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A Methodological Approach to Urban Squares Suitability Analysis: The Case of Osmaniye City Center

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ABSTRACT
Squares, which are one of the basic elements of urban open space and social communication, are the meeting, gathering, waiting, resting and entertainment areas of the citizens. However, the rapid and unplanned urbanization process, which takes place in order to meet the needs of the increasing population in cities, negatively affects the square designs like many urban spaces. This situation reveals the need to re-evaluate the squares with important functional characteristics over time. In this study, it was aimed to examine the 3 squares in Osmaniye with the square suitability criteria created within the scope of the study and to evaluate the suitability for use on an urban scale.
In the study, square suitability criteria were created within the scope of 7 main and their sub-criteria. The suitability assessment of the squares in the city center of Osmaniye province was carried out with the Analytical Hierarchy Process by 28 experts from different professional disciplines.
As a result of the study, it was determined that all three squares were in the category of less suitable in terms of square suitability classification. In the study, improvement suggestions were developed for each square in line with the scores they received from the square suitability criteria.
Keywords: Analytical Hierarchy Process (AHP), Square, Urban Area, Osmaniye.

1. INTRODUCTION
The square, which means "wide and open area" as a dictionary meaning, is a closed space with defined boundaries. Squares, which are referred to as "defined gaps" by Bilgihan (2006), are one of the important urban open spaces where people interact physically, socially, economically and culturally (Sertkaya and Çolak, 2011).

Unlike other types of open spaces in the city, squares form the focal points in urban areas. In addition to the functions of gathering, dispersing, waiting, resting, having fun, strengthening social relations and enabling social learning (Kürkçüoğlu, 2016; Moughtin, 1999), they also undertake functions to meet user needs and activities such as social, cultural, political and commercial (Semerci, 2008; Özer and Ayten, 2005). In addition, they constitute one of the important open areas in the city in terms of providing gathering and temporary housing opportunities in natural disasters such as earthquakes.

In addition to its functional qualities, squares bear the traces of social changes by reflecting the history, culture, beliefs, and architectural characteristics of the society in which they are located (Aslan, 2006). In this context, squares also contribute to the formation and reflection of urban identity.

In the historical process, city squares have become public spaces where daily and important events of their period are experienced (Ölmez Kalender, Demiroğlu, 2011). Square approaches have changed over time in Anatolia, which has hosted many civilizations with its geopolitical location and unique natural resources. The squares, which were used as marketplaces in the Middle Ages, were located in spaces concentrated in mosque courtyards with the spread of Islam in Anatolia (Sezer, 2010). With the proclamation of the Republic, squares began to be used predominantly ceremonially (Şahin, 2006).

With the agricultural reform carried out in our country in the 1950s, the period of mechanization in agriculture started. This situation has led to less need for manpower. As a result of the rapid migration process from rural areas to urban areas, the population in urban areas has increased rapidly (Erdem and Yücel Batmaz, 2016). The rapid and unplanned urbanization process in order to meet the needs of the increasing population has negatively affected the square designs like many urban spaces. Since this period, as stated by Özer and Ayten (2005), squares have been under the pressure of economic rationality of design and as a result, they have become unidentified, unqualified and similar spaces.

The squares, which are designed without identity and away from the character of the square, constitute the common problem not only of large cities but also of medium and small-sized cities today. This problem, which is experienced within the scope of squares in the cities of our country, is also a common problem for Osmaniye province. Osmaniye, which was one of the important districts of Adana until 1996, became a province with the law dated 24.10.1996 and numbered 4200. With the transition to provincial status, the city center, which consists of low-rise buildings, has changed to multi-storey houses. Increasing population and rapidly developing unplanned urbanization have highlighted the need for sufficient space in terms of quantity and quality. In this study, 3 squares in Osmaniye (Cumhuriyet Square, Rahime Hatun Square and Dr. Devlet Bahçeli Square) were examined within the scope of the square suitability criteria and the suitability for use at the city scale was evaluated.

2. MATERIAL METHOD

The research was carried out in 3 squares in Osmaniye city center. Osmaniye is located in the Eastern Mediterranean Region of the Mediterranean Region, between 35° 52'- 36 ° 42' East Meridians (longitudes) and 36° 57 ’- 37° 45' North Parallels (latitudes). Its surface area is 3,320km2. Osmaniye has been a settlement since the earliest times of history and has been under the influence of many civilizations and has been located in a geography with a significant amount of historical and cultural artifacts. It is a city with historical and cultural richness that has hosted states such as Hittite, Assyrian, Persian, Roman, Byzantine since the first age (Osmaniye Governorship, 2023).

Osmaniye, which was one of the important districts of Adana in the past, became a province with the law dated 24.10.1996 and numbered 4200. With the transition to provincial status, the population growth rate accelerated and the city center, which consists of low-rise buildings, changed to multi-storey houses. Its population, which was 559,405 as of 2022, increased by 1.16% compared to the previous year. The district with the highest increase is Osmaniye Merkez district (Osmaniye Municipality, 2023). There are 3 squares that are the subject of this research in Osmaniye Merkez district. (Figure 1).

Cumhuriyet Square, the first square of Osmaniye city center, was opened in 2007 to be used for ceremonial purposes on an area of 3 464m2. The second square of Osmaniye city, Dr. Devlet Bahçeli Square was designed in 2009 and renovated in 2016. The largest square of the city center, Dr. Devlet Bahçeli Square is 12,200m2 and is located in Esenevler Neighborhood. Rahime Hatun Square, the last square, was opened for use on an area of 6

310m2in 2012. Rahime Hatun Square, located within the boundaries of İstiklal Neighborhood, is very close to Cumhuriyet Square.

