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Research Article

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Design Approaches to Museum Open Spaces with User Evaluations

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Abstract

The concept of the museum today should be considered as a social communication platform, and museums should be designed by taking into account the interaction and harmony of their open and closed spaces with the immediate surroundings. This study emphasizes the importance of museums for the city and discusses design approaches to museum open spaces with examples of their effective use and an evaluation of the opinions of their users. In order to shed light on today's museum exterior design approaches, evaluations of the design setup of the museum open spaces were carried out on the basis of literature research and spatial experiences of the museum examples visited. In addition, using the content analysis method, by creating statements about usage, satisfaction level, and expectations, a questionnaire was planned and designed to be applied to a volunteer user group. According to the examples given and the survey data, museum open space designs were carried out. Four groups of factors - planning and design, social, functional and perceptual-having the greatest impact on visitor satisfaction were identified. The examples given include a discussion of museum open space facilities, along with commentary from the literature. For the evaluation of the users, a survey was conducted with 74 people. The survey asked about their satisfaction levels and their expectations in terms of museums and open spaces. Since there was not chance to conduct face to face survey in pandemic conditions, the study was conducted that questioned the general qualifications. In addition to reaching the users visiting the museum were limited. When we look at the literature, multi-dimensional research has been carried out on museum architecture and design. However, no comprehensive study has been carried out on museum open spaces. Consequently, this study focused on the interaction between museum open spaces and visitors.

Keywords:
City, identity, museum, museum open spaces, public spaces

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INTRODUCTION

There are many different theories about the origins of the word museum. One popular theory is that the word museum comes from the Greek Word “mouseion” (URL- 1).

The word museum, derived from the Greek word "mouseion", means a temple dedicated to the goddesses in Greek mythology called Muses and to a hill in Athens dedicated to Moses. The same word passed into Latin as "Museum" and into the languages of other Western and world nations (Gerçek, 1999). In ancient Greek mythology, the god Zeus and his wife Mnemosyne had nine daughters. It was believed that these nine girls lived in a temple called Museion. Since artistic creativity was dedicated to Mnemosyne, beautiful, unique, and remarkable objects, with or without their myths, were placed in the Museion, and thus the first foundations of the museum concept were laid in those times (Artun, 2006). This concept of museum dating back to the ancient Greek temples began to develop at the end of the 17th century, when the nobles of the city began to exhibit their works of art in a section of their houses.

Contemporary Museums presents the sanctuaries of museums, according to the meaning of the Greek Word Museion, the origin of the Word museum, just like the magnificient temples erected in antiquity, today’s musesum buildings are temples of our bourgeois enlightened cultural ideals (Uffelen, 2011).

In Prague, on 24 August 2022, the Extraordinary General Assembly of ICOM has approved the proposal for the new museum definition with 92,41%. Following the adoption, the new ICOM museum definition is:

“A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing.” (URL-2).

In addition to the exhibition function, which plays an important role in the collection, protection, preservation, and survival of cultural heritage, museums that shed light on scientific research come to the fore with their educational activities that transmit historical and cultural achievements to future generations. The museum serves the society as an organization that facilitates social interaction among people. Museums are also educational institutions that shape the future and reflect the scientific, cultural, and historical past of the society. Moreover, with their architectural structures and open spaces, museums are also important elements of the landscape. In this respect, in both urban and rural areas, museums and their open spaces, in addition to their functions of storage, protection, documentation, repair and display, undertake missions such as providing quality space, enabling social activities for users, offering different venue options

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according to their content, and ensuring national and international recognition (Ataoğlu, Acar and Yavuz, 2020).

However, in recent years, museums have been seen as centers for attracting effects such as revitalizing tourism, stimulating the service sector, rehabilitating urban slums, and reviving declining cities (Lorento, 2011). Museums are also learning centers that use technology for exhibiting cultural, artistic, and scientific creations (Yavuz, 2020).

