

Sakarya Atatürk Park's landscape design: an evaluation based on universal design principles

Sakarya Atatürk Parkı peyzaj tasarımı: evrensel tasarım ilkelerine dayalı bir değerlendirme

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Abstract: This study aims to evaluate the landscape design of Sakarya Atatürk Park within the framework of universal design principles. While examining the contributions of urban parks to the psychological, social, and physical well-being of individuals, the implementation of basic elements such as accessibility, flexibility, information systems and security were discussed in detail. As a result of the fieldwork and observations, the park's central location, rich vegetation and features that enable social interaction were evaluated positively; however, deficiencies were identified in areas such as suitable playgrounds, accessible roads, ramps, and guidance systems, especially in meeting the needs of different user groups such as disabled individuals, elderly, and children. The findings reveal that the park generally complies with universal design principles at a moderate level, but that improvements are needed in certain areas. In the study, comparisons are made with international and Türkiye-specific examples in the literature, and it is emphasized that solution proposals for deficiencies and participatory design approaches should be adopted. As a result, the study provides important data that guides for more effective implementation of universal design in urban landscape projects.

Özet: Bu çalışma, Sakarya Atatürk Parkı'nın peyzaj tasarımının evrensel tasarım ilkeleri çerçevesinde değerlendirilmesini amaçlamaktadır. Araştırmada, kentsel parkların bireylerin psikolojik, sosyal ve fiziksel iyi oluşuna sağladığı katkılar incelenirken; erişilebilirlik, esneklik, bilgilendirme sistemleri ve güvenlik gibi temel unsurların uygulanması detaylı bir şekilde ele alınmıştır. Yapılan saha çalışması ve gözlemler sonucunda, parkın merkezi konumu, zengin bitki örtüsü ve sosyal etkileşime olanak tanıyan özellikleri olumlu yönde değerlendirilmiş; ancak, engelli bireyler, yaşlılar ve çocuklar gibi farklı kullanıcı gruplarının ihtiyaçlarını karşılamada; özellikle uygun oyun alanları, erişilebilir yollar, rampa ve yönlendirme sistemleri gibi alanlarda eksiklikler tespit edilmiştir. Bulgular, parkın evrensel tasarım ilkelerine göre genel olarak orta düzeyde uyum gösterdiğini ancak belirli alanlarda iyileştirmeye ihtiyaç duyulduğunu ortaya koymaktadır. Çalışmada, literatürde yer alan uluslararası ve Türkiye'ye özgü örneklerle kıyaslamalar yapılarak, eksikliklere yönelik çözüm önerileri ve katılımcı tasarım yaklaşımlarının benimsenmesi gerektiği vurgulanmıştır. Sonuç olarak, çalışma, kentsel peyzaj projelerinde evrensel tasarımın daha etkin uygulanması için yol gösterici nitelikte önemli veriler sunmaktadır.

INTRODUCTION

Urban parks, an indispensable element of modern urban life, are important public spaces that enable individuals to meet nature, encourage physical activity, increase socialization, and contribute positively to psychological well-being (Preiser and Ostroff 2001). The design of urban parks, green corridors, and public squares prioritizes ecological sustainability and accessibility (Nahdatunnisa et al. 2024). However, when urban parks are not designed to provide equal, barrier-free access and use for individuals, they can create access barriers and risks of social exclusion for disadvantaged individuals in society (Story et al. 1998). Meeting the needs of various user groups such as disabled individuals, the elderly, and children is not only a goal of design, but also a

requirement of social justice in cities. Universal design principles provide a significant framework for implementing these goals. The implementation of universal design principles in the domain of urban landscape design ensures not only physical accessibility but also fosters social inclusiveness and enhances the quality of life in urban areas (Connell et al. 1997). The design of urban parks according to universal design principles leads to an increase in the utilization of these spaces by society, thereby facilitating social interaction and the development of social bonds among different segments of society. Concrete applications of universal design principles include the inclusive arrangement of children's playgrounds, the planning of appropriate

seating areas for the elderly, and the clearance of walkways from obstacles (Story et al. 1998).