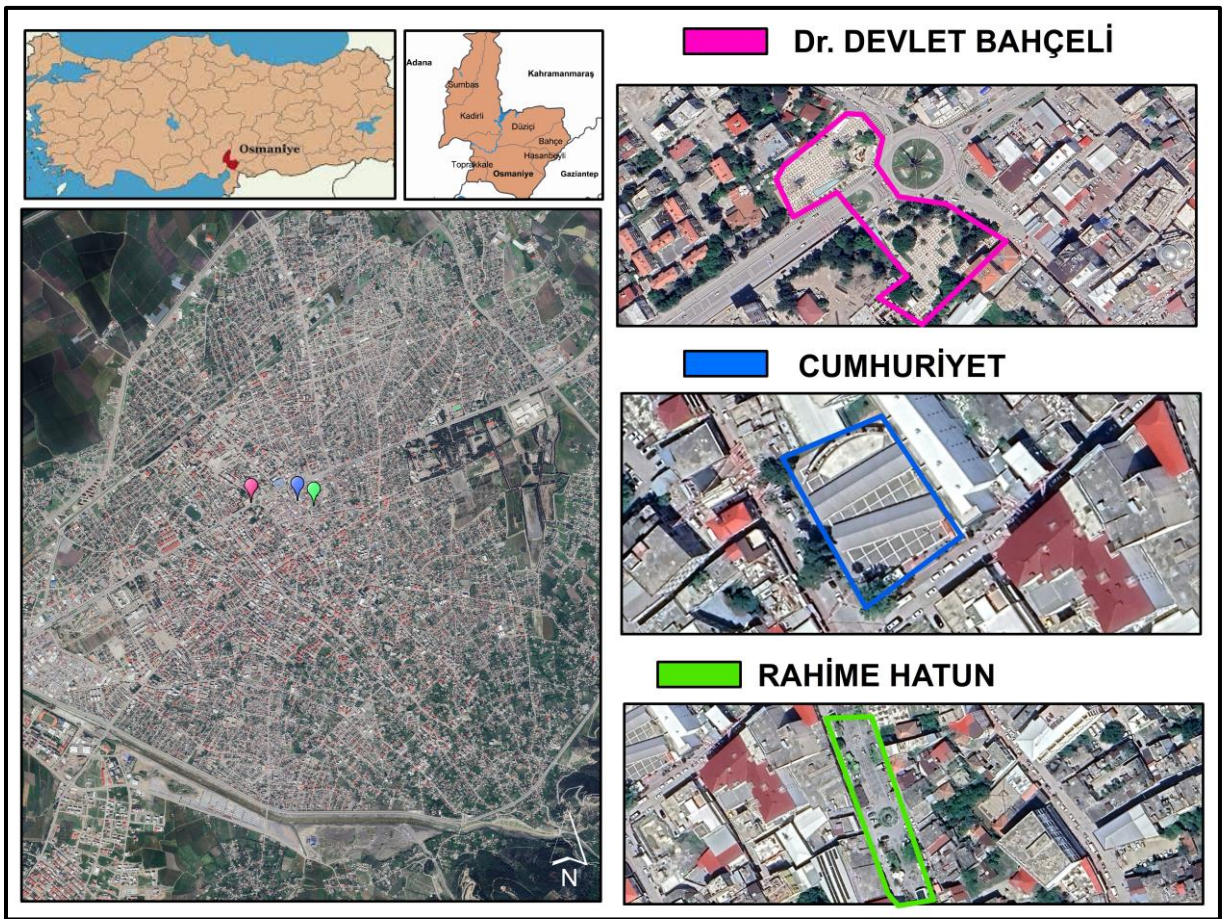

Figure 1. Location of the Squares in the Research Area

In the process of increasing population and rapid urbanization, there has been a need to re-evaluate the adequacy and usability of these 3 squares in the city center of Osmaniye on an urban scale. In line with its purpose, the study consists of 2 sections and the sub-stages of these sections.

2.1. I. Section of the Method

In this section, the challenge assessment criteria and the importance levels of the criteria were determined. Analytical Hierarchy Process, one of the multi-criteria decision-making methods, was used to determine the importance levels of the criteria relative to each other. AHP, which is used to solve complex problems with multiple criteria, was developed by Thomas L. Saaty is a decision-making method (Kuruüzüm and Atsan, 2001). The method, which is frequently used by many different disciplines, is widely preferred in facilitating decision-making processes (Saaty, 2000). The AHP Method is applied in 4 stages:

STAGE 1: Determination of Criteria and Establishment of Hierarchical Structure: At this stage, first of all, square suitability criteria and suitability scores were determined **(Table 1).** Lynch (1971), Alexander (1977), Montgomery, (1998), Aşıkoğlu (2000), Mesutoğlu (2001), Yıldız (2002), Önder and Aklanoğlu (2002), Oktay (2007), Demirel (2008), Semerci (2008), Shaftoe (2008), Gehl (2011), Memluk (2013) studies and expert opinions were used to determine the criteria. The expert group participating in the study consists of 28 people working in the public and private sectors in architect, landscape architect, interior designer and urban regional planning professional disciplines.

Table 1. Evaluation Criteria and Scoring.