Digital technologies are considered essential for implementing strategies that enhance the cultural heritage. Exploiting the potential offered by digital technologies is no longer just an option but an absolute necessity for museums (Izzo et al. 2023).Today, museums have become dynamic centers with their ever-changing collections, and are no longer frozen spaces that need to be visited only once (Broto, 2013). The four main factors that accelerate this change in the functions of museums are listed as follows (Hudson, and Ritchie (2006):

- Increase of people's expectations of social life
- Increase of the per capita national income in Western countries
- Changes in the job descriptions of the specialists working in museums
- Increase in the number of independent museums

With the changing functions of museums, the reasons for visiting them have also changed. In most studies on museum visitors, the reasons that motivate them to visit museums are generally grouped under seven main factors (Ayaokur, 2014):

- Entertainment: Enjoying a pleasant time at the museum
- Social: Spending quality time with the people around you.
- Learning: Always learning something from a visit to the museum
- Lifestyle: Visiting the museum becomes a habit from an early age.
- Location: Exploring the current city or region
- Practical: Using the museum as a place to relax, eat, and drink
- Subject or Content: The theme of the museum is of interest to the visitor

However, Kelly (2005), who has conducted socio-anthropological studies on museum visitors, suggests that museums fulfill three basic requirements for visitors: *intellectual needs* (that museums should know and understand), *sacred needs* (as cultural sanctuaries where previous generations relate to their past), and *social needs* (to be visible in the museum) (MacDonald, 1992).

When evaluated in general, the function of the contemporary museum is moving away from the focus on object protection/preservation, with museums reshaping themselves as participatory, democratic, integrative, and informative centers for everyone, while emphasizing their socializing aspects. Museums act as catalysts in the transformation of a city. The multifunctional structure of museums is reflected in the various activities taking place in their open spaces. In this context, museum gardens also take their place as public spaces intermingled with urban life as a part of urban identity and urban design.

In the study, museums were assessed using examples from different historical periods for their open spaces, historical, physical, functional, formal, and content functions. To shed light on current museum exterior design approaches, evaluations of the design setup of museum open spaces were made based on scant research on the use of open spaces in museums. These evaluations were made through literature research and spatial experiences of the museum examples visited. Literature data has been compiled based on the topics of city identity, urban design, public space, and socialization, which deal with the various contributions of museum open spaces. The design eras of museum open spaces are also discussed.

Goulding (2000), wrote in the study: "The Museum Environment and the Visitor Experience" that it is crucial to comprehend the hopes and feelings that visitors have when they visit a museum. However, for the most part, public museums have concentrated their research efforts into obtaining statistical data which measure through-put and provide demographic profiles, ignoring in the process the natüre of the experience itself.

The purpose of this study was to evaluate the potential of museum gardens, their suitability as substitute open spaces, user expectations and satisfaction levels, and the contribution of museum gardens to urban life quality.

General evaluations and inferences about the context were made using the "content analysis" method as a research technique. When we examine scientific research, we can see that content analysis—particularly in the social sciences—is frequently employed. Ültay etc (2021), defined the general goal of content analysis studies as identifying the overarching trend on the subject and directing additional academic research within the parameters of the subject under discussion. To explore all qualitative and quantitative research, published or unpublished, conducted independently of one another, it is necessary to conduct a literature review within a particular field and identify the broad trends that are consistent with the objectives. In the study conducted in this context, questions were posed to a volunteer user group using the questionnaire technique, and expressions about planning and design, usage, satisfaction level, and expectations were created using the content analysis method.

CONTRIBUTIONS OF MUSEUM OPEN AREAS TO THE CITY AND USERS

Open spaces as a component of urban identity and museum identity

As important elements of urban history where people come together for cultural, social, commercial, and recreational purposes, museums and open spaces reveal the local character and cultural diversity of cities. Museums have opened a whole new world for many tourists and residents of cities fortunate enough to have interesting buildings and

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collections (Jodidio, 2011). They play an active role in the recognition and image of cities. Museum structures symbolizing the city are commemorated in many cities. For example, Berlin Museum Island, where the Altes Museum and other museums are located, is an important element of urban identity as a recreational island surrounded by a river and displaying compelling landscape features.

The distinctive qualities of the identity element are important in the city scale as well as when using a holistic approach to describe the museum building and the open spaces that shape its surroundings. In this respect, museums should be considered together with their surroundings. Landscape elements and the quality of museum gardens are effective on user satisfaction (Düzenli et al, 2017). Chiappa, Andreu and Gallarza (2014), suggests that cognitive and emotional aspects should be considered simultaneously when measuring visitors' satisfaction. Further, it suggests that emotions are more significant than cognitive aspects in shaping visitors' satisfaction. Studies on the consumer experience in museums reveal a primary interest in the emotional, sensorial, behavioural and relational aspects of the experience, with a particular emphasis on how to impress the audience and promote active participation, with little regard to the content of the communication and evaluation of whether the public understand it (Izzo et al, 2023). On the other hand, Goulding (2000) argued that a satisfactory museum visit should incorporate a holistic strategy under the four categories of sociocultural, cognitive, psychological orientation, physical, and environmental. With its form, geometry, landscape elements, planting design, water elements, ground paving, fittings, notice boards, signposts, direction signs, lighting design, and restraining elements, the open spaces of the museum present a holistic style with the museum architecture. Effective museum open spaces include coherence and share the same characteristic language with the museum architecture.