The Role of Universal Design in Urban Landscape Design

Universal design is a design approach that was developed to ensure that all individuals, irrespective of age, ability, or condition, can utilize the environment, products and services in the same way (Connell et al. 1997). This definition underscores the inclusivity of design, aiming to ensure that all individuals have access to environmental and physical spaces without the necessity for special arrangements. Mace (1985) defined universal design as a design approach that is created by considering the needs of everyone, eliminates obstacles and provides equal access. In this context, universal design is not only concerned with the elimination of physical obstacles, but also with the promotion of social equality and social inclusiveness. According to Preiser and Ostroff (2001), universal design refers to the creation of areas, products and services designed by considering the differences in the physical, sensory, and cognitive capacities of individuals. Since architect Ron Mace first introduced the concept, the definition of UD has evolved (Hurst et al. 2023). One early interpretation from North Carolina State University describes it as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Moore and Cosco 2007). Overall, UD strives to create built environments that are both accessible and functional for a broad spectrum of users (Story 2011). This approach is predicated on the design of user-friendly products and services that are both functional and aesthetically pleasing, and which extend beyond the limitations of physical access. As Story et al. (1998) explained, universal design is a design framework that increases accessibility, usability, and inclusiveness for all individuals, emphasizing that this approach plays a critical role in improving the quality of life of individuals from all segments of society. In conclusion, universal design is an approach that aims to enhance the quality of life by maximizing users' interactions with the physical and social environment.

The seven basic principles of universal design are used as an important guide in urban landscape design. These principles (Mace 1985, Connell et al. 1997):

a) *Equal Use*: Allows all users to benefit equally. For example, the entrances and all paths of an open and green area should have the same ease of access for wheelchair users and other individuals.

b) *Flexible Use*: Provides alternatives to suit users' different needs. An example of this would be an urban square that includes a variety of seating options such as benches, movable chairs, and picnic tables, as well as standing tables and open spaces for those who prefer to stand or move freely while socializing.

c) *Simple and Intuitive Use*: Ensures that the design is easy and understandable for everyone. Placing informative signs clearly and concisely prevents confusion.

d) *Perceivable Information*: Refers to the design being perceivable by everyone despite differences in their sensory abilities. An example of this would be the presence of both visual and tactile guidance signs in a park.

e) *Error Tolerance*: Minimizes the consequences of user errors. Precautions such as preventing slippery floors or clearly marking dangerous areas are examples of designs that comply with this principle.

f) *Low Physical Effort*: Allows all users to use the space without excessive physical effort. Examples include gently sloping ramps and easy-to-open doors.

g) *Size and Spatial Approach*: Refers to the design being physically accessible to everyone. For example, seating areas in a space should have appropriate heights for both adults and children.

Landscape design is defined as a process that fulfils the social, physical, and aesthetic requirements of individuals by balancing natural and artificial elements. The integration of universal design principles into urban landscape design has been shown to have a significant impact on accessibility, social equality, and sustainability. For example, the arrangement of walking paths in a park so that they are suitable for people of all ages and physical capacities not only increases access, but also ensures that

individuals benefit equally from physical activities (Preiser and Ostroff 2001).

In this context, landscape design based on universal design principles strengthens social ties among individuals while also providing equal access and use opportunities for all segments of society. This approach can make significant contributions to the creation of a more inclusive and sustainable future in urban landscape design (Mace 1985). In this study, the landscape design of Atatürk Park was examined in the context of universal design principles. In this study, the landscape design of Atatürk Park was examined in the context of universal design principles. Based on the findings, various

suggestions were put forward to improve accessibility, usability, and inclusivity within the park.

MATERIAL AND METHOD

Features of Study Area

The study focuses on Sakarya Atatürk Park. Atatürk Park is located at coordinates 40.778263° N and 30.401829° E. The park is situated in Sakarya province, within the boundaries of the Cumhuriyet neighborhood and Adapazarı district and covers an area of 15.231.11 m² (Figure 1) (Google Earth 2024).