CRITERIAS	SCORE
1. FUNCTIONALITY	
1.1.POSITION (I1)	
1.1.1. Connected to more than one boulevard	4
1.1.2. Connected to a boulevard and multiple streets	3
1.1.3. Connected to more than one street	2
1.1.4. Connected to one street and multiple streets	1
1.1.5. Disconnected	0
1.2. ACCESSIBILITY (I2)	
1.2.1. There are multiple car parks and public transport and pedestrian access in the vicinity	4
1.2.2. There are multiple car parks and public transportation facilities in the vicinity	3
1.2.3. There is a car park and public transportation in the vicinity	2
1.2.4. There is a car park or public transport or pedestrian facilities in the vicinity	1
1.2.5. No parking or public transport or pedestrian access in the vicinity	0
1.3. MAGNITUDE (I3)	
1.3.1. Greater than 10.000 m^2	4
1.3.2. 10.000 m^2 -5 000 m^2	3
1.3.3. 5 000 m^2-1 000 m^2	2
1.3.4. Between 1 000 m^2-484 m^2	1
1.3.5. Less than 484 m^2	0
Lynch (1971) suggests that the ideal size for a small area is between 12 and 24 m along each area, and for large squares this size goes up to about 100 m. Jan Gehl (2011) suggests a similar maximum distance and points out that the maximum distance to distinguish facial expressions is about 25 m. Christopher Alexander (1977) states that small public squares should never be more than 22 m. Therefore, in this study, the minimum size of the squares was determined as 12*12=484m2; for large squares, it was determined as 100*100=10 000m2 .	
2. LANDSCAPE	
2.1. 2.1. HARD FLOORING (P1) Within the scope of the criteria of flooring, material suitability, color, environment and compatibility with the area, it was evaluated at the 5-point level with the evaluation criteria of "very suitable-suitable - less suitable - not suitable and nonexistent".	4 3 2 1 0
1.2. VEGETATION (P2) The type used was evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate-less suitable-not suitable and nonexistent" within the scope of the service forthe intended use and visual effect criteria.	4 3 2 1 0
1.3. WATER ELEMENTS (P3) Within the scope of its intended use, it was evaluated at the 5-point level with the evaluation criteria of "very suitable-suitable - less suitable - not suitable and nonexistent".	4 3 2 1 0
3. URBAN ACCESSORIES	
3.1. NUMBER (KD1) The number adequacy of urban reinforcements was evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate-less suitable-unsuitable and nonexistent". If there is no urban reinforcement in the area, the relevant square subject to the research received 0 points from this sub-criteria.	4 3 2 1 0
3.2. LAYOUT-DISTRIBUTION (KD2)	4

The location and distribution of the urban reinforcements in the relevant square were evaluated at the 5-point level with the evaluation criteria of "very suitable-suitable - less suitable - not suitable and nonexistent". If there is no urban reinforcement in the area, the relevant square subject to the research received 0 points from this sub-criteria.	3 2 1 0
3.3. FITNESS FOR PURPOSE (KD3) The suitability of urban reinforcementsfor the purpose of use in the relevant square was evaluated at the 5-point level with the evaluation criteria of "very suitable-suitable - less suitable - not suitable and nonexistent". If there is no urban reinforcement in the area, the relevant square subject to the research received 0 points from this sub-criteria.	4 3 2 1 0
3.4. ERGONOMICS (KD4)	
In this title, the compliance of urban reinforcements with anthropometric standards within the scope of comfort quality is evaluated. If all the reinforcements in the area comply with anthropometric standards, the relevant square received 4 points from this subheading within the scope of the "very suitable" criterion. As the level of compliance of the reinforcements in the area with the standards decreases, the evaluation criteria of " less suitable-not suitable and nonexistent" were evaluated. If there is no urban reinforcement in the area, the relevant square subject to the research received 0 points from this sub-criteria.	4 3 2 1 0
3.5. SEASONAL COMFORT (KD5)	
Within the scope of seasonal comfort, the comfort levels of urban reinforcements according to seasonal characteristics were evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate-less suitable-not suitable and nonexistent". Within the scope of seasonal comfort, the material of the reinforcement was not evaluated, and the presence and correct use of plants and top cover options were evaluated. Reinforcement material was included in the study as a separate evaluation criterion.	4 3 2 1 0
3. 6. MATERIAL (KD6)	
The materials used in urban reinforcements were evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate-less suitable-not suitable and nonexistent" within the scope of seasonal characteristics, intended use and visual adaptation characteristics. If there is no urban reinforcement in the area, the relevant square subject to the research received 0 points from this sub-criteria.	4 3 2 1 0
4. SOCIALIZATION -RECREATION	
4.1. SOCIALIZATION (S1) Within the scope of this sub-criteria, the suitability of the activities in the relevant squarefor socialization was evaluated at the 5-point level with the evaluation criteria of "very appropriate-appropriate - less appropriate - not appropriate and nonexistent". If there is no activity that allows socialization in the area, the relevant square received 0 points from this sub-criteria.	4 3 2 1 0
4.2. SUITABILITY FOR ALL AGE GROUPS (S2) Within the scope of this sub-criteria, the suitability of the activities in the relevant squarefor all age groups was evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate - less suitable - not suitable and nonexistent". If there is no activity that allows recreation and socialization in the area, the relevant square received 0 points from this sub-criteria.	4 3 2 1 0
4.3. SEASONAL COMFORT (S3) Within the scope of this sub-criteria, the seasonal comfort of the activities in the relevant square was evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate-less suitable-not suitable and nonexistent". If there is no activity that allows recreation and socialization in the area, the relevant square received 0 points from this sub-criteria.	4 3 2 1 0
4.4. FOOD AND BEVERAGE AREAS (S4)	4