For example, in the MAXXI Museum, the architecture generates a quasi-urban setting rather than a building as an object (Broto, 2013). By intertwining the circulation patterns with the urban context, the building's paths and open spaces overlap with those of the city (Betsky, 2021). The citizens can now reclaim this space, conceived as an open and liveable urban space, more as an urban locationthan a museum site (Bilotta and Rosati, 2010).

Zaha Hadid, who designed the MAXXI Museum, completed the exposed concrete surface using concrete floor slabs. A holistic design approach based on concrete aesthetics was followed by using exposed concrete on the fluid, curved façade of the building, concrete slabs on the floor of the outdoor courtyard, and concrete on the fluid-form seating unit in the courtyard (Ataoğlu, 2018). In today's contemporary museums, the open space design speaks the same architectural language as the museum building, and a holistic design approach can be observed (Fig.1)

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Figure 1. Examples of holistic design: MAXXI Museum; Jewish Museum *(Ataoğlu, 2017)*

Museums and museum open spaces as part of urban design

Museums and open spaces of museums are planned as a part of urban design in order to improve the quality of urban life in a number of ways, to produce alternative environments, to ensure recognition, to contribute to social life, and to create a strong city image. With their design value in creating the city image and ensuring its recognition, museums and museum open spaces stand out within the framework of urban transformation and the restructuring of cities. As mentioned, the Berlin Museum Island and Culture Forum buildings together with their open spaces have joined the city life as an important element of urban identity, with spaces that add value to the city and enhance the quality of life. Similarly, Şanlıurfa Museum and the Halepli Garden Mosaic Museum, which were built around the 200-decare Archeopark near Balıklıgöl in Urfa, were designed to be integrated with the recreational park. Gaziantep presents an image as the "City of Museums", and its museums contribute to urban life as a part of the urban design, e.g., the eaves of the Mosaic Museum serve to shade spaces for activities in hot weather. The other example, Quai Branly Museum, is stuated in a park measuring 18000 square meters. The garden, designed by Gilles Clement, already intrody-uces the various climate zones (Uffelen, 2011). This delightful, visually appealing garden is designed to give the visitor a suprising, unexpected experience of escape from the surrounding urban environment (Demeude, 2006). (Fig. 2).

Figure 2. Archeopark *(URL-3*); Şanlıurfa Museum; Zeugma Mosaic Museum*;* Quai Branly Museum *(Ataoğlu, 2019 ,2019, 2013)*

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Museum open spaces as public spaces

Public spaces play an important role in the formation of the city and living environment. These areas form reference points for the establishment, past, development, and future of cities. These areas that constitute urban benchmarks should also have a strong identity. Public spaces have social functions, such as benefiting from the common values of the space and supporting social life, as well as individual functions that include developing a sense of belonging, establishing public order, ensuring security, enabling the realization of economic activities, contributing to the formation of spatial identity, and adding value to the area (Gökgür, 2019). As public spaces, museum open spaces play roles that include improving urban life, producing many types of more livable alternative environments, and supporting social life. As public spaces, museums are centers open to the public that provide education along with their activities. The Sabancı Museum garden carries out awareness activities with its plant diversity and children's workshops. "Jewish Museum is a large walk-in sculpture, in a piece of symbolic architecture. Within the building are three axes symbolizing the history of Judaism in Berlin. One of the paths leads to the E.T.A. Hoffmann Garden, where 49 tree covered concrete steles standing on a sloped ground plate" (Verlag, 2012). Thus the Jewish Museum provides a strong psychological, as well as a new formal environment (Newhouse, 1998). Located in a residential area, the garden of the Berlin Jewish Museum contributes to urban life as a public space with various recreational activities (Fig. 3).

