

Urban Squares within the Framework of Urban Design: Kadıköy Square, Turkey

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Abstract. This article aims to give a comprehensive perspective to the design concept in urban squares, which is the research subject of landscape architecture and related disciplines, and to reveal the criteria in the design process. This research was carried out with the idea of "how to design urban squares as a qualified urban service area?". For the squares to fulfill their functions and be well-functioning urban services, they should be evaluated in the light of various design criteria. In this study, using AHP (Analytical Hierarchy Process), 40 different design criteria were brought together and examined in Kadıköy square in Istanbul. In this context, a multi-criteria design approach has been developed that will enable citizens to spend more of their free time in the squares and to adopt positive feelings in these spaces. By evaluating the research criteria, it was found that 21 criteria were not included in the design process in Kadıköy Square. For this reason, Kadıköy Square is in a low suitability class. The study is seen as a mechanism that shows the unique features of urban squares in the design process and how the squares should be developed in the process of becoming a qualified service area. While studies are emphasizing that the squares in the cities are important open spaces, there are no studies that include concrete criteria that can ensure that the squares are qualified spaces. Bringing together all the criteria related to squares and creating a basis for a multi-criteria design process reveals the value of the study.

Keywords: public spaces, Urban squares, Urban design framework, AHP, İstanbul (Turkey)

Introduction

Squares are places that have become the symbols of the city where social and cultural encounters take place. Square; "Platea", meaning open place or extended street in Latin, was born from the word "Place" in English and French. Spanish "Plaza" and Italian "Piazza" are also of the same origin [22]. In general, the square; is a three-dimensional volumetric arrangement limited by horizontal and vertical volumetric elements, in which people perform their actions, surround them, and create a sense of integration and ownership [56]. Fauole defines the square as empty spaces defined by the designed environment and states that for a place to be defined as a square, it must first be pedestrianized. According to Kevin Lynch, squares are centers of intense public activity created in urban spaces, reflecting the identity of the city. The main criterion in the design of a square is to increase the quality of the place where that square is built [28]. At the same time, it should have features that will affect society and make it easier for people to meet [22]. In this respect, it is seen that urban squares are highly effective in social life. The meanings added to the squares are the most important elements that affect the communication between the individual and society. Space and human interaction also contribute to the dimension of human behavior relations in space and to the practice of using space. In this sense, the human-space interaction reveals the degree of the square function [28, 26, 57]. Squares have fulfilled very important social and social functions since the ancient period and have the feature of being a "city center" because they were the scene of important events of the period. Squares are an organic part of society from the past to the present. The first urban open spaces that emerged in the form

of squares in Ancient Greece, Rome, and later periods symbolize the culture and splendor of the city [56]. The people who make up society have needed squares in all cultures to come together, meet, shop, and discuss their daily problems.

Squares; for a long time until the 19th century, they were characterized as closed forms with the architectural structures around them. The square form, which is based on the continuity of the facades, has begun to change, especially with the isolated building form that emerged with modernism and the spread of the residences that form the historical squares to the suburbs [28]. Functional changes in cities in the 20th century have led to the arrangement of squares as spaces that respond to different forms and functions. Thus, squares are designed as open spaces that serve free-time activities that still take place today [30]. Walter Benjamin introduced the concept of "flâneur" to more clearly express the relationship between the urban square and usage types, which people use extensively in open spaces. "Flâneur" is the situation in which individuals feel at home in urban squares. In other words, it refers to individuals who can freely roam in the urban squares. In this way, cities and urban squares gain meaning [15; 13]. In this situation, the main feature that distinguishes the urban square from any place or open space is its scale which gives a feeling of closeness to people. This situation reveals the importance of the view that the size of the square should be proportional to the number of users [49]. Since the urban squares are one of the most important places in the city, they enable those who live in the city and come to visit the city to establish a relationship with each other

and the city. In addition, squares are communication areas that strengthen the relationship between people and support establishing relationships in the context of new urban culture [49].

Squares have an important role in the development and change of urban culture. In this process, the situation that should be considered is to increase the quality of the squares and to have positive meanings. As it should be in every changing and developing place, users should feel positive feelings in squares as well. In this context, the fact that squares are characterized by their forms or functions, as well as creating a sense of belonging to a "place" in its users, also shows the quality of that square. According to him, the square is almost a "psychological resting place" within the urban fabric. When the historical development of squares is examined, it is seen that the most successful squares are the places where the user feels as a natural part of urban life [89; 58].

Feeling as a part of a place arises from the perceptual relationship that people establish with the "place". A square perceived for the first time creates a perception of space by combining the images accumulated in memory and past experiences and the physical elements it presents to the person at that moment, and thus develops a usage type. In this case, the importance of the attributes loaded into the squares also emerges. In this way, urban squares can stimulate, encourage social events and support a wide variety of uses (and users) [59]. It is seen as

a tool for users to attribute positive values to squares and to characterize squares well to achieve these goals. In this direction, this study is aimed to determine the qualities of the squares in establishing the relationship between the square and the concept of design. This approach has been evaluated in Istanbul Kadıköy Square.

Materials and Methods

The main material of the study is Kadıköy Square (Rıhtım) in the city of Istanbul (Figure 1). Kadıköy Rıhtım Square has an average depth of 245 meters and an average width of 145 meters. The location of the square is the part between Haydarpaşa Train Station and Kadıköy Metro Station. There are Kadıköy-Eminönü, Beşiktaş ferry port, and Haldun Taner Stage, which are used extensively in the square. Space usage near the square, which causes intensive use of the square, is also shown in Figure 2. Kadıköy has an important position in terms of city transportation. The historical core that forms the beginning of the settlement in Kadıköy District, the area formed by Haydarpaşa Bay and Moda Cape is also located in this region. While Kadıköy Square is located on the Anatolian side of Istanbul, in the southern part of the Bosphorus where the Bosphorus opens to the Sea of Marmara, it is a port area that has seen many uninterrupted settlements and has been the scene of various civilizations since ancient.