Within the scope of the square size of the eating and drinking areas in the relevant square, the purpose of use of the square and the adequacy of the number of people who can use the square, it was evaluated at the level of 5 points with the evaluation criteria of "very suitable-suitable - less suitable - not suitable and none". If there are no eating and drinking areas in the square, the relevant square received 0 points from this sub-criteria.	3 2 1 0
4.5. LANDSCAPE (S5) The landscape feature of the square was evaluated at the 5-point level with the evaluation criteria of "very suitable-appropriate-less suitable-not suitable and nonexistent" according to the degree of visual impact.	4 3 2 1 0
5. CITY IDENTITY	
Natural vegetation reflecting the identity of the city was used in the relevant square and there is at least one historical, cultural or artistic object in the square.	4
Natural vegetation species were not used in the relevant square, but there is at least one historical, cultural or artistic object in the square.	3
There is only a historical or cultural object in the relevant square.	2
There is no historical cultural or artistic object in the relevant square, only natural vegetation types are included.	1
There is no natural vegetation historical, cultural or artistic object reflecting the identity of the city in the relevant square.	0
MAINTENANCE AND REPAIR	
6.1. CARE OF PLANTS (B1) The adequacy of the care of the plants in the relevant square was evaluated at the level of 5 points. If the care of the plants in the square is quite sufficient and suitable for the species, it is scored as 4 points, and if there is insufficient or no vegetation in the square, it is scored as 0 points.	4 3 2 1 0
6.2. MAINTENANCE OF REINFORCEMENTS (B2) The adequacy of reinforcement maintenance in the relevant square was evaluated at the level of 5 points. If the maintenance of the reinforcement in the square is quite sufficient, it is scored as 4 points, and if there is insufficient or no reinforcement in the square, it is scored as 0 points.	4 3 2 1 0
6.3. FLOORING MAINTENANCE (B3) The adequacy of flooring maintenance in the relevant square was evaluated at the level of 5 points. If the flooring maintenance in the square is quite sufficient, it is scored as 4 points and if it is insufficient, it is scored as 0 points.	4 3 2 1 0
6.4. AREA CLEANING (B4) The cleanliness of the relevant square was evaluated at the level of 5 points. If the cleaning service in the square is quite sufficient, it is scored as 4 points and if it is insufficient, it is scored as 0 points.	4 3 2 1 0
7. SAFETY SECURITY	
7.1. DAYTIME (G1) The daytime use safety of the relevant square was evaluated at the 5-point level. If the use of the square during the day is very safe, it is scored as 4 points, and if it is not safe, it is scored as 0 points.	4 3 2 1 0
7.2. NIGHT (G2) The night use safety of the relevant square was evaluated at the level of 5 points. If the use of the square at night is very safe, it is scored as 4 points, and if it is not safe, it is scored as 0 points.	4 3 2 1 0
7.3. SECURITY PERSONNEL (G3)	4 3

The number adequacy of the security personnel in the relevant square was evaluated at the level of 5 points. It is scored as 4 points if the number of security guards is sufficient, or 0 points if there is no security guard.	2 1 0

After the challenge evaluation criteria were determined, the hierarchical structure of the decision-making process was created (Figure 2). In the study, 7 main criteria were determined. These criteria have different numbers of sub-criteria. The sub-criteria were coded by numbering the initials of the main criteria given in Table 1.

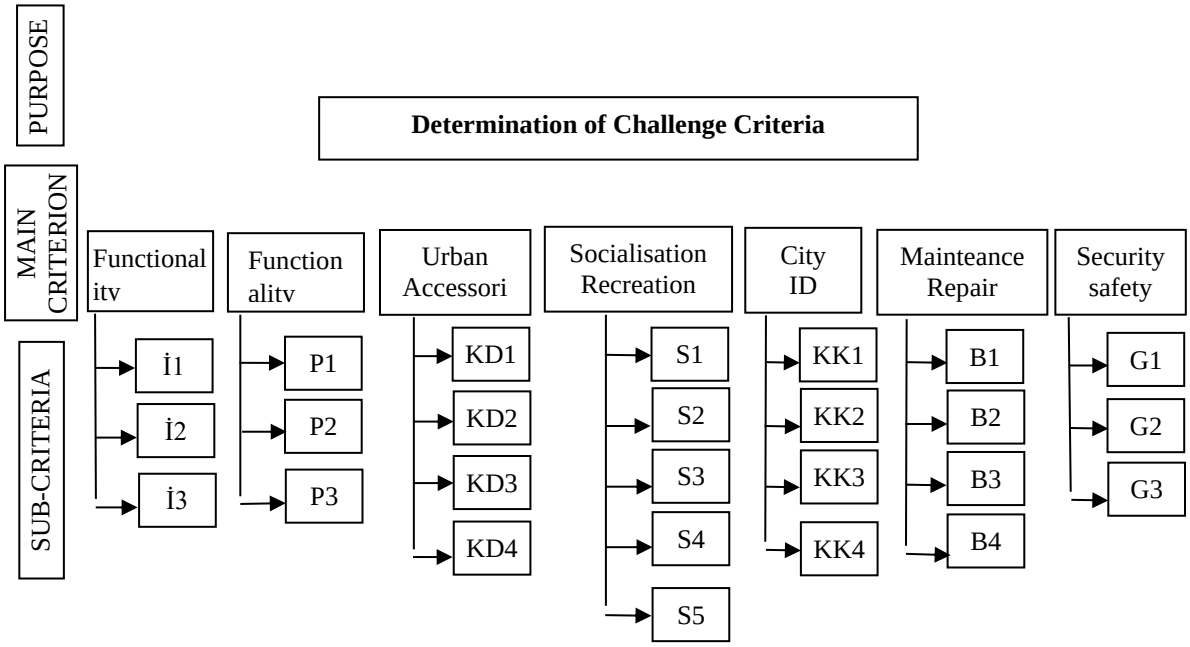

Figure 2. Hierarchical Structure

STAGE 2: Establishing a Binary Comparison Matrix: IN order to determine the most appropriate option, it is necessary to determine the importance levels of the criteria according to the purpose. In other words, the criteria are compared in pairs, taking into account the purpose. Then, the degree of impact of the sub-criteria of each criterion on that criterion is determined. Pairwise comparisons were determined as a result of survey studies conducted with experts. Pairwise comparison matrices of main and sub-criteria was created on the basis of the scale developed by Thomas L. Saaty and specified in Table 2.