Figure 3. Sabancı Museum garden *(URL-4);* Berlin Jewish Museum garden *(Ataoğlu, 2018)*

Museums and museum open spaces as a means of socialization

The museum is a unique place where visitors communicate and interact with exhibits within a particular architectural space (Jeong and Lee, 2006). Museums and museum open spaces become an important component of urban life via their diversity according to location, activities, historicity, form, surrounding buildings, and natural and artificial landscape elements. Over time, the contents of museums have been enriched and diversified, and the functions of museums have also expanded. The static museum, which includes preserving, protection, documentation, storage, display, and information functions, can be replaced by temporary exhibitions, seminars, workshops, performance programs, music concerts, etc. With its activities, library, research facilities, food and beverage concessions, and sales units, it has become a dynamic cultural center open to social interaction for users of all ages. The museum contributes to urban life with activities such as open air exhibitions, performances, concerts, and film screenings, and provides

facilities for refreshments, sunbathing, relaxing, and observation. Depending on their location, the open areas of the museum can be used as focal points, meeting places, exhibition and entertainment areas, and with the use of landscape features and green areas, can serve as recreational areas. Social mobility enables museums to play a role in urban life as public spaces when surrounded by food and beverage venues and shops. For example, as in many centrally located museums, the cafes, shops, and the pool in the square surrounding the Pompidou Art Center in Paris add vitality to the square, and the Berlin Altes Museum and the Museum Island recreational green area, Reina Sofia Museum and New Acropolis Museum which host various performances, form a socializing center. New Acropolis Museum is at once local and global. It operates on the local sacale as a powerful "urban magnet" that draws together the city's public spaces and pedestrian streets. It acts as a catalyst for changing common perceptions about modern public architecture, and no doubt will contribute to a new image for the city (Tschumi, 2009). The base of the museum and museum's garden floats on pilotis over the existing archeological excavations, protecting, consecrating and displaying the site (Broto, 2013). (Fig. 4)

Figure 4. Reina Sofia Museum; Berlin Museum Island; Acropolis Museum *(Ataoğlu, 2016, 2018, 2014)*

In this study, the open spaces of museums were evaluated in terms of their historical, physical, and functional features along with their style and content, with examples according to their periods. In order to shed light on today's museum exterior design approaches, evaluations of the design setup of the museum open spaces were carried out on the basis of literature research and spatial experiences of the museum examples visited. In addition, using the content analysis method, by creating statements about usage, satisfaction level, and expectations, a questionnaire was planned and designed to be applied to a volunteer user group.

PERIODS IN THE DESIGN OF MUSEUM OPEN SPACES

The concept of the museum, which dates back to the ancient Greek temples, started to develop at the end of the 17th century when the nobles of the city began to exhibit their works of art in a section of their houses. It is possible to evaluate the evolution of museums designed for exhibition and preservation under the headings of pre-modern, modern, and post-modern architecture. As a public space, open spaces of museums are as important as museum buildings. It is possible to determine the evolution of museum architecture via the open spaces of the museums.

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Pre-Modern Architectural Period

Traditional museum spaces of the pre-modern architectural period are generally formed by repurposing historical buildings after restoration. Palaces, in particular, are among the buildings that have been converted into museums (Artun, 2012).

With the French Revolution in 1789, the social outlook began to change and a demand to open museums to a wider public emerged. The Louvre, the first public museum, were opened, conveying a sense of national belonging and making knowledge a public resource, in 1793 (Marotta, 2012). "Typological structure of renaissance and baroque palaces have had dominant influence on museum organization and structure The first museums, like Vatican Museum, Louvre and Ufizzi, are even now greatly admired and respected, as the prefect museum model" (Milojkovic and Nikolic, 2012)". Palace-museums merged culture and power to convey an image of an idyllic past (Marotta, 2012). Palace museums are important in terms of exhibiting the characteristics of the period and the qualified historical items they contain. The open spaces of these structures also exhibit the characteristics of the period. In this sense, the open spaces and landscape features of palace museums have cultural and historical value (Fig. 5).

Figure 5. Versailles Palace and garden *(URL-5)*

The 19th century was the age of neoclassical museums. In the 19th century, within the framework of typological features, neoclassical museums were built in many cities of the world with an architectural understanding emulating the ancient period (Pevsner, 1976; Atagök, 1999). "There are many examples of the 19th-century museum. In this period, museums began to be built in the capital cities of Europe. The buildings themselves alluded to the past. Classical pediments, Roman pilasters, and vaults and cupolas inspired by 16th-century architecture were prevalent. Thus it was not only the works within the museum but

the structure itself that exhibited and conserved the past" (Marotta, 2012).