Figure 1. Location of Sakarya Atatürk Park (Google Earth 2024)

Atatürk Park is classified as a "green area" or "recreation area" in the Sakarya Metropolitan Municipality's zoning plan, indicating its designation for public recreation, sporting activities and social events. Situated in the heart of Sakarya and within the historical bazaar texture, Atatürk Park is one of the city's significant urban open green areas. The park is strategically located at the intersection of Atatürk Boulevard, Kavaklar Street and Ankara Street. Within the park's boundaries are the Sakarya Metropolitan Municipality, Adapazarı Cultural

Centre (AKM) and the Earthquake Museum, while its immediate vicinity includes significant landmarks such as the Historic Long Bazaar, Pasaj 2000, Orhan Mosque, Çark Street, City Square, Adapazarı Train Station, Sabiha Hanım Secondary School and the former Hilmi Kayın Business Center, a symbol structure of Sakarya (Figures 2-4). Despite its modest dimensions, the park is highly regarded by urban users due to its central location and proximity to official institutions such as schools and municipalities.



Figure 2. Views around the study area (Ankara Street, Long Bazaar and Çark Street) (Authors)



Figure 3. Views around the study area (Sakarya Metropolitan Municipality, Sakarya Metropolitan Municipality Department of Culture and Adapazarı Cultural Center (AKM)) (Authors)



Figure 4. Views around the study area (Barrier-Free Living Centre, BELPAŞ and sales units) (Authors)

Method

The methodology of the study consists of four different stages. In the first stage, a comprehensive literature review was conducted using the keywords identified for this research. This was followed by the second stage, which was the identification of the study area to ensure alignment with the research objectives. This area was selected based on its suitability to the research objectives and the urban dynamics it represents, such as its central location within the city, its accessibility, and its role as a focal point of socio-economic and spatial interactions. In the third stage, fieldwork was carried out, including photography, on-site inspections and direct observations. A suitability analysis table was prepared to assess the strengths and weaknesses of the site, focusing on photographs of the study area and Universal Design Principles. The final stage required a comprehensive analysis of the collected data and resulted in an evaluation of the landscape design. This assessment is exemplified by the case study of Atatürk Park, which demonstrates the effective implementation of the principles discussed.

FINDINGS AND DISCUSSION

Landscape Design Features of Atatürk Park

The landscape design of Atatürk Park has been analyzed under several headings, including functional zones, land

use, access and circulation systems, parking areas, amenities, vegetation, and surface materials. Below, the landscape characteristics of the park are discussed in detail:

- Atatürk Park offers a variety of functions, including both recreational and social interaction spaces. The park includes walking paths and resting areas, creating an urban space that caters to different age groups and user needs. The land use within the park is distributed in a balanced manner, with a harmonious integration of hard and soft landscape areas. Although there are no playgrounds or sports fields, the proportion of green spaces has been designed to maintain the park's natural balance. Despite the rich plant diversity, aesthetic and functional losses are noticeable due to empty ornamental pools and missing equipment (Figure 5).

- *Access and Connectivity:* Due to its close proximity to the city center, the park has a significant advantage in terms of pedestrian and vehicular access. Its location near main roads and public transport lines increases its accessibility. Moreover, expanded pedestrian walkways have been designed to facilitate the use of the park by individuals with disabilities.

- *Internal Circulation:* The walkways are designed with 150 cm wide concrete paving stones for both pedestrians and maintenance vehicles (Figure 6) (Dikici and Aklıbaşında 2024). The surface materials used in

hardscape areas vary, including concrete, stone, and composite materials, which contribute to both aesthetic and functional aspects. Additionally, the inclusion of tactile paving for visually impaired individuals ensures comprehensive accessibility throughout the park. There is no sensible surface application for the visually impaired.

- *Parking Facilities:* The parking area within the park is currently used by municipal staff (Figure 7), and The statue of Gazi Mustafa Kemal Atatürk, which the park is named after, is situated at the park's center, with the surrounding vegetal design creating a focal point (Figure 8).

- Garbage cans and recycling units are placed at strategic points to ensure the cleanliness of the park and

support environmental sustainability. Metal trash cans are placed at important points throughout the park and these elements play an effective role in ensuring the order and cleanliness of the park (Figure 9). Garbage cans contribute to the park's user-friendly environment, both aesthetically and functional there is no dedicated parking space for visitors. However, due to its central location, the park is situated in a place that visitors can easily access.