Table 2. Degrees and Explanations of the AHP Scale (Saaty, 1980).

Importance Scale	Definition
1	Equally Important
3	Moderately important
5	Strongly Important
7	Very Strongly Important
9	Absolutely important
2,4,6,8	Intermediate values (available when needed).

In case of more than one expert opinion, the final matrix is obtained by taking the geometric average of the expert opinions (Dyer, 1992) and is formed as shown in Table 3.

Table 3. AHP Binary Comparison Matrix (Özbek & Eren, 2013).

$A=(aij), i,j=1,2,3,4,5,\ldots n$	Criterion$_1$	Criterion$_2$	Criterion$_3$	……..	Criterion$_n$
Criterion$_1$	**1**	a_{12}	a_{13}	…	a_{1n}
Criterion$_2$	$1/a_{12}$	**1**	a_{23}	….	a_{2n}
Criterion$_3$	$1/a_{13}$	$1/a_{23}$	**1**	….	a_{3n}

…….	…….	…….	…….	**1**	……
$Criterion_n$	$1/a_{1n}$	$1/a_{2n}$	$1/a_{3n}$	….	**1**

Since the criteria in the diagonals of the matrix are compared with them, their importance values are 1 (Uygurtürk, 2014). For example, the preference rateor importance level of Criterion1 according to Criterion1 is the same. If the importance of Criterion1 according to Criterion2 (a12) is obtained as a result of pairwise comparisons to be made by the determined experts, the preference or importance level of Criterion2 according to Criterion1 is calculated as "1/a12" according to the "a12" contrast condition (Saaty, 1980). For example, if a12=5, a21=1/5 matrix is created.

STAGE 3: Calculation of Normalization and Eigenvector (Significance Weights): In order to calculate the importance weights, it is necessary to normalize the final matrix created according to the decision maker's answers as an indicator of the proportional distribution over a whole. In order to normalize the binary comparison matrix created, each criterion in the matrix is divided by the sum of the columns to which it belongs (Equation 1). The sum of each column of the normalized matrix is 1.

$$b_{ij}=\frac{aij}{\sum_{i=1}^{n} aij} \quad (1)$$

The eigenvector (significance weights =wi) is obtained from the arithmetic mean of the normalized matrix (bij) lines obtained as a result of equation (1). Equality (2)

$$wi=\frac{\sum_{j=1}^{n} bij}{n} \quad (2)$$

STAGE 4: Calculating the Consistency Ratio: The consistency ratio (CTR) is calculated using Equation (3) to determine whether the decision maker's pairwise comparisons are consistent. If CR≤ 0.10, the comparison matrices are considered consistent (Dündar and Ecer, 2008).

$$CR=\frac{CI}{RI} \quad (3)$$

In the calculation of CI (Equation 4), the maximum eigenvalue ofthe matrix isused and calculated with the formula in Equation 5 (Alnıpak and Yorulmaz, 2018).

$$CI=\frac{(\lambda max-n)}{n-1} \quad (4)$$

$$\lambda_{max}=\frac{\sum_{j=1}^{n} aij*wj}{wi} \quad (5)$$

In order to obtain the consistency ratio (TO), the Random Index (RI) must be known. RI values consisting of fixed numbers and determined according to n value (criterion number) are given in Table 4 (Saaty, 1980).

Table 4. Table of Random Index Values (Saaty, 1980).

n	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
RI	0,00	0,00	0,58	0,90	1,12	1,24	1,32	1,41	1,45	1,49

2.2. II. Section of the Method

In the second part of the study, the criteria characteristics and scores determined by the expert group for the suitability evaluations of 3 squares in the city center of Osmaniye province were determined.

The criterion scoring specified in Table 4 was prepared with a value between 4 and 0. The prepared questionnaire form was filled out by the expert group separately for each of the 3 squares, and the arithmetic average of the filled forms was taken and the total scores of each sub-criterion and criterion were determined.

Sub-criteria scores were multiplied by the weight coefficients determined in Part I of the study. Each sub-criterion total scores were multiplied by the relevant main criterion weight coefficient. As a result of this calculation made for all criteria and sub-criteria, suitability scores were determined for each square.

Challenge Eligibility Score =[{($İ1_{wi}$*Score) + ($İ2_{wi}$*Score) + ($i3_{wi}$*Score)}*$İ_{wi}$] + [{($P1_{wi}$*Score) + ($P2_{wi}$*Score) + ($P3_{wi}$*Score)}* P_{wi}] + [{($KD1_{wi}$*Score) + ($KD2_{wi}$*Score) + ($KD3_{wi}$*Score) +($KD4_{wi}$*Score) + ($KD5_{wi}$*Score) + ($KD6_{wi}$*Score)}*KD_{wi}] + [{($S1_{wi}$*Score) + ($S2_{wi}$*Score) + ($S3_{wi}$*Score) + ($S4_{wi}$*Score) + ($S5_{wi}$*Score)} *S_{wi}] + [KK_{wi} *Score]+ [{($B1_{wi}$*Score) + ($B2_{wi}$*Score) + ($B3_{wi}$* Score) + ($B4_{wi}$*Score)}*B_{wi}] + [{($G1_{wi}$*Score) +(G2*xScore) + ($G3_{wi}$* Score) + ($KD4_{wi}$* Score)}*G_{wi}]

In the method, the conformity value range was calculated by multiplying the evaluation range of 4 and 0 used in the evaluation of the criteria by the sub-criteria and criterion weight coefficients. The suitability value range is divided into 4 groups as "Very Appropriate", "Appropriate", "Less Appropriate" and "Not Appropriate" as indicated in Table 5. 3 squares located in Osmaniye city center were evaluated in terms of suitability level of the square.