Located on the Berlin Museum Island, the Altes Museum, designed by Karl Friedrich Schinkel, is an effective example of innovative contemporaneous museums in terms of typological plan features. In addition, with its recreational open space serving as a public space, it is also an effective example of innovation in holistic museum design (Fig. 6).

"The civic role of museums as symbols of local, regional, or national pride surely explains this ongoing relationship, as does the value placed on their contents. Frank O. Gehry's Guggenheim Bilbao is responsible fort he renewal of that Spanish city's center. Guggenheim Bilbao was surely not the fist instance of the successful combination of architecture and museums. Long before the modern era, buildings such as the Altes Museum, erected on Berlin's Museum Island from 1825 to 1828 by the famed architect Karl Friedrich Schinkel to house the Prussian royal family's art collection, firmly established this connection" (Jodidio, 2011). The Project involved much more than a new musesum. Schinkel, proposed a complete renewal of the very heart of Berlin (Crimp, 1997). Schinkel, recognised the significance of this location in urban development. He noted: "The beauty of the area will be completed through this construction (of the museum) by filling the fourth side of this beautiful old square in a dignified manner." Berlin's centre of representation was to be enlarged splendidly with this new building (Steffens, 2016).

The Altes Museum was included in the restructuring of the city center. On both sides of the street, squares and tree-lined promenades were designed to serve as a center of urban life. In an age where cities were growing and the density of built areas in all cities was increasing, it was forward-thinking to design a spacious, wooded center that is not very dense. The Altes Museum, within the Berlin Museum Island, expresses its monumentality with its façade, consisting of high columns and a wide viewing and promenade area (Taricat, 2016) (Fig. 6).

Figure 6. Berlin Museum Island *(URL-6)*; plan of the Altes Museum *(URL-7);* Altes Museum *(Ataoğlu, 2018)*

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Modern Architectural Period

With the influence of modern architecture and Bauhaus in the 20th century, museum architecture began to break away from the classical-inspired neoclassical museum architecture of the 19th century. "Eschewing the imitations of 19th-century architects, the Modernists reinterpreted the act of remembering. In addition to the utopianism and abstraction in their work, they sought to reclaim influences from the past rather than its direct representation. For the 20th-century architect, history was a source of inspiration" (Marotta, 2012).

In the 20th century, a new era began with the museum designs of pioneers of modern architecture such as Le Corbusier, Frank Lloyd Wright, Mies van der Rohe, and Louis Kahn, and museum architecture underwent a radical change (Ataoğlu, 2016a, 2016b) (Fig. 7). "Le Corbusier called the Museum of Unlimited Extension. The project began as a simple core, to which square-plan bays would be added incrementally around the building's perimeter, maintaining a toplit condition throughout the main gallery spaces" (Christenson, 2016). "With the Guggenheim, Wright formulated a different approach to museum design, one in which the spatial setting has an affect on the exhibitions and changes the viewer's perception of the works on display out. Wright produced a small building in the city's urban fabric, yet one that explodes on the inside" (Marotta, 2012).

In the Modern Era, museums and museum open spaces with their cultural and social values in urban design were seen as important vehicles for contributing to public life. Examples included here of designs that support public life with their use of open space are Mies van der Rohe's New National Gallery, designed to integrate the cultural valley inside the Berlin Cultural Forum, and the Kimbell Art Museum, located in a park outside the city of Fort Worth, Texas. "Mies van der Rohe completed the New National Gallery in Berlin, in a decidedly different style tahat might be called classical Modernism. Here it is certain that the clarity and simplicity of the architecture carry the day, showing that modernity, too, cold achieve the kind of gravitas required of institutions devoted to art" (Jodidio, 2011). The transparency, flexible plan scheme, and outdoor use of the New National Gallery created an effective public space integrated with the environment. Kahn, by adding the coolness of the trees and water to the open space design of the Kimbell Art Museum, located in a hot climate, designed the exterior space in continuity and harmony with the museum interior. "In the case of the New National Gallery, the subterranean galleries about a long open sculpture garden providing natural light from one side" (Zimmerman, 2014).