- *Urban Furniture:* The park includes various urban furniture elements such as benches, lighting fixtures, trash bins, and informational signs. The placement of these elements has been carefully planned to enhance user comfort and improve the functionality of the space.



Figure 5. Photos of ornamental pools (Authors)



Figure 6. Photos from in-park pedestrian paths (Authors)



Figure 7. A view from the parking area (Authors)



Figure 8. A photograph of the statue of Gazi Mustafa Kemal Atatürk (Authors)



Figure 9. Photographs of garbage cans and recycling units (Authors)

- Lighting elements are carefully arranged to improve safety and nighttime usability, complementing the park's ambiance. However, to better accommodate night use and enhance security, the diversity and number of lighting fixtures should be increased (Figure 10).

- The park features seating elements with various designs. These benches are mostly located along walking paths, in shaded areas and at designated resting points. Most of the benches are made of wood and metal materials, and their ergonomic structures enhance user comfort (Figure 11). However, in some areas, benches are either missing or damaged.



Figure 10. Photos of lighting elements (Authors)



Figure 11. Views of seating elements (Authors)

- **Informational Signage:** The informational signs located throughout the park provide visitors with guidance and essential information regarding the use of the area. These signs include content such as environmental rules and emergency contact details (Figure 12). Their readability and placement have been designed to support and enhance the user experience.

- **Vegetation:** The park features a diverse range of plant species, including trees, shrubs, and perennials, which contribute to its ecological value. As one of the few remaining open green spaces in the city center of Sakarya, the park hosts a rich plant composition, as illustrated in Figure 13, including species such as *Rosa* spp. (Rose), *Liquidambar styraciflua* (Sweetgum), *Robinia pseudoacacia* (Black Locust), *Platanus occidentalis* (Sycamore), *Pinus nigra* (Black Pine), and *Lavandula* spp. (Lavender). These species enhance the landscape by providing shade, seasonal color variation, fragrance, and greenery throughout the year. Well-maintained planting

arrangements and irrigation systems ensure plant health, making the park a peaceful and ecologically valuable urban refuges.

- **Surface Covering Materials:** The texture and slip resistance of the surfaces are important factors that affect user comfort and safety. These features are consistent with the findings presented in the table, which highlights the impact of ground materials on usability. In Atatürk Park, a variety of surface materials have been used depending on the function of the area (Figure 14). For example, concrete is primarily used along the main walking paths due to its durability and ease of maintenance. Natural stone is preferred in seating and resting areas for its aesthetic appeal. In areas such as intersections, where additional safety is required, composite or rubberized surfaces are used. The careful selection of these materials ensures both functional efficiency and visual harmony throughout the park.



Figure 11. Examples of informational signage (Authors)



Figure 12. Photos of some plants in the park (Authors)



Figure 13. Photos from surface covering materials (Authors)

• *Park Square*: Square has barrier-free access and generally appeals to a wide range of users. There are no special arrangements for individuals using wheelchairs or similar devices. The Square is easy to use and understandable (Figure 15). Signs and layout are intuitive

and clear. There are wide and smooth surfaces that can tolerate errors within the square. The square is level and easily accessible. There is no space for wheelchair users to store their wheelchairs and interact with other users. It is reinforced with vegetative design.




Figure 14. Views from Park Square (Authors)




Data Obtained within the Framework of Universal Design Principles


the park for landscape design, considering the Universal Design Principles, is given in Table 1 and the evaluations are presented.

In line with the data obtained within the scope of the study, the analysis of the suitability of various spaces of

Table 1. Findings of the compliance of Sakarya Atatürk Park spaces with Universal Design Principles (Authors)

Functions	Equal use	Flexible use	Simple and intuitive use	Perceivable information	Error tolerance in design	Low physical effort	Measure (size and spatial approach)
Parking lot 	Certain sections of the car parking lot are designed to cater for all users. Areas are reserved for disabled individuals.	Flooring conditions may pose obstacles to wheelchair or stroller users, limiting overall comfort.	The markings and layout are clear and intuitive.	Parking spaces for disabled users are designated and marked.	Some floor areas are uneven and can pose obstacles, reducing error tolerance for users.	There may be some difficulties in parking with a wheelchair.	Although the width of the parking lot is suitable for most users, there are some problems such as lack of access corridors.
	✓	✗	✓	✓	✗	✗	✗