Table 5. Square Suitability Classification

Square Suitability Classification	Max Grade	Min Grade
Very Appropriate 4≤ square score<3	[(sub-criteria 1wi * 4) + (sub-criteria sub-criteria 2wi *4) + …(sub-criteria sub-criteria nwi * 4)] * main criterionwi =4	[(sub-criteria 1wi * 3) + (sub-criteria 2wi * 3) + …(sub-criteria sub-criteria nwi *3)] * main criterionwi =3
Appropriate 3≤ square score <2	[(sub-criteria 1wi * 3) + sub-criteria sub-criteria 2wi * 3) + …(sub-criteria nwi * 3)] * main criterionwi =3	[(sub-criteria sub-criteria 1wi * 2) + (sub-criteria 2wi *2) + …(sub-criteria sub-criteria nwi * 2)] * main criterionwi =2
Less Appropriate 2≤ square score<1	[(sub-criteria 1wi *2) + (sub-criteria sub-criteria 2wi * 2) + …(sub-criteria nwi * 2)]* main criterionwi =2	[(sub-criteria sub-criteria 1wi * 1) + (sub-criteria sub-criteria 2wi * 1) + …(sub-criteria sub-criteria nwi *1)] * main criterionwi =1
Not Appropriate 1≤ square score <0	[(sub-criteria 1wi *1) + (sub-criteria sub-criteria 2wi * 1) + …(sub-criteria sub-criteria nwi *1)] * main criterionwi =1	[(sub-criteria sub-criteria 1wi * 0) + (sub-criteria sub-criteria 2wi * 0) + …(sub-criteria sub-criteria nwi *0)] * main criterionwi =0

3. RESEARCH FINDINGS

3.1. Significance Levels of Square Suitability Criteria

In the 28 expert opinion forms participating in the study, consistency and 6 forms with a ratio above 0.1 were not included in the study. The final comparison matrix was created by taking the geometric averages of 22 expert opinion forms. In the final comparison matrix, firstly the normalized values of the main criteria and then the weight scores (eigenvector values) were calculated. The weight scores (eigenvector) of the main criteria of square conformity are given in Table 6 and the weight score values of the sub-criteria are given in Table 7.

Table 6. Weight scores and consistency ratio of the main criteria of square suitability according to expert opinions

	CRITERIA	EIGENVECTOR		EIGENVALUE
1	Functionality	0,212	21,23%	1,511
2	Recreation Socialization	0,163	16,29%	1,159
3	City ID	0,157	15,70%	1,117
4	Security	0,151	15,11%	1,073
5	Maintenance and Repair	0,135	13,46%	0,955
6	Urban Accessories	0,098	9,83%	0,697
7	Landscape	0,084	8,39%	0,597
Consistency		**λmax**=7,108	**CI**=0,018	**CR**=0,013

In the study, it was determined that the most important of the main criteria determining the suitability of the square was functionality (0.212). According to the criterion importance level, it was determined that the recreation and socialization criterion (0.163) ranked second, the urban identity criterion (0.151) ranked third, and the landscape criterion ranked last with an eigenvector value of 0.084.

Table 7. Weight scores and consistency ratio of the square suitability sub-criteria according to expert opinions

"1. Functionality" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Location	0,434	43,42%	1,308
Accessibility	0,395	39,53%	1,191
Magnitude	0,170	17,05%	0,512
Consistency	**λmax**=3,010	**CI**=0,005	**CR**=0,010
"2. Recreation-Socialization" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Possibility to socialize	0,309	30,91%	1,594
Suitability for all age groups	0,252	25,19%	1,284
Providing seasonal comfort	0,214	21,38%	1,087
Availability of food and beverage areas	0,146	14,60%	0,738
Ownership of the landscape	0,079	7,92%	0,403
Consistency	**λmax**=5,096	**CI**=0,024	**CR**=0,022
"3. Urban Identity" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Semi-natural vegetation	0,391	39,12%	1,548
Cultural Object Presence	0,219	21,94%	0,868
Historical Object Presence	0,209	20,86%	0,825
Presence of Artistic Object	0,181	18,07%	0,715
Consistency	**λmax**=4,095	**CI**=0,032	**CR**=0,035
"4. Safety" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Night	0,376	37,58%	1,152
Daytime	0,325	32,51%	0,973
Security Staff	0,299	29,91%	0,992
Consistency	**λmax**=3,125	**CI**=0,063	**CR**=0,108
"5. Maintenance-Repair" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Plant Maintenance	0,288	28,79%	1,156
Field Cleaning	0,268	26,83%	1,078
Reinforcement Maintenance	0,235	23,47%	0,942
Flooring Maintenance	0,209	20,92%	0,839
Consistency	**λmax**=4,015	**CI**=0,005	**CR**=0,005
"6. Urban Accessories" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Ergonomics	0,248	24,77%	1,557
Appropriateness for purpose	0,246	24,63%	1,538

Seasonal Comfort	0,180	17,99%	1,117
Order-Distribution	0,140	14,04%	0,869
Material	0,113	11,34%	0,703
Issue	0,072	7,24%	0,445
Consistency	**λmax**=6,213	**CI**=0,043	**CR**=0,034
"7. Landscape" Sub-criteria	**EIGENVECTOR**		**EIGENVALUE**
Vegetation	0,461	46,13%	1,409
Hard ground	0,303	30,30%	0,919
Water Item	0,236	23,57%	0,714
Consistency	**λmax**=3,039	**CI**=0,019	**CR**=0,037

Within the scope of the square suitability assessment, the most important sub-criterion of the main criterion of functionality is the location of the square with an eigenvector value of 0.434. Then, there are the sub-criteria of square accessibility and square size, respectively.