Fig. 1. Location of the research area [created by authors]

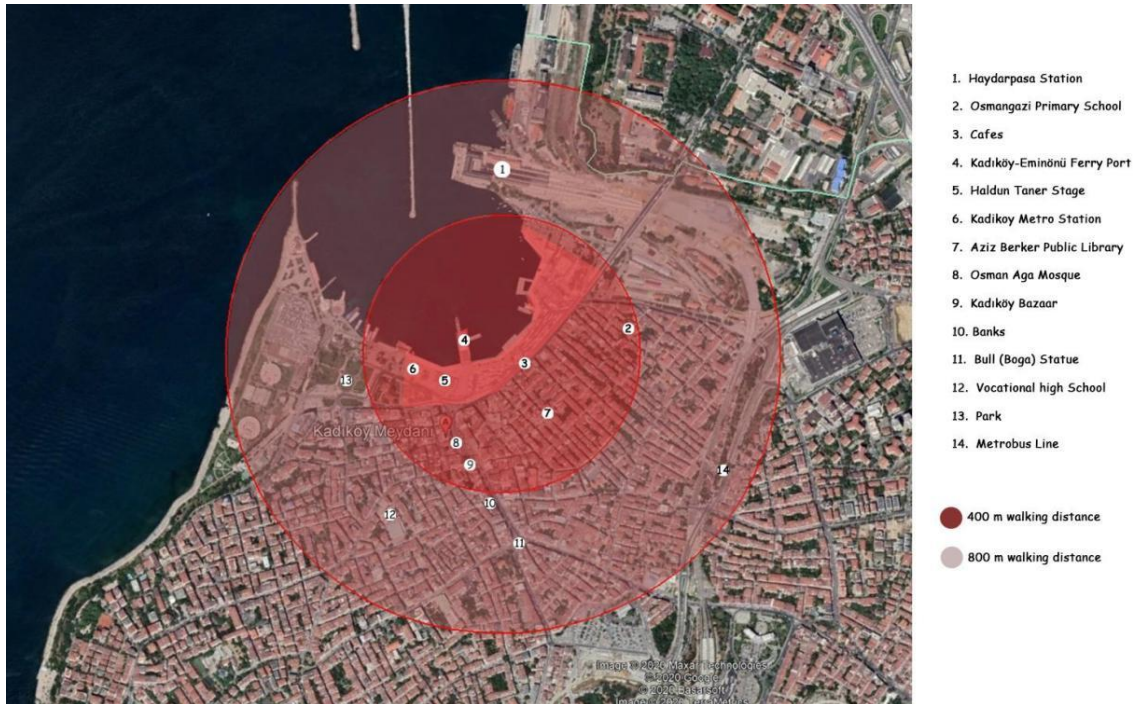


Fig. 2. Space usage in Kadıköy Square and its surroundings [created by authors]

Since Kadıköy Square is the center of trade and transportation on the Anatolian side, it has many functions together. Especially the diversity in terms of transportation draws attention. The square stands out as a transfer point in terms of sea and land transportation. While there are regular services to various coastal districts in the city from Kadıköy, Bostancı, Eminönü, and Beşiktaş sea bus piers, there are also services to nearby cities. Bus, minibuses, and minibuses are also located in the square. The fact that it is a transportation center with sea, land, and railway terminal points causes the area to be used very intensively. With all these characteristics, it is understood that Kadıköy Square and the coastal areas are important recreation areas and transfer centers.

The fact that the integrity of the square is repeatedly interrupted by vehicle roads causes the area to be divided into parts, preventing it from being perceived and used as a whole. As a result of this interruption, the square loses its function and becomes a transit route, coastal road, and walking route. While the square has empty and secluded areas in the western and southwestern parts, the high level of human circulation in the northern part, which is associated with public transportation, creates an inhomogeneous usage situation. At the same time, Kadıköy Rıhtım Square creates an unusual square due to its relationship with the sea [40]. All these situations caused Kadıköy Square to be chosen as the research area.

The study consists of a 4-stage method. The stages are as follows:

Determination of Design Criteria of Urban Squares

In the first stage of the method, the square design criteria group and the qualifications/criteria to be used in the evaluation within the scope of these criteria groups were determined. For this purpose, the criteria determined from domestic and foreign research on squares in the urban design process and the scope of these criteria were examined.

There are not many studies on the perception of the squares by the users and the management of the design process in this direction. The criteria in the studies reached in the literature were evaluated in this study. The criteria used in the studies of Lynch (1960), Alexander and Poyner (1970), Gehl (1971), Smardon (1979), Jarvis (1980), Whyte (1980), Carr et al. (1992), Strumse (1994), Özer and Aytan (1995), Van Mansvelt and Kuiper (1999), Hooke (2000), Sternberg (2000), Tibbalds (2000), Weinstoerffer and Girardin (2000), Aklanoğlu (2002), Carmona et al. (2003), Clay and Smidt (2004), Virbašienė ve Janušaitis (2004), Hacıhasanoğlu and Aytem (2005), Günal and Esin (2007), Oktay (2007), Watson and Bentley (2007), Crankshaw (2008), Semerci (2008), Temelli (2008), İnceoğlu and Aytuğ (2009), Taşçı (2012), Song and Yan (2013), Jafarzadeh (2014), Şahin (2015), Erdönmez and Çelik (2016), Aytaş (2017), Uzgören and Erdönmez (2017), Durak (2018), Şahin (2018), Argan (2019), Alpuğuz (2019), Altay and Batman (2019), Bolat (2019), Cabarkapa and Djokic (2019), Hançer (2019), Altay et al. (2021), Karaçor et al. (2021), Xu et al. (2021), Nabil (2022) were developed and 40 criteria were determined under 18 design criteria group (Table 1).

TABLE 1

Criteria for urban square design and their references [created by authors]

| Design Criteria Group | Criteria | Reference |
|--|---|--|
| Definable | 1. Guidance of design lines 2. Understanding the concept 3. Feeling the separation of spaces | [29], [53], [62], [71], [27], [75], [25] |
| Legibility/Openness | 4. Adequate range of motion 5. Order in design elements | [45], [73], [31], [62], [41], [71], [75], [38] |
| Functionality | 6. Understanding the main idea/subject 7. Appropriateness of space functions | [29], [1], [62], [70], [6], [14], [34], [75] |
| Diversity in Design | 8. Diversity of living material 9. Diversity of non-living material | [78], [62], [69], [6], [38], [86] |
| Permeability | 10. Connecting streets and public spaces 11. Integrating with different routes | [1], [23], [62], [73], [75] |
| Sustainability | 12. Suitable material 13. Suitable plant 14. Usage of recycling or renewable energy sources | [1], [31], [62], [41], [71], [70], [10], [75], [14], [25] |
| Balance | 15. Conformity in scale 16. Homogeneous distribution of living material 17. Homogeneous distribution of non-living material | [55], [53], [25], [69] |
| Order | 18. Compatible functions of spaces and equipment 19. Related and balanced spaces and equipment | [2], [78], [53], [25], [69] |
| Integrated Design | 20. Integrity between living materials 21. Integrity between non-living materials | [29], [14], [34], [25] |
| Harmony in Space | 22. Harmony of each of the design elements in the whole place | [55], [31], [62], [70], [27], [69] |
| Associated with Surrounding Items | 23. Harmony of the identity of the place and its surroundings | [2], [31], [62], [27], [14], [34], [7] |
| Direction Finding | 24. Orientation of spaces and equipment 25. Order in the transport network 26. Free mobility | [27], [69], [6], [7] |
| Compatible with Human Scale | 27. Proportion | [2], [82], [73], [62], [41], [27], [75], [25], [34], [7] |
| Color | 28. Relaxing effect of colors 29. Color balance 30. A sense of sincerity | [63], [9], [11], [62], [72], [71], [36], [6], [8], [7], [51] |
| Shape | 31. Formal harmony 32. Order in shapes 33. Detection of surfaces | [63], [9], [62], [72], [71], [36], [6], [8], [7] |
| Texture | 34. Different textures | [63], [9], [11], [62], [72], [71], [36], [25], [6], [8], [7] |
| Form | 35. Effective (to encounter an unusual form) 36. Dynamism in forms 37. Boundary effect | [63], [9], [11], [72], [71], [36], [6], [62], [8], [7] |
| Lighting | 38. Gloss/opacity 39. Effective (to encounter an unusual light) 40. Sufficient / safety | [53], [62], [66], [25], [6], [8], [14], [16], [7] |