Walking Paths		The walking paths are designed to appeal to different user groups such as wheelchairs, baby strollers and elderly individuals.	There is no sensible surface to guide visually impaired users.	The layout of the walking path tracks is simple, intuitive, and easy to use.	Floor coverings are suitable for seasonal conditions and do not create hazards such as slipperiness.	There is a lack of sensible surface and hazard warnings for the visually impaired.	The walking paths are flat and smooth, so walking is comfortable.	The walking paths are wide and provide enough space for different users.
		✓	✗	✓	✓	✗	✓	✓
Bike Paths	No photos available	There are no bicycle paths in the park which creates a lack of appeal to various user groups.						
		✗	✗	✗	✗	✗	✗	✗
Ramps	No photos available	There are no accessible ramps for all users.						
		✗	✗	✗	✗	✗	✗	✗
Stairs		The stairs are not safe for all users as they do not have basic safety measures such as non-slip coatings and handrails. A design approach that can be used by individuals of all ages and abilities has not been adopted.						
		✗	✗	✗	✗	✗	✗	✗
Entries		The entrances are designed to be easily accessible to everyone. The absence of turnstiles or revolving doors makes it suitable for a wide range of people, from disabled individuals to baby strollers.						
		✓	✓	✓	✓	✓	✓	✓
Park Square		Square has barrier-free access and generally appeals to a wide range of users.	There are no special arrangements for individuals using wheelchairs or similar devices.	The square is easy to use and understandable.	The markings and layout are intuitive and clear.	There are wide and smooth surfaces within the square that can tolerate mistakes.	The square is flat and easily accessible.	There is no space for wheelchair users to store their wheelchairs and interact with other users.
		✓	✗	✓	✓	✓	✓	✗
Playgrounds	No photos available	There are no children's playgrounds in the park. According to Universal Design Principles, these areas should have suitable toys and safe flooring materials for all children.						
		✗	✗	✗	✗	✗	✗	✗
Urban furniture		Seating units in the park are generally accessible and suitable for different users.	No spaces are left to allow flexibility in the fittings for wheelchair users or other users.	The urban furniture is simple and easy to use.	There is no information or guidance regarding the urban furniture.	Appropriate provisions for wheelchair users are lacking.	Benches can be used comfortably.	There is not enough space for wheelchairs. Drinking fountains and tables are also missing.
		✓	✗	✓	✓	✗	✗	✗

Landscape Elements		Landscape elements provide equal access for all users.	Water features offer flexibility to appeal to different user groups (children, elderly, disabled individuals).	The placement and use of landscape elements are simple and understandable.	Water features are protected and designed to be non-hazardous.	Security measures are in place and arrangements have been made to prevent obstacles.	Landscape areas are designed to be usable with low physical effort.	Areas are provided where users of different sizes can move comfortably.
		✓	✓	✓	✓	✓	✓	✓
Sports Fields	No photos available	There are no sports fields in the park which does not meet the needs of different user groups.						
		✗	✗	✗	✗	✗	✗	✗

When the findings presented in Table 1 are evaluated within the scope of universal design principles, the following results are reached:

- *Equality Principle*: The park provides common seating areas that are accessible to users with different physical abilities. However, there are significant deficiencies in ensuring equal use, such as the absence of accessible playgrounds for disabled children and a lack of sports fields that accommodate different user groups. Moreover, the absence of ramps and bicycle paths limits accessibility.

- *Flexibility in Use Principle*: The park's urban furniture does not provide sufficient flexibility, as there are no movable benches or design elements that cater to both right-handed and left-handed users. Additionally, while seating units are generally accessible, they lack designated spaces for wheelchair users, reducing overall usability for diverse user needs.

- *Simplicity Principle*: The park's general layout is simple and functional. Seating areas, ornamental pools, and cafes are strategically placed, ensuring that users can easily navigate the space. Walking paths are designed to accommodate different users, including those with wheelchairs or strollers. However, the absence of tactile paving for visually impaired individuals reduces the intuitiveness of the design.