There are 5 sub-criteria of the Recreation and Socialization criterion at the second level of importance, which is one of the main criteria of square conformity. Within the scope of these sub-criteria, it was determined that the square's enabling of socialization was the most important sub-criteria. Then, it was determined that it is important to include recreational activities suitable for all age groups in the square and to provide seasonal comfort for these recreational activities, respectively. The sub-criteria with the least importance within the scope of the main criterion of recreation and socialization is the quality of the landscape of the square with an eigenvector value of 0.079.

In the study, the main criterion of the squares reflecting the urban identity is in the third place in terms of importance level. In reflecting the urban identity, the natural vegetation presence sub-criterion ranks first with an eigenvector value of 0.391. The presence of cultural and historical objects has a second and third importance level, respectively, with values very close to each other. It was determined that the presence of artistic objects had the least importance level compared to other sub-criteria.

The most important sub-criterion of the safety main criterion, which ranks fourth in the main criterion importance level, is the safety of the use of the square at night time. Within the scope of the sub-criteria, the usage safety of the square has a very close importance level value in the night and day time periods, while the presence of security personnel in the squares ranks last within the scope of other criteria.

Maintenance and repair work ranks fifth in terms of importance in the conformity assessment process of the squares. The maintenance of the squares was evaluated with the sub-criteria of plant, reinforcement, flooring maintenance and area cleaning. Within the scope of these sub-criteria, it was determined that the most important sub-criteria was plant care (0.288), then area cleaning (0.268), reinforcement care (0.235) and flooring care (0.209), respectively.

In the square conformity assessment process, the urban accessories criterion ranks sixth among the other main criteria. The sub-criteria of ergonomics of urban reinforcements (0,248) and selection in accordance with the purpose (0,246) have very close importance levels. The seasonal comfort of the accessories in the square is at the third level, the order and distribution in the square is appropriate and sufficient is at the fourth level, and the comfort and seasonal suitability sub-criterion of the material is at the fifth level. Among the sub-criteria, it was determined that the sub-criteria with the least importance level was the number of urban reinforcements.

Among the main criteria of square suitability, the main criterion of landscape has the least importance. When the landscape sub-criteria are graded according to their importance

weights, the presence of vegetation (0.461) ranks first, hard soil suitability (0.303) ranks second, and the water element (0.236) ranks third and last.

3.2. Suitability Criteria Evaluation of the Squares in Osmaniye City Center At this stage of the study, three squares in Osmaniye city center (Dr. Devlet Bahçeli Square, Cumhuriyet Square and Rahime Hatun Square) were evaluated according to the main and sub-criteria of suitability for the square determined within the scope of this study. The evaluation was carried out by the expert group involved in determining the criterion importance levels by scoring the criteria given in Table 1 separately for each square. Since the opinions of the experts were evaluated at an equal level of importance, their arithmetic averages were taken. The average scores of the squares within the scope of the criteria specified in Table 1 were multiplied by the eigenvector (importance weights) of the criteria. The total scores of each square are given in Table 8.

Table 8. Suitability scores of squares in Osmaniye city center

Criteria	**EIGENVECTOR**	**Scores**		
		DR.DEVLET BAHÇELİ	**CUMHURİYET**	**RAHİME HATUN**
1. Functionality	0,212			
1.1. Location	0,434	3,000	2,000	3,000
1.2. Accessibility	0,395	1,000	1,000	1,000
1.3. Magnitude	0,170	4,000	3,000	3,000
Total		**0,504**	**0,376**	**0,468**
The highest and lowest score range that the functionality criterion can receive: 0,849-0,000				
2. Recreation-Socialization	0,163			
2.1. Possibility of socialization	0,309	1,067	0,867	1,033
2.2. Suitability for all age groups	0,252	1,000	0,533	1,333
2.3. Seasonal comfort	0,214	0,767	0,700	1,433
2.4. Food and beverage areas	0,146	0,767	0,900	1,033
2.5. Ownership of the landscape	0,079	0,833	0,367	0,200
Total		**0,151**	**0,116**	**0,184**
The highest and lowest score range that the recreation criterion can receive: 0,652-0,000				
3. City ID	0,157			
3.1. Vegetation	0,391	0,967	0,533	0,467
3.2. Cultural object	0,219	0,733	0,000	1,633
3.3. Historical object	0,209	0,900	0,067	1,533
3.4. Artistic object	0,181	0,600	0,100	1,233
Total		**0,131**	**0,038**	**0,170**
The highest and lowest score range that the city identity criterion can receive: 0,628-0,000				
4. Security	0,151			
4.1. Night	0,376	1,467	0,900	0,900
4.2. Daytime	0,325	2,367	1,167	1,267
4.3. Personnel	0,299	0,400	0,433	0,300
Total		**0,218**	**0,128**	**0,127**
The highest and lowest score range that the safety metric can receive: 0,604-0,000				