TABLE 2

Evaluation Scoring of Comparison Scales [74]

| Numerical Value | Definition | Explanation |
|-----------------|---------------------|--|
| 1 | Equal Value | Both options are equally important |
| 2 | Weak or Light Value | |
| 3 | Partial Value | One criterion is considered more important than the other. |
| 4 | Average Value | |
| 5 | High Value | One criterion is considered much more important than the other. |
| 6 | Strong Value | |
| 7 | Very High Value | One criterion is considered more important than the other. |
| 8 | Much Stronger Value | |
| 9 | Absolute Value | It is based on various information that one criterion is extremely important over the other. |

TABLE 3

Random Index (RI) Values [74]

| <i>n</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----------|---|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
| RI | 0 | 0 | 0.58 | 0.90 | 1.12 | 1.24 | 1.32 | 1.41 | 1.45 | 1.49 | 1.51 | 1.53 | 1.56 | 1.57 | 1.59 |

Calculation of Determined Criteria Scores

The square design criteria included in the method of this study are an important determinant for the study. The significance of the criteria was evaluated using AHP (Analytical Hierarchy Process). It was first put forward by Myers and Alpert in 1968 and was developed as a model by Saaty in 1977 and became a method that can be used in solving decision-making problems. In the method, the experiences, perceptions, and judgments of the people who make or evaluate the choices play an important role in determining the criteria weights, defining the problems, and classifying the concepts. It is one of the most preferred methods for multiple criteria or processes [19]. Because it facilitates the selection of importance and priority among competing or conflicting criteria in the decision-making phase [60]. AHP was used as a method by Song et al. (2011), Wang and Li (2013), Zhang and Feng (2013), Allahyari (2017), Wang (2018), Laroche et al. (2019), Mushtaha et al. (2019), Karacor et al. (2021), Zhang (2020), Lu et al. (2021)'s urban design researches.

The hierarchical structure created for the purpose is scored as in Table 2. The values required to determine the consistency in line with the scoring are given in Table 3. At this stage, the coefficient called "Consistency Index-CI" is calculated. The consistency ratio (CR) should be evaluated by comparing the RI (Random Index) and the CI (Consistency Index). In this case, if the consistency ratio is less than 0.10, it is decided that the comparison matrix is consistent [74].

In line with the method, a three-person group consisting of landscape architect authors was the decision maker for the criteria. The 40 criteria in the

study method (100 full points) received the same scores. All criteria are of equal importance (2,5 points), so its coefficient is 1, and the random index value is 0 (Table 2-3). This is because no statistically significant weight difference was detected in the analytic hierarchy process in the calculation.

Evaluation of Determined Criteria in Research Area and Determination of the Suitability Classes

It was determined whether it was applied in Kadıköy Square and the qualifications were evaluated as a result of the scoring made with the points determined according to the AHP. The total score of the urban square was calculated with the scores as a result of the qualifications. While determining the suitability classes of the urban square, the total score was divided into 5 equal parts. The suitability classes are named lowest (0–20), low (20–40), medium (40–60), high (60–80), and highest (80–100).

Development of Improvement Approaches for Kadıköy Urban Square

Suggestions have been developed to improve the low score criteria in the results calculated by evaluating the AHP and field studies. It has been tried to create approaches that can increase the suitability class of Kadıköy square.

Results

In this section, criteria evaluations and scores are given in Table 4. The graph of AHP scores and total scores in line with the calculations is given in Figure 3.

TABLE 4

Design Criteria Scores [created by authors]

| Design Criteria Group | Criteria | Evaluation | AHP Score | Criterion Total Score |
|-----------------------------------|--|------------|----------------|-----------------------|
| Definable | 1. Guidance of design lines | - | 7,5 (2,5x3) | 0 (2,5x0) |
| | 2. Understanding the concept | - | | |
| | 3. Feeling the separation of spaces | - | | |
| Legibility/Openness | 4. Adequate range of motion | + | 5 | 2,5 |
| | 5. Order in design elements | - | (2,5x2) | (2,5x1) |
| Functionality | 6. Understanding the main idea/subject | - | 5 | 0 |
| | 7. Appropriateness of space functions | - | (2,5x2) | (2,5x0) |
| Diversity in Design | 8. Diversity of living material | - | 5 | 0 |
| | 9. Diversity of non-living material | - | (2,5x2) | (2,5x0) |
| Permeability | 10. Connecting streets and public spaces | - | 5 | 2,5 |
| | 11. Integrating with different routes | + | (2,5x2) | (2,5x1) |
| Sustainability | 12. Suitable material | - | 7,5 (2,5x3) | 0 (2,5x0) |
| | 13. Suitable plant | - | | |
| | 14. Usage of recycling or renewable energy sources | - | | |
| Balance | 15. Conformity in scale | + | 7,5 (2,5x3) | 2,5 (2,5x1) |
| | 16. Homogeneous distribution of living material | - | | |
| | 17. Homogeneous distribution of non-living material | - | | |
| Order | 18. Compatible functions of spaces and equipment | - | 5 | 0 |
| | 19. Related and balanced spaces and equipment | - | (2,5x2) | (2,5x0) |
| Integrated Design | 20. Integrity between living materials | - | 5 | 0 |
| | 21. Integrity between non-living materials | - | (2,5x2) | (2,5x0) |
| Harmony in Space | 22. Harmony of each of the design elements in the whole place | - | 2,5 (2,5x1) | 0 (2,5x0) |
| Associated with Surrounding Items | 23. Harmony of the identity and design of the place and its surroundings | + | 2,5 (2,5x1) | 2,5 (2,5x1) |
| Direction Finding | 24. Orientation of spaces and equipment | - | 2,5 (2,5x1) | 0 (2,5x0) |
| | 25. Order in the transport network | - | | |
| | 26. Free mobility | - | | |
| Compatible with Human Scale | 27. Proportion | + | 2,5 (2,5x1) | 2,5 (2,5x1) |
| Color | 28. Relaxing effect of colors | - | 7,5 (2,5x3) | 0 (2,5x0) |
| | 29. Color balance | - | | |
| | 30. A sense of sincerity | - | | |
| Shape | 31. Formal harmony | + | 7,5 (2,5x3) | 2,5 (2,5x1) |
| | 32. Order in shapes | - | | |
| | 33. Detection of surfaces | - | | |
| Texture | 34. Finding different textures | + | 2,5 (2,5x1) | 2,5 (2,5x1) |
| Form | 35. Effective (to encounter an unusual form) | - | 7,5 (2,5x3) | 5 (2,5x2) |
| | 36. Dynamism in forms | + | | |
| | 37. Boundary effect | + | | |
| Lighting | 38. Gloss/opacity | + | 7,5 (2,5x3) | 5 (2,5x2) |
| | 39. Effective (to encounter an unusual light) | - | | |
| | 40. Sufficient / safety | + | | |
| Kadiköy Square Total Score | | | | 27,5 |