- *Perceivable Information Principle*: The park lacks sufficient directional signs and informative elements. While the width of the main pathways is 2.5 meters, making them suitable for pedestrian movement, the absence of sensory surfaces for visually impaired users and inadequate hazard warnings pose accessibility

challenges. The emergency assembly area has been designated but is currently used as a parking lot, which contradicts its intended function.

- *Error Tolerance Principle*: Although the ground level in the park is generally equal, some uneven surfaces, deficiencies in ramp placements, and a lack of non-slip coatings on stairs reduce user safety. The use of paving stones in some areas creates potential tripping hazards. In addition, parking spaces for disabled users are marked, but there is a lack of designated access corridors, making maneuvering difficult.

- *Low Physical Effort Principle*: The walking paths are generally smooth and flat, ensuring a comfortable experience for pedestrians. However, in certain areas such as the parking lot, elevation differences and irregular surfaces make navigation difficult for wheelchair users. There is also an absence of drinking fountains and accessible tables, which could further improve ease of use.

- *Dimension and Spatial Approach Principle*: The location of public transport stops near the park entrances improves accessibility. The structural elements, including walking paths and urban furniture, have been designed with appropriate dimensions: pathways are 2.5 meters wide, garbage bins are positioned at a height of 65 cm, and lighting elements are 2.20 meters high. However, there is inadequate space for wheelchair storage, limiting social interaction opportunities for disabled users. In landscape design, a variety of evergreen and deciduous plants have been incorporated, contributing to aesthetic and ecological diversity.

An evaluation of the entire Atatürk Park was conducted in accordance with a holistic approach, incorporating the universal design principles and their

associated indicators as outlined in Table 2. The result of this evaluation was a determination of the park's suitability status.

Table 2. Evaluation Indicators of Atatürk Park According to Universal Design Principles (adapted from Uslu et al. 2016)

Universal design principles	Indicators	Suitable ✓	
		Not suitable ✗	
1 Equal use	Places where children of different sexes can be together	✓	
	Places where children with different physical characteristics can be together	✗	
	Areas designed for all types of disabilities	✗	
2 Flexible use	Providing preferences for different uses	✗	
	Simplicity in the overall design approach	✓	
3 Simple use and perceivable information	Hierarchy on the roads	✓	
	Centre points and activity areas	✓	
	Having signboards for informative and guiding purposes	✗	
4 Error tolerance in design	Use of safety preventive elements	✓	
	Quality of play equipment	✗	
5 Low physical effort	Having ramps, stairs, and rest areas	✓	
	Ergonomic use and easy accessibility of equipment	✓	
	Accessibility to parks	Access to parks by public transport	✓
		Easy access for pedestrians	✓
		Car Parking	✓
6 Measure (size and spatial approach)	Structural design	Roads	✓
		Ramps	✗
		Reinforcement elements	✓
	Planting design	Children's play equipment	✗
		Selection of suitable plant species	✓
	Location and position of plants	✓	
	Plant design	✓	

As demonstrated in Table 2, the evaluation of Atatürk Park's conformity with universal design principles and sub-indicators was conducted holistically. The suitability of the park is illustrated in Figure 16. The evaluation

revealed that of the 22 indicators, 15 were classified as 'suitable' and 7 as 'not suitable', indicating that the park aligns with universal design principles moderately.