5. Maintenance - Repair	0,135			
5.1. Plant care	0,288	2,000	1,233	1,467
5.2. Area cleaning	0,268	2,16	1,800	1,100
5.3. Hardware maintenance	0,235	1,967	1,800	1,333
5.4. Floor maintenance	0,209	2,100	1,767	0,967
Total		**0,278**	**0,220**	**0,166**
The highest and lowest score range that the Maintenance-Repair criterion can receive: 0,538-0,000				
6. Urban Accessories	0,098			
6.1. Ergonomics	0,248	1,133	1,267	1,700
6.2. Suitability for purpose	0,246	1,467	1,700	1,967
6.3. Seasonal comfort	0,180	0,533	0,833	1,367
6.4.Order-distribution	0,140	1,367	1,400	2,100
6.5. Material	0,113	1,533	1,033	1,500
6.6. Issue	0,072	1,433	1,167	2,267
Total		**0,118**	**0,125**	**0,174**
The highest and lowest score range that the urban reinforcements criterion can receive: 0,393-0,000				
7. Landscape	0,084			
7.1. Vegetation	0,461	1,767	1,167	1,867
7.2. Hard Soil	0,303	1,900	1,833	1,533
7.3. Water Element	0,236	0,667	0,967	1,800
Total		**0,130**	**0,111**	**0,147**
The highest and lowest score range that the landscape criterion can receive: 0,335-0,000				
	Total	**1,530**	**1,114**	**1,436**

Of the 3 main criteria: functionality, maintenance-repair and safety, the highest score was given by Dr. Devlet Bahçeli Square. Although Rahime Hatun Square received the highest score from 4 main criteria: landscape, urban equipment, recreation-socialization and urban identity, since the eigenvector values of these criteria were lower than the other 3 main criteria, Dr. Devlet Bahçeli Square is below its score. Rahime Hatun Square, on the other hand, did not receive the highest score in any criterion.

In the suitability assessment of the square, with a total score of 1,530 Dr. Devlet Bahçeli Square is the first place, with 1,436 points, Rahime Hatun Square is in the second place, Cumhuriyet Square is the third and the last place with 1,114 points.

The scores of the squares are classified within the square suitability range specified in Table 5 (Table 9).

Table 9. Suitability classes of squares in Osmaniye city center

Square Suitability Classification	Dr. Devlet Bahçeli Square	Cumhuriyet Square	Rahime Hatun Square
Very Appropriate 4≤ square score <3			
Appropriate 3≤ square score <2			
Less Appropriate	**1,530**	**1,114**	**1,436**

2≤ square score <1			
Not Appropriate 1≤ square score <0			

Since the 3 squares in Osmaniye city center were in the range of 2≤ square scores <1 within the scope of the scores they received, it was determined that the squares were in the range of less suitable values in terms of suitability criteria.

4. CONCLUSION and RECOMMENDATIONS

The increasing population and rapid urbanization process in cities have also negatively affected the square design processes within the scope of urban open spaces. As a result, as Özer and Ayten (2005) stated, the newly designed squares were under the pressure of economic rationality of the design, and the existing squares could not meet the needs of the increasing population. This situation created the necessity of re-evaluating the squares in the cities. Based on this requirement, many studies (Mesutoğlu, 2001; Yıldız, 2002; Aslan, 2006; Semerci, 2008; Sezer, 2010; Ölmez and Demiroğlu, 2011; Sertkaya and Çolak, 2011) have been carried out in which the squares were re-evaluated within the scope of suitability criteria.

Different methods were used within the scope of the challenge evaluation studies. The Analytical Hierarchy Process (AHP) method, which is one of these methods, has been used in many multi-purpose decision-making studies (Dyer and Forman, 1992; Kuruüzüm and Atsan, 2001; Demirel, 2008; Dündar and Ecer, 2008; Özbek, 2013; Uygurtürk, 2014), as it is an easily applicable and successful method in the solution of hierarchical models.

In this study, 3 squares in the city center of Osmaniye province (Dr. Devlet Bahçeli Square, Rahime Hatun Square and Cumhuriyet Square) were evaluated using the Analytical Hierarchy Process (AHP).

As a result of the study, it was determined that although the suitability scores of the squares in question were different from each other, all three were in the "less suitable" class in terms of compliance with the square criteria.

Within the scope of the main criterion of functionality, the accessibility sub-criterion is quite weak for all three squares. In this context, accessibility to all three squares should be increased. Within the scope of the main criterion of recreation and socialization, improvement studies are required in all three areas. Activities that enable socialization, which are especially considered to be of high importance by experts, should be increased in all three squares, and it should be ensured that these activities appeal to all age groups and that these activities are designed to have seasonal comfort.

One of the most important benefits that squares provide to the city at the spatial level is that they reflect the urban identity. In this context, although Rahime Hatun Square has the highest score among all three squares, it is well below the highest value that can be obtained from this main criterion. In this context, the use of natural vegetation species reflecting the identity of the city should be expanded for all three squares, and the use of objects reflecting the history and culture of the region should be enabled.

One of the most important criteria that enables the use of squares is security. Especially the night use safety of the squares has a special importance. In this context, the security of use of Rahime Hatun and Cumhuriyet Squares should be ensured.

Another important criterion in ensuring the functional effectiveness of the squares is the presence of urban reinforcements and the maintenance and repair works of these reinforcements. In addition to the gathering functions of the squares, it is necessary to ensure the distribution of the number of reinforcements and their ergonomic structures in

accordance with the purpose in order to ensure the resting, gathering and socialization functions effectively. In this context, the urban reinforcements of all three squares should be improved according to their sub-criteria qualities and maintenance and repair works should be carried out regularly. Maintenance and repair works should be carried out not only within the scope of urban accessories but also within the scope of plants and floor coverings in the square.

Hard ground green area ratio should be improved for all three squares. By paying attention to the fact that the species used belong to the natural vegetation, the contribution of the square to the urban identity should be increased and maintenance and irrigation costs should be reduced.

As a result, the subject of the research, Dr. Devlet Bahçeli Square, Rahime Hatun Square and Cumhuriyet Square have the square suitability criteria determined within the scope of this study. However, improvement studies are required within the scope of all square suitability sub-criteria. The square requirements of the users should be met by ensuring the effective use of the squares with the improvement works to be carried out.

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