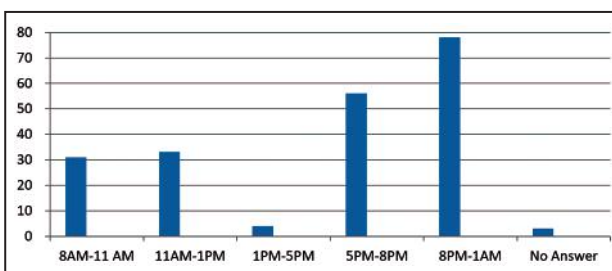


Figure 10 Statistical analysis of most crowded hours.

It should be mentioned that the crowd of over 50-year-old people was increased by adding 20 people because they answered the descriptive question and did not fill in the questionnaire (Figure 11).

Eventually, based on the statistical analysis it can be concluded that different age groups have a

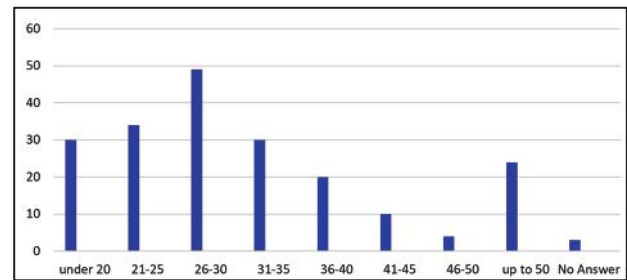


Figure 11 Age analysis of users.

sense of calm and vitality in this space; both the young people who come to use the library inside the square and eat their lunch in the green environment, and the elderly who come every day to buy newspaper, meet their friends and spend time. What is for certain is that the majority of people go there for shopping and using the shopping centers. However, this is playing of the children, walking of the youngsters, and the elderly's presence that keep the square vital. Of the positive elements that the people mentioned are: The square statues, the gardens, the activities around the square, the library, as well as the childhood memories and the nostalgic sense of the square that all intensify the sense of belonging and identity in the minds of people. The negative factors are mentioned as: the street vendors in narrow walkways, traffic around the square, the addicts and a small group of people called mobs, the lack of amenities such as toilets, and the lack of attention to the fountains (painting and cleaning).

6.3 Exploratory Analysis of the Questions of the Specialized Questionnaire

To make the acquired results of the users acceptable, twenty questionnaires were filled out by experts and university professors and the results were analyzed.

Before any analysis on the acquired data and statistical reasoning, first of all, the reliability and validity of the instrument should be insured. The reliability of the questionnaire was calculated using Cronbach's Alpha confirming that it is reliable enough to be used for data collection.

Data analysis is highly significant for investigating the accuracy of questions and research hypotheses. In the current research benefiting from statistical techniques and an operative research such

as ANP that are compatible with the research method and the types of variables, the collected data will be analyzed and the research questions will be tested.

As it can be seen in Figure 12, functional elements, context, function, and physical elements are prioritized respectively. The inconsistency rate of the paired comparisons is 0.67, which is less than 0.10, so it confirms that the comparisons are acceptable.

Table 3 presents the criteria and sub-criteria of the vitality indices from two physical and functional aspects, then, considering the results of the survey research to determine the coefficient of importance (weight), the criteria and sub-criteria

were compared in pairs and the studied qualities were ranked quantitatively.

In the physical section, as it can be seen in Table 4, pedestrian safety in streets, the sense of belonging, transparency of facades, vegetation, lighting, flooring, and urban furniture are respectively important. The inconsistency rate of the paired comparisons is 0.09, which is acceptable.

In the functional section, there are three pivotal elements and, as it can be seen in Table 5, functional diversity, flexibility, and retail are the top priorities.

In the comparison of the shared elements in the two physical and functional sections, as it can

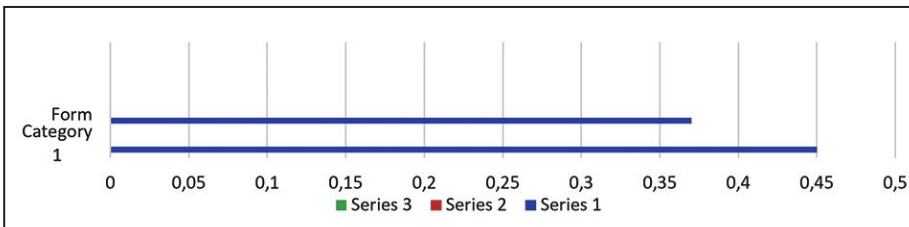


Figure 12 Prioritizing the main component with Super Decision software.

Priority	Weight	Criteria	
1	0.55	Operation	1
3	0.20	Form	2
2	0.24	Both	3

Table 3 Weight of the main components of public space quality; the related numbers and figures of each element are as follows.

	Safety in the Street	Sense of Belonging	Walls Transparency	Lighting	Vegetation	Urban Furniture	Flooring
Safety in the Street	1						
Sense of Belonging		1					
Walls Transparency			1				
Lighting				1			
Vegetation					1		
Urban furniture						1	
Flooring							1

Table 4 matrix structures of security quality.

Priority	Weight	Criteria	
1	0.66	Variety of Form	1
2	0.22	Flexibility	2
3	0.11	Retail	3

Table 5 Operational component weight.

	Identity	Meaning	Having Territory	Memorability	Permeability	Richness of Sense
Identity	1					
Meaning		1				
Having territory			1			
Memorability				1		
Permeability					1	
Richness of sense						1

Table 6 matrix structures of paired comparisons.

be seen in Table 6, the sense of identity, territory acceptability, meaning, evocation, permeability, and sensory richness are the top priorities. The inconsistency rate of the paired comparisons is 0.9.

7 Conclusion

As it was mentioned at the beginning of this article, climate, culture, and behavioral pattern form urban identity. Making a behavioral pattern in this square highly depends on the cultural factors and functions. Taking the outcomes of exploratory analysis and matrices into consideration, the identity resulted from the performances in Sabzemeydan, plays an important role in the presence of people in the space. The possibility of increasing pedestrian's safety, functional diversity, emphasis on native elements are reasons that increase citizen's motivation for the presence in the space. Findings demonstrate that the presence of people and pedestrians is the most significant factor in vitality of the square. The disruptive and annoying factor in this space is traffic in the four routes of the square. Public transportation (bus, tram) can be a solution.

Regarding the historical, economic, and cultural similarities in the northern cities of the country, the outcomes can be classified and introduced as:

1. The variety of functions around the square is the main reason of attracting a large group of people. In urban culture of Rasht, rows with different uses or near each other often benefit from more demands and as a result higher cost.
2. Water and vegetation play an important role in making urban spaces more attractive and in satisfying spiritual needs of a society accustomed with green environment.
3. The presence of citizens in different age groups is automatically one of the signs of the vitality of an urban space. The children playing in the green environment, the library which is a reason of the youngsters' and teenagers' presence, the retirees who despite lack of suitable furniture (for gathering) still choose this square for spending their free time, and the people with their shopping packages in hand choose the middle of square for resting are different groups (gender and age) who provide the vitality of the square.

4. More closeness for the square in the temperate and humid climate of the north with the sunshine milder than the dried and hot areas, is not only unnecessary but also slackens the air flow and as a result increases sultry and decreases the climatic comfort.
5. Suitable lighting at night either through the shop windows or pedestrian lights is an important reason for people attraction to the space and making the space vital at nights.
6. Sabzemeydan is regarded as a safe place even late at night. The statistics show that 60% of the women and 100% of the men feel secure in the mid-night.

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