New National Gallery and Cultural Forum: *"The basic understanding of the Cultural Forum, where the Berlin senate aspires to bring together museums and cultural equipment, is to create a valley in the context of a green urban landscape. The Cultural Forum resembles a chain of green spaces, gardens, and woodlands that form the continuation*

of the Tiergarten, the large wooded area north of Berlin. The New National Gallery was built within this space. In the middle of an elevated podium, the New National Gallery and other buildings form an archipelago consisting of mounds separated by promenades and greenery. According to Mies van der Rohe, the monumental building, which aspires to receive the public, also dominates because of the size of the courtyard in front of it. This large forecourt, with its sculpture or temporary installation exhibitions, is sometimes used as a museum and sometimes as a promenade" (Taricat, 2016) (Fig. 7).

Figure 7. New National Gallery and Cultural Forum site plan *(URL-6);* Mies van der Rohe, Berlin, 1962-1968 *(URL-7)*

Kimbell Art Museum and park: *"For Kahn, the proper preservation of all exhibits, the creation of general conditions that will ensure the visitor's comfort, and the best presentation of the rapidly growing artistic assets are the three basic principles that determine the museum program. 'The only thing you expect in most museums is a cup of coffee,' Kahn said. 'One feels so tired all of a sudden…then a visit to the museum provides the outward comfort of a beautiful home. It should start by dazzling us with a shelter to protect us from the scorching sun in one of the scorching suburban areas of the big city,' he said. 'As the visitor passes by the murmuring water, the coolness, and the shadow of the trees, with each step, the visitor breaks away from the sensations caused by the city, and the coolness and shadows that spread around bring about a visual and auditory retreat...' With its location, the museum resembles a small Renaissance castle between the park and the courtyard, decorated with pools and still defended by moats" (Taricat, 2016. (Fig. 8).*

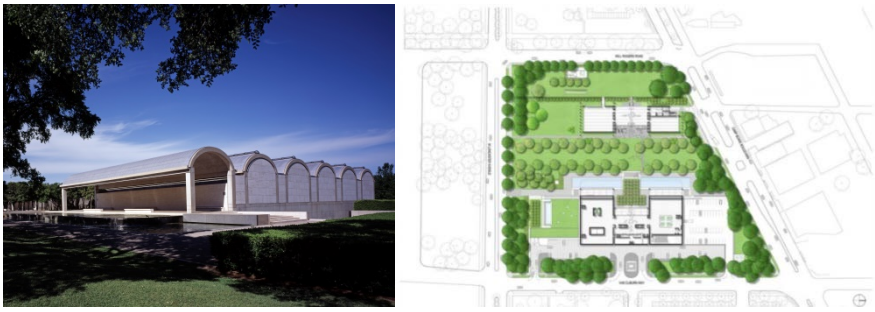

Figure 8. Kimbell Art Museum (URL-8); Site plan by Louis Kahn (URL-9)

Post-Modern Architectural Period

In the 1950s, museum structures increased. "In the 1960s, new trends in architecture led to the development of the museum as a kind of kinetic, dynamic machine. The introduction of a movable skeletal structure allowed flexibility of use, as in Renzo Piano and Richard

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Rogers' design for the Pompidou Centre in Paris" (Marotta, 2012). In the 1970s, museums were designed as social centers with cultural activities, as was the case with the Pompidou Cultural Center. The 1980s became a turning point in the development of museum architecture, and structures began to be built that questioned general typologies and brought about innovations in terms of design and function. By hosting temporary exhibitions, shows, meetings, conferences, research units, libraries, hobby rooms, workshops, cafeterias, restaurants, bar services, and museum shops, museums had been turned into cultural centers with events inviting active participation by all ages. Museums were designed as dynamic culture, entertainment, and social centers with their constantly renewed temporary exhibitions, educational activities, workshops, and urban open spaces, as opposed to buildings that no longer needed to be visited once the collection inside had been seen.

In the post-modern climate of the '80s we see a transition from the *city-museum* to the *museum-city*, where the museum itself becomes a kind of citadel – a complex image of solids and voids, with components of public space included within it. A vision of the museum developed as a reverse image of the city (Marotta, 2012). The Deconstructivist Architecture exhibition was held at the Museum of Modern Art in New York and sparked new concerns about architectural composition. It was no longer the image of the historic city that was dictating the rules but, rather, the concept of new, interstitial spaces and the philosophy of the 'between' or crossover became dominant. The MoMA exhibition inspired a change of direction. (Marotta, 2012). In this period several arhitects each with his own distinct vocabulary including Peter Eisenman, Frank Gehry, Zaha Hadid, wolf Prix, Coop Himmelblau, Rem Koolhaas, Bernard Tschumi, Daniel