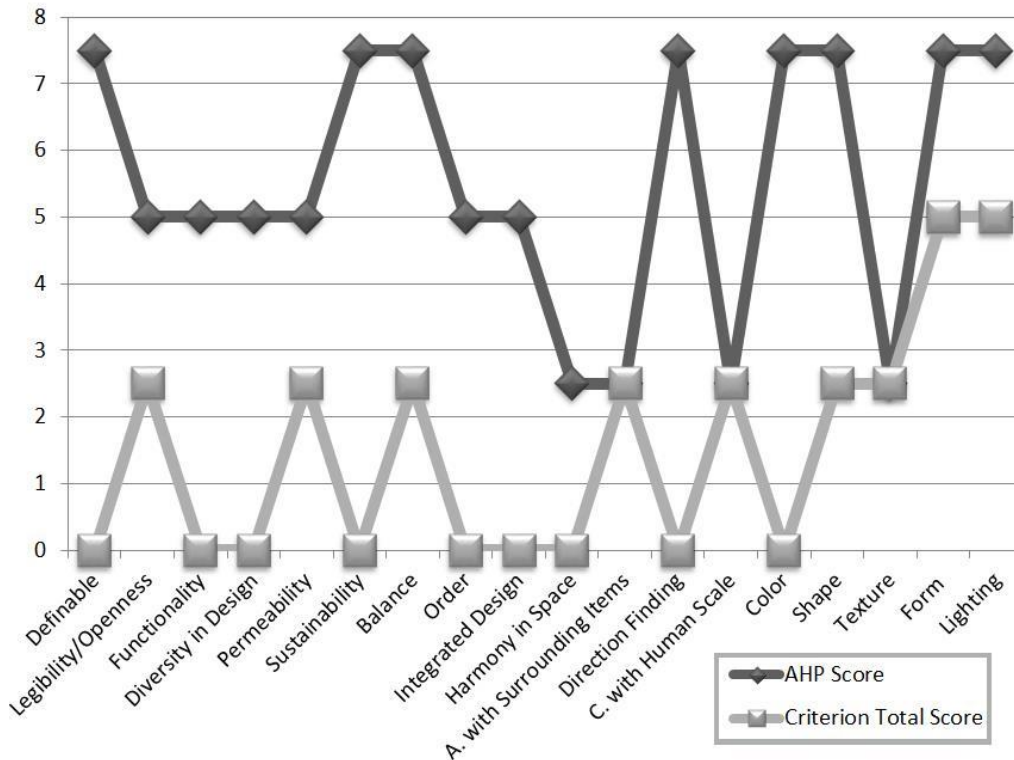


Fig. 3. AHP scores and total scores of criteria for Kadıköy Square [created by authors]

Urban Square Design Approaches for Kadıköy Square

When Table 4 and Figure 3 are examined, Kadıköy Square was found to be a low suitability class, with a total score of 27,5. Kadıköy Square does not have 21 design criteria that determine the qualities and evoke positive feelings in the urban square. When the design criteria groups are examined; it has been revealed that there are no positive qualities in terms of definability, functionality, diversity in design, sustainability, order, integrated design, harmony in the space, direction finding, and color effect. To increase the scores of these criteria and for the users to add positive values to the square, approaches that can increase the usability and desire to use the square should be developed.

The coastal area becomes the focal point of the city by integrating with the square. To present a holistic design in the research area at the urban scale, an integrated system should be created with the effects of the use of the area around the square. It will be possible to establish new functions that will support the recreation and transfer center function, which is the most important feature of the research area and increase the quality level of the square. To ensure that users use the square efficiently throughout the year instead of transit passes, spaces that can appeal to different user profiles such as resting areas, playgrounds and

sports fields, open-air cinema, observation tower, pedestrian-bicycle transportation, and sightseeing routes should be created. The fact that users can spend time in different places with different activities will prevent confusion and make it easier to find directions. At the same time, irregular circulation and irregularly located cafes create negative feelings. It has been observed that there are no interesting design elements in Kadıköy Square. To emphasize the importance of this square, a special item can be designed that can create a landmark.

It should establish an uninterrupted coastal movement by moving in continuous extensions along the coastline. This pedestrian path, which can be the main axis of pedestrian circulation in the square, should be articulated to all pedestrian foci and streets of the region, increasing permeability. The design approach for the urban square should be created with energy efficiency and recycling. It is an important design criterion for the sustainability of Kadıköy Square.

These approaches have been developed as a result of the criteria calculated in Table 4 and the photographs in Figure 4 showing the current situation and problems of Kadıköy Square.

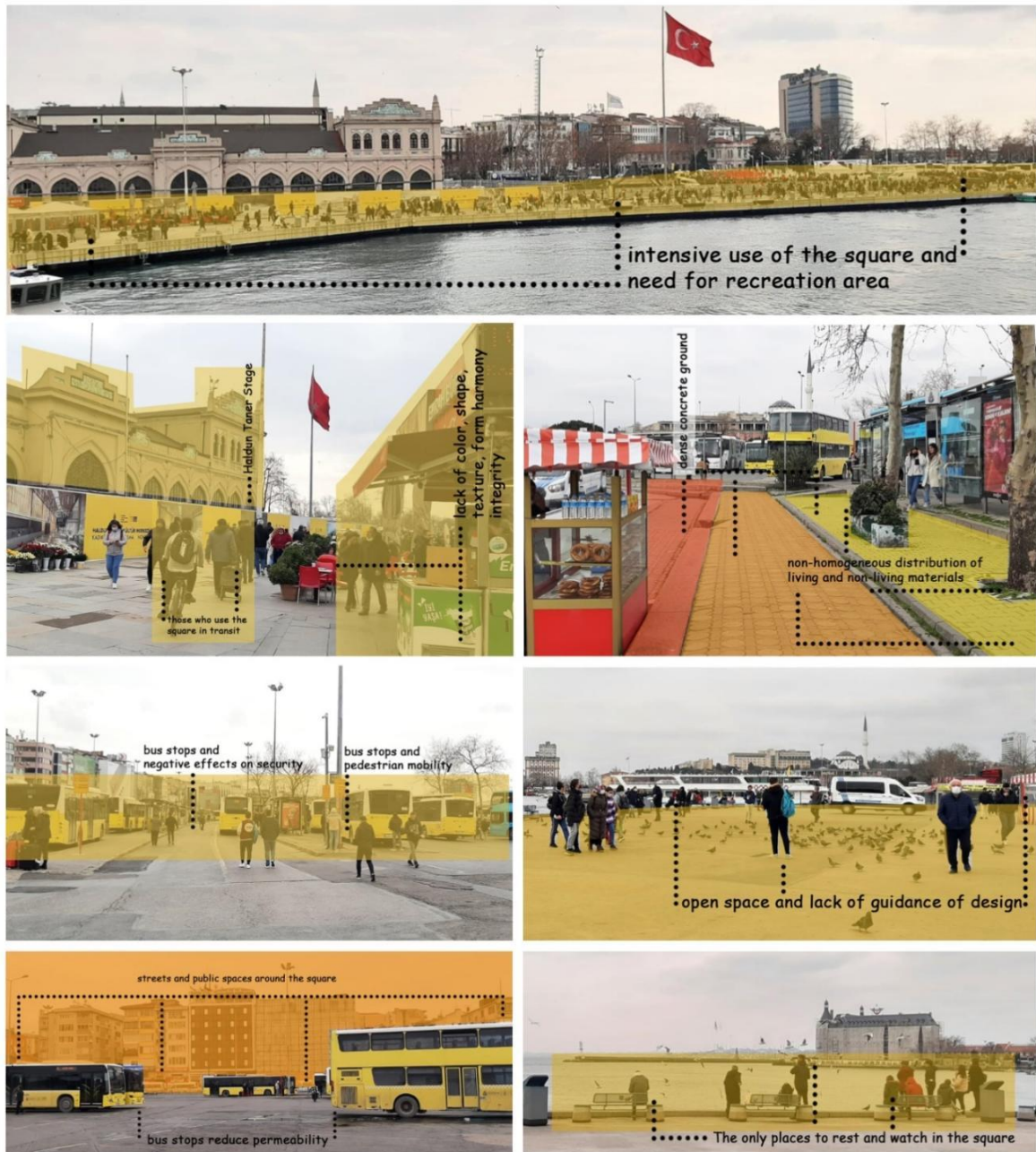


Fig. 4. Images from Kadıköy Square [created by authors]

Discussion and Conclusion

In line with the findings and approaches, the problems that need to be considered to adopt positive values and increase the quality of the square are given below. The criterion to which the specified problem is related is given next to it. With the solution to these problems, the negative feelings in the square will be reduced. The users' sense of belonging to the square will be strengthened.

- Irregularities (space use, transportation, orientation) in human-space interaction (harmony in the space, color, shape, texture, form).
- The vehicle road barrier, which is also associated with the square and between the Coastal –

Kadıköy bazaar (definable, functionality, permeability, integrated design, harmony in space).

- Traffic density (sustainability, order, permeability).
- The division of the coastal zone by vehicle roads and parking area, (order, integrated design, harmony in space, direction finding).
- Unsafe pedestrian mobility at bus stops, (definable, functionality, integrated design, the problem of finding direction for the elderly and disabled person (direction finding, lack of lighting during dark hours (lighting, color effect, direction finding).

- The functional and physical disconnection of the areas can be explained as dysfunctional spaces (definable, functionality, integrated design, harmony in space).
- Undefined pedestrian paths (definable, direction finding, order).
- Heat island formation due to dense concrete floor (sustainability, order, permeability).
- Living and non-living materials that do not show homogeneous distribution (color effect, definable, harmony in space, order).

It is emphasized that the design criteria that emerged with the findings obtained in the study are effective and should be taken into account during the evaluation phase. The design approaches proposed in the study should focus on solving the identified priority problems and missing design criteria. Attention should be paid to human scale, spatial barriers, ecology, and climate-sensitive solutions for the sense of belonging to the square. The use of the square will increase and it will be preferable for the users in a square where urban design lines are located and guided, and a transportation system that is compatible with the environmental connections and integrated with the square is solved.

According to research on urban design, it is stated that the most important determinant of the quality of the space is the "use" factor. The main condition determining the use of a square is that it is easily accessible and includes functional diversity that can attract users from different segments and age groups [82; 83; 21; 47; 17; 42]. Main arteries and axes should be formed to shape well-defined squares physically and to ensure circulation in these spaces [32]. This situation was also found to be important for Kadiköy Square and it was emphasized in the design approaches. The potential of Kadiköy Rıhtım Square is not well defined physically. For this reason, the area should be redesigned with a holistic design approach rather than point arrangements and developments to be made in the square. The state of creating a sense of place and belonging in the users of the square is related to the physical condition of the square, namely its design. The sense of belonging to a "place" is a very important need of people, and the realization of this feeling depends on the character of the area, where the features surrounding the users of that place are formed [4; 39]. The purest expression of the "sense of place" in spatial terms is associated with the feeling of being surrounded. This approach can also be developed in Kadiköy Square. The presence and diversity of plants also support this feeling and add positive meanings to the squares [84; 85; 86].

In urban squares, components should be brought together in light of all these criteria. When the right balance is established between stimulating, simple,

original, and order, it can have a positive value in space design. The important thing in a design is to achieve harmony thanks to the balanced combination of unity and diversity [76; 24; 11]. In line with the data obtained, establishing the balance of these criteria in Kadiköy Square should be one of the priority targets.