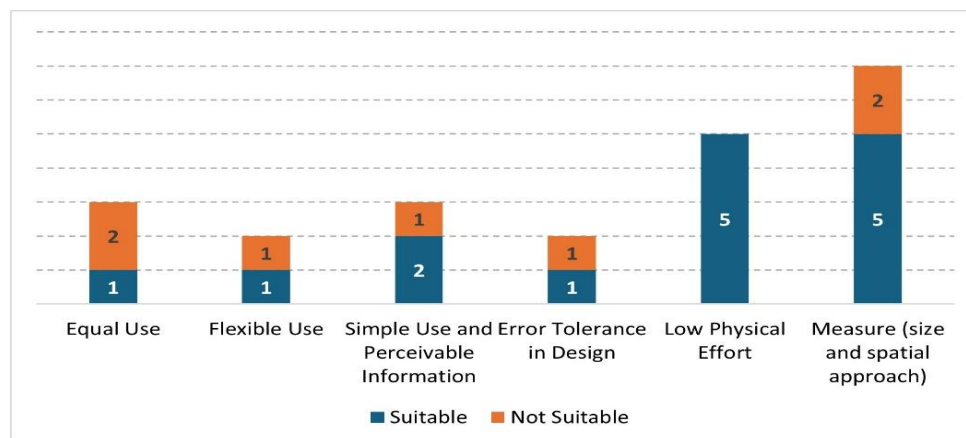


Figure 15. Suitability of Atatürk Park in line with universal design principles (Authors)

In line with the findings discussed above, a comprehensive assessment of Atatürk Park in the context of universal design principles reveals critical insights into its current spatial and functional performance. The contribution of urban parks to the psychological and social well-being of individuals, emphasized by Preiser and Ostroff (2001) and Story et al. (1998) in the international literature, is also supported by current studies conducted in Türkiye (Özdemir and Yıldız 2020, Yılmaz 2022). These areas have also attracted special attention during the pandemic as they offer unique opportunities for physical and psychological regeneration, connecting with nature and offering outdoor recreational activities (Aklıbaşında and Dikici 2023). The central location of Atatürk Park, its rich vegetation and spatial features that enable social interaction to reflect the positive aspects revealed by these studies. However, the findings obtained in our study show that the park has significant deficiencies in terms of accessibility for different user groups such as disabled individuals, children, and the elderly. Turkish and international studies draw attention to the importance of accessibility and error tolerance elements in the structural layout of parks (Connell et al. 1997, Çelik et al. 2022).

In our study, the ground layout of Atatürk Park; especially the inadequacy of stairs and ramps, the lack of directional signs, cause problems in the physical access and security of visitors. The field study conducted by Güneş (2023) reveals that similar deficiencies are frequently observed in urban parks in Türkiye, indicating that universal design principles are inadequately implemented. Evaluations made in terms of aesthetics and functionality show that while the park offers a landscape compatible with natural elements, there are deficiencies in areas such as flexible use, social activities, and information systems. In the studies conducted by Kara (2021) and Korkmaz (2022), the importance of sufficient support for children's playgrounds, sports areas, and resting points, as well as arrangements compatible with nature in park design, is emphasized. In this context, while the planting arrangement of Atatürk Park is welcomed positively, the lack of social and functional elements reveals that the

flexible use and perceptible information principles of universal design have not been fully implemented. The findings are parallel to current studies conducted in Türkiye (Özdemir and Yıldız 2020, Erdem and Baş 2023); it has been determined that the park is generally moderately suitable, but significant improvements are needed in basic areas such as accessibility, flexible use, information, and security. Compared to inclusive design examples emphasized in the literature, universal design strategies that could not be implemented in Atatürk Park negatively affect the user experience. When compared to examples where universal design principles are successfully applied in the international arena, the deficiencies observed in similar projects in Türkiye become more apparent. In projects carried out in Europe and the USA, the adoption of holistic approaches towards accessibility and user needs increases the efficiency of use of parks; studies conducted in Türkiye (Özdemir and Yıldız 2020, Yılmaz 2022) reveal that universal design is accepted conceptually but there are deficiencies in practical applications.

This situation shows the necessity of updating design standards in local applications and integrating them with international examples. Studies such as Kara (2021) and Korkmaz (2022), which point out the importance of user-centered design, emphasize the necessity of active participation of different user groups in the design processes of parks. In our study, it was determined that the needs of disabled individuals, the elderly and children were not sufficiently taken into consideration; therefore, the flexibility of use of the park and information systems were insufficient. Integrating feedback based on user experiences into design processes is critical for both addressing current deficiencies and implementing more inclusive projects in the future.