Another issue that needs to be balanced in public open spaces is color. When using colors, attention should be paid to the angle and direction of light, function and identity, cultural structure, climate and material selection. Along with colors, size, shape and texture also have the functions of perceptibility, emphasis, direction, diversity and depth effect in the space according to the usage areas. In addition, colors create unity, harmony and positive psychological effects on users [44; 63; 64; 30; 12; 54; 72; 36; 5]. The different colors, textures and forms in Kadiköy Square create a sense of confusion. This situation destroys the guiding effect of the design. Lighting is also an important criterion for the orientation effect in urban squares. In addition, lighting also has functions such as safety, visual comfort and amenity [66; 61; 52; 16]. The effect of the light in the square; depends on the seasons, the number of clouds in the sky, the time during the day, and the shadow effect created by another object and creates a different effect in the summer season and different in the winter season [30; 5]. This is not the case in Kadiköy Square. Lighting that creates different effects plays an important role in squares. It should make the sense of place feel by supporting the night use in the squares.

As a result, this study has defined the criteria and problems to be used in increasing human-space interaction. When all these criteria and results are used as a base in a new square design process, it will increase the quality of the space, users will be able to use the space with positive feeling to strengthen the human-space relationship, the perception scale between the natural-artificial elements in and surrounding the square should be evaluated in the context of human-space psychology, and the identity of the square should become a place where positive meanings.

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References

1. **Akdoğan, F.** Beypazarı Peyzaj Potansiyelinin Saptanması Üzerine Bir Çalışma, Yüksek Lisans Tezi, Ankara Üni. Fen Bilimleri Enstitüsü, Ankara. 2002.
2. **Alexander, C., Poyner, B.** The Atoms of Environmental Structure. In *Emerging Methods in Environmental Design and Planning*, ed. G. Moore, 5–9, 1970, Cambridge: The MIT Press.
3. **Allahyari, H., Nasehi, S., Salehi, E., Zebardast, E.** Evaluation of visual pollution in urban squares, using SWOT, AHP, and QSPM techniques (Case study: Tehran squares of Enghelab and Vanak). *Pollution*, 2017, 3(4): 655–667.
4. **Alexander, C., Silverstein, M., Ishikawa, S.** A Pattern Language. New York: Oxford University Press. 1977.
5. **Alpuğuz, E.** Examination of Burdur Cumhuriyet square as an urban space. Burdur Mehmet Akif Ersoy University. Fen Bilimleri Enstitüsü Department of Spatial Planning and Design. Master Thesis, 2019, 131 p.
6. **Altay, E.E., Batman, Z.P.** Multi-Criteria Perception Assessment of Open and Green Spaces. *Journal of Bartın Faculty of Forestry*, 2019, 21(3): 655-664.
7. **Altay, E.E., Eyüpoğlu, Z., Bozkurt, A.** Adopting Spaces and Assigning Positive Values: Bursa Orhangazi Square. *Journal of Bartın Faculty of Forestry*, 2021, 23(3): 846–858.
8. **Argan, A.** The Effects of Aural and Visual Fiction on the Sensation and Management of Space in Landscape Design. Ordu University Institute of Natural and Applied Sciences. Master Thesis, 2019, 133 p.
9. **Atabay, S., Kara, N.P.** Şehirsel Tasarım ve Şehir Mobilyaları İlişkileri, I. International Symposium for Street Furniture May 9-10-11, 2001, İstanbul, pp. 41-48
10. **Aytaş, İ.** Determining of urban open-green space system of Cankiri. Çankırı Karatekin University Graduate School of Natural and Applied Sciences Department of Forest Engineering. Master Thesis, 2017, 170 p.
11. **Aytem N.M.** Perception Of Color, Form, And Texture In Architectural Spaces. Istanbul Technical University. Institute of Natural and Applied Sciences. Master Thesis, 2005, 118 p.
12. **Bliven, S., Kelty, Y R.** Management of Small Docks and Piers Visual Impacts. NOAA Coastal Ocean Program Decision Analysis Series No. 25 U.S. Department of Commerce National Oceanic and Atmospheric Administration Coastal Ocean Program 1305 East-West Highway Silver Spring, Maryland. 2005.
13. **Bahçeci, H. I.** Kent Mekânında Kamusal Alan: Richard Sennett Perspektifinde Bir İnceleme Memleket Siyaset Yönetim. *MSY Dergi*, 2018, 13 (29): 111-128.
14. **Bolat, H.K.** İstanbul-Taksim Meydanı Örneğinde Algı-Pratik İlişkisinin İrdelenmesi. Bartın University. Graduate School of Natural and Applied Sciences. Department of Landscape Architecture. M.sc.Thesis. Bartın, 2019, Pp.87.
15. **Buck-Morss, S.** Görmenin Diyalektiği. Çev. F. Burak Aydar, Metis Yayınları, İstanbul, 2015, p. 528.
16. **Cabarkapa, A., Djokic, L.** Importance of the color of light for the illumination of urban squares. *Color Research and Application*, 2019, 44(3): 446-453.
17. **Carmona, M.** Public Places Urban Spaces: The Dimensions of Urban Design (3rd ed.). Routledge. 2021.
18. **Carr, S.** Public space. Cambridge [England]; New York, NY, USA: Cambridge University Press, 1992.
19. **Cengiz T.** A Study on Rural Development Model for the Protection of Landscape Values: The Case of Alpagut Village in Seben District (Bolu). Ankara University, Institute of Science and Technology, Ph.D. Thesis, 2003, 301 p. Ankara.
20. **Clay, G.R., Smidt, R.K.** Assessing the validity and reliability of descriptor variables used in scenic highway analysis, *Landscape and Urban Planning*, 2004, 66 (4): 239–255.
21. **Cooper Marcus, C., Francis, C.** People Places: Design Guidelines for Urban Open Space, Van Nostrand Reinhold, New York. 1986.
22. **Cooper Marcus, C., Francis, C.** People Places: Design Guidelines for Urban Open Space. John Wiley & Sons, Inc. 1998.
23. **Crankshaw, N.** Creating Vibrant Public Spaces: Streetscape Design in Commercial and Historic Districts. 2nd ed. Washington, DC: Island Press. 2008.
24. **Çelek, T.** <http://www.tulaycellek.com/tulay/eser.asp?id=253>. Accessed: 06.01.2022.
25. **Durak, H.** Urban Squares and Their Accessories in the Historical Process, Sultanahmet Square Case. Suleyman Demirel University. Institute of Natural and Applied Sciences. Master Thesis, 2018, 129 p.
26. **Erdönmez, E., Akı, A.** Açık kamusal kent mekânlarının toplum ilişkilerindeki etkileri. *YTÜ Mim. Fak. e-Dergisi*, 2005, 1 (1): 67–87.
27. **Erdönmez, E., Çelik, F.** Public Space Relations in the Urban Area, Turkish Academy of Science 14, 2016.
28. **Fauole, P.** Squares in Contemporary Architecture. Waanders Publishers Architectura & Natura Press, Amsterdam. 1995.
29. **Gehl, J.** Life Between Buildings: Using Public Space. Washington, DC: Island Press. 1971.
30. **Giritlioglu, C.** Şehirsel Mekan Ögeleri ve Tasarımı, I.T.U. Faculty of Architecture Print Workshop, İstanbul., 1991, 48-49.
31. **Günel, B., Nur, E.** Searching for the Psycho-Social Quality of Dwelling in the Context of Human-Environment Communication Model, *İTÜ Dergisi Seri A: Mimarlık, Planlama, Tasarım*, 2007, 6(1):19–30.
32. **Gündem, A.** Using all historical squares and axis in the past and present and investigating effects of these usage on the building suggest case with Beyoğlu. Yıldız Technical University, Department of Architecture, İstanbul. 1999, 115 p.
33. **Halaç, O.** Quantitative decision-making techniques (Operational Research) (5th ed.). Alfa Press. 2001.
34. **Hançer, G.** Assessment of Urban Spatial Quality of Mass Housing Areas; Gaziantep Example. Hasan Kalyoncu University Institute of Science Department of Architecture. Master Thesis. 2019, 187 p.
35. **Hooke, J.** Spatial variation in channel morphology and sediment dynamics: Gila River, Safford Valley, Arizona. Iahs Publication. 2000.

36. **Jafarzadeh, H.** A mathematical approach in visual evaluation of main streets: In the case of Adana Atatürk Boulevard. Çukurova University. Institute of Natural and Applied Sciences. Master Thesis. 2014, 155 p.
37. **Jarvis, R.K.** Urban Environments as Visual Art or as Social Settings? A Review. *Town Planning Review*, 1980, 51 (1): 50–66.
38. **Karaçor, E.K., Yüksel, K.U., Şenik, B.** Modernity Vs. Postmodernity: Assessing The Design Quality Of Urban Parks By Ahp. *Anadolu University Journal Of Art & Design*. 2021, 11(1): 63–72.
39. **Krier, R.** *Urban Space*, New York, Rizzoli. 1979.
40. **Göllü, S. K., Türkyılmaz, Ç. C.** Kent meydanlarının ergonomik ölçütler açısından değerlendirilmesi: Kadıköy Rıhtım Meydanı örneği. *Ergonomi*, 2019, 2(1), 32–48.
41. **İnceoğlu, M., Aytuğ, A.** The Concept of Urban Space Quality. *Megaron*, 2009, 4(3):131–146.
42. **Lang, J.** *Urban Design: A Typology of Procedures and Products*, Architectural Press, Oxford. 2005.
43. **Laroche, G., Domon, G., Gélinas, N., Doyon, M., Olivier, A.** Integrating agroforestry intercropping systems in contrasted agricultural landscapes: a SWOT-AHP analysis of stakeholders' perceptions. *Agroforestry Systems*, 2019, (93): 947–959.
44. **Laurie, I.C.** Aesthetic factors in visual evaluation. In: E.N. Zube, R.O. Brush and J.G. Fabos (Editors), *Landscape Assessment: Values, Perceptions and Resources*. Dowden Hutchinson and Ross, Stroudsburg, 1975, pp. 102–117
45. **Lynch, K.** *The Image of the City*. Cambridge: The MIT Press. 1960.
46. **Lu, S., Fei, L., Wang, Z, Cui, Y., Chen, C., Wei, Y.** Evaluation system and application of plants in healing landscape for the elderly. *Urban Forestry & Urban Greening*. 2021.
47. **Madanipour, A.** *Design of Urban Space*, Wiley, New York. 1996.
48. **Mesutoğlu, M.** The Public square as urban space and its morphological feature, Yıldız Technical University. Department of Urban and Regional Planning. Master Thesis, 2001, 87 p.
49. **Moughtin, C.** *Urban Design-Street and Square*. Butterworth Architecture, England. 1992.
50. **Mushtaha, E. S., Omar, O. H., Barakat, D. S., Al-Jarwan, H., Abdulrahman, D., Alyouf, I.** Public Involvement in the Design of Public Projects. *Open House International*, 2019, 44(4):73–79.
51. **Nabil, K.I.** "Al-Tahrir Square, Cairo during 2011, from Undefined Space to Interactive Place", *Rozzoni, S., Boonstra, B. and Cutler-Broyles, T. (Ed.) Re-Imagining Spaces and Places (Emerald Interdisciplinary Connexions)*, Emerald Publishing Limited, Bingley, 2022, pp. 27–44.
52. **Nasar, J.L., Bokharai, S.** Impressions of Lighting in Public Squares After Dark. *Environment and Behavior*, 2017, 49 (3): 227–254.
53. **Oktay, D.** Kentsel Kimlik Ve Canlılık Bağlamında Meydanlar: Kuzey Kıbrıs'ta Bir Meydana Bakış, Doğu Akdeniz Üniversitesi, Mimarlık, 2007, 334, March-April.
54. **Önder, S., Aklanoğlu, F.** Kentsel Açık Mekan Olarak Meydanların İrdelenmesi. *Selçuk Üniversitesi Ziraat Fakültesi Dergisi*, 2002, 16(29): 96–106.
55. **Özer, M. N., Ayten, M.** Tarihsel Süreç İçerisinde Meydanlar ve Gelişimi, Gazi University. Graduate School of Natural and Applied Sciences. Unpublished Master's Urban Texture Assessment Course Assignment, Ankara. 2005.
56. **Öztaş, Y.** Kentler ve Meydanlar. *Maison Française Dergisi*, 1998, (33): 154–157.
57. **Paköz, M.Z., Sözer, C., Doğan, A.** Changing perceptions and usage of public and pseudo-public spaces in the post-pandemic city: the case of Istanbul. *Urban Design International*, 2022, (27): 64–79.
58. **Relph, E.** *Place and Placelessness*. Pion, London. 1976.
59. **Ridings, J., Chitrakar, R.M.** Urban design frameworks, user activities and public tendencies in Brisbane's urban squares. *Urban Design International*, 2021, (26): 272–288.
60. **Saaty, T. L.** Axiomatic foundation of the analytic hierarchy process. *Management Science*, 1986, 32(7): 841–855.
61. **Sebastian, S.F.** Lighting Interventions As Urban Catalysts - Three Lighting Installations In Chueca Square In Madrid. *Landscape Architecture Frontier*, 2015, 4(3): 92–103
62. **Semerci, F.** Beyazıt Square Example in the Aspect of Urban Design Necessities, Yüksek Lisans Tezi. Yıldız Technical University, Department of Architecture, Istanbul. 2008, 142 p.
63. **Smardon, R.C.** *Prototype Visual Impact Assessment Manual*, School of landscape architecture. University of New York: New York. 1979.
64. **Smardon, R.C., Palmer, J.F., Felleman, J.P.** *Foundations for Visual Project Analysis*. John Wiley & Sons, ISBN 0471881848. 1986, pp 374. New York.
65. **Song, Y. J., Tian, L. G., Han, X. Y., Feng, S.** A Study on Optimizing the Water Conservancy Landscape Design by Applying AHP. *Advanced Materials Research*, 2011, 250–253, 3328–3333.
66. **Song, G., Yan, C.Y.** The Qualitative Evaluation Of Lighting Quality In Urban Square Lighting. *Proceedings Paper. Proceedings Of The Cie Centenary Conference Towards A New Century Of Light*. Paris, France. 2013.
67. **Sternberg, E.** An Integrative Theory of Urban Design. *Journal of the American Planning Association*, 2000, 66 (3): 265–278.
68. **Strumse, E.** Perceptual dimensions in the visual preferences for Agrarian landscapes in western Norway. *Journal of Environmental Psychology*, 1994, (14): 281–292.
69. **Şahin, G.** A Proposal for the Evaluation of the Effect of Socio-Economic Structure on the User's Choice and Urban Square Design: Bursa Case Study. Istanbul Technical University. Institute of Natural and Applied Sciences. Master Thesis. 2018, 228 p.
70. **Şahin, S.** Role of the Square in the City: Ankara-Kızılay Square. Atılım University. Graduate School of Social Sciences. Department of Interior Architecture and Environmental Design. Master Thesis. 2015, 130 p.
71. **Taşçı, H.** The relationship between city square with city identity Üsküdar. Marmara University. Institute of Social Sciences Department of Public Administration. Doctoral Thesis. 2012, 383 p.
72. **Temelli, M.** A methodological approach in visual impact assessment work in occupation example of Cukurova University. Çukurova University. Institute of Natural and Applied Sciences. Master Thesis. 2008, 105 p.
73. **Tibbalds, F.** *Making People Friendly Towns: Improving the Public Environment in Towns and Cities*. London: Spon Press, 2000.
74. **URL 1.** Ankara university course materials. Subject 11: Multi-Criterative Decision-Making Methods – <https://acikders.ankara.edu.tr/>. Accessed 10 June 2020.

75. **Uzgören, G., Erdönmez, E.** A Comparative Study On The Relationship Between The Quality Of Space And Urban Activities In The Public Open Spaces. *Megaron*, 2017, 12(1): 41–56.
76. **Uzun, G.** Temel Tasarım. Ç.Ü.Ziraat Fakültesi Genel Yayın No: 196 Adana. 1999.
77. **Van Mansvelt, J.D., Kuiper, J.** Criteria for the humanity realm: psychology and physiognomy and cultural heritage. In J. D. van Mansvelt, & M. J. van der Lubbe (Eds.), *Checklist for Sustainable Landscape Management*, 1999, pp.116–134.
78. **Virbašienė, J. K., Janušaitis, R.** Some Methodical Aspects of Landscape Visual Quality Preferences *Environmental Research, Engineering and Management*, 2004, 3(29): 51–60.
79. **Wang, K.** Plant Landscape Design Simulating Natural Community by Using AHP Method Based on TWINSpan Classification. *Proceeding Paper. 2nd International Conference on Materials Science, Energy Technology, Power Engineering*. 1971.
80. **Wang, W., Li, N.** Application of AHP In Highway Landscape Assessment system. *Applied Mechanics and Materials*, 2013, 357-360. 2134–2140.
81. **Weinstoerffer, J., Girardin, P.** Assessment of the contribution of land use pattern and intensity to landscape quality: use of a landscape indicator, *Ecological Modelling*, 2000, 130: (1–3). 95–109 p.
82. **Whyte, W.H.** *The Social Life of Small Urban Spaces*. New York: Project for Public Spaces. 1980.
83. **Whyte, W. H.** *City: Rediscovering Its Center*, Doubleday, New York. 1988.
84. **Xu, L.Y.** Research on greening and plant composition-diversity in urban square of Mudanjiang city. *Northern Horticulture*, 2010, (23): 118–120.
85. **Xu L.Y., Wang, L.F., Li, Y.P., Xiao, J., Qi, H.L., Zhang, W.Q.** Analysis on the configuration diversity and landscape evaluation of color-leafed plants in three urban cities. *Hubei Agric. Sci.*, 2017, 56(8): 1494–1498.
86. **Xu, L., Liu, D., Liu, Y., Zhang, N., Yang, L.** Analysis of Plant Composition and Diversity on Urban Square in Mudanjiang City, China. *Bangladesh Journal of Botany*, 2021, 50(2): 277–287.
87. **Zhang, YC, Feng, L.** Fuzzy AHP Method for Assessment of Urban Community Landscape Environment Satisfaction. *International Journal Of Applied Mathematics & Statistics*, 2013, 39(9):172–179.
88. **Zhang, X.** The Optimization of Spatial Art Pattern of Vegetation Landscape in the Bay Area. *Journal Of Coastal Research*, 2020, 103 (Special Issue):1051–1055.
89. **Zucker, P.** *Town And Square*. Columbia University Press, New York. 1959.

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Kopsavilkums. Raksta mērķis ir sniegt vispusīgu perspektīvu pilsētas skvēru dizaina koncepcijai, kas vienlaikus pētījumā ir ainavu arhitektūras un ar to saistīto disciplīnu izpētes priekšmets, un atklāt kritērijus projektēšanas procesā. Pētījuma procesā apkopoti 40 dažādi dizaina kritēriji, kas izmantoti un pārbaudīti *Kadıköy* laukumam Stambulā. Pētījums tiek uztverts un parādīts kā mehānisms, kas izceļ pilsētas laukumu unikālās iezīmes projektēšanas procesā un to, kā skvēri, un laukumi būtu jāattīsta, lai tie kļūtu par kvalitatīvu, saistošu un interesantu funkcionālo zonu sabiedrībai kopumā.