CONCLUSION AND RECOMMENDATIONS

Ataturk Park, a central green space in Sakarya, follows certain universal design principles but requires improvements in accessibility, flexibility, clarity of information, and safety. The park provides seating areas for a variety of users but lacks adequate arrangements for

individuals with disabilities and children. Deficiencies include limited flexibility due to the lack of movable benches and adaptable elements, lack of clear directional signage, and inadequate emergency space planning. Height differences and inadequate ramp solutions hinder accessibility, while missing reinforcement elements reduce the functional and aesthetic value of the landscape. An assessment grid revealed that 15 out of 22 criteria were appropriate and 7 were not, indicating moderate accessibility according to universal design principles.

Suggestions to Improve Atatürk Park's Landscape Design

Overall, although the park's design has its strengths, some improvements are needed to meet broader user needs. In this context, various suggestions have been presented for Atatürk Park.

Accessibility Enhancement

Public areas of the park are accessible to various user groups, but more regulation is required for individuals with disabilities and the elderly. Special walkways, ramps and seating areas should be created for disabled users. For example, spacious ramps and specially designed seating areas for disabled users should be provided with sufficient height and width. Suitable (smooth and non-slip) surface coatings should be used for wheelchair users. Specific regulations are lacking in social areas, and they must be improved.

Flexibility

The park offers flexible use according to the needs of the users; however, it has been observed that the areas for various activities need to be arranged more. Flexible areas should be designed for various activities. For example, areas such as playgrounds and multi-purpose sports grounds should be designed suitable for different age groups. Equipment for children's playgrounds for different age groups and children with disabilities should be added. For example, there should be appropriate equipment for young children, as well as accessible play equipment for children with disabilities. There are deficiencies in sports areas, and they must be remedied.

Information and Guidance

Although information boards and guidance signs are available in the park, they need to be more prominent and user-friendly. Guidance boards and information boards should be supplemented with Braille information boards for the visually impaired and voice information/guidance systems. General information boards should be placed at strategic points. For example, it should be located at the entrance points of the park and at important intersections located around it.

Security

The locations of emergency equipment in the park are not obvious and safety measures remain inadequate. The locations of emergency equipment must be made clear and checked regularly. Equipment such as first aid kits and fire extinguishers, for example, should be ensured to be in clearly marked and accessible areas. Additional safety measures must be taken. For example, security cameras and emergency buttons should be installed in various areas of the park.

Recreation and Social Areas

Seating benches are available in the park, but there are not enough spaces and rest areas reserved for wheelchair users. More rest points and canopied seating areas should be added. Existing areas should be supplemented with elements that provide shade and designed according to user needs.

Environmental Sustainability

The park's green areas and water features are not regulated in accordance with the principles of environmental sustainability. Plant species that will increase biodiversity should be used in green areas. Natural plant species have the character that can be used in landscaping works under very low maintenance conditions in areas suitable for their ecological requirements (Deniz and Şirin 2005) and increase the success of landscape applications (Cengiz 2001, Yazgan et al. 2005). Due to their easy adaptation to urban spaces, they bring identity to cities and reveal the originality of these cities (Sarı and Karaşah 2018). For this reason, both sustainability can be contributed and species diversity in

the park can be increased (Tırnakçı and Aklibaşında 2023). Water elements must be regulated in accordance with the principles of environmental sustainability. For example, water elements used in the park must be equipped with water-saving systems and adapt to the natural water cycle. Natural elements must be harmonized with environmental principles.

Adaptation to Seasonal and Climatic Conditions

In order for the design of the park to adapt to seasonal changes and climatic conditions, it is important to enrich the vegetation with species that will maintain their aesthetic and functional value throughout the year. For example, species such as *Pinus Nigra* (Larch) and *Acer platanoides* (Sycamore Leaf Maple) can be used. The design of the park should be organised to adapt to seasonal changes and climatic conditions. For example, species such as *Lavandula angustifolia* (Lavender) and *Rosa* spp. (Rose) can be used.

Fixing these deficiencies will make Atatürk Park more inclusive, functional, and user-friendly, and will serve as a reference model for future open space projects. This study presents approaches that support both academic research and practical applications, aim to strengthen landscape design with universal design principles, and offer suggestions for the field in this direction. In addition, the study is likely to contribute to broader research and improvement projects on the accessibility and user-friendly design of parks.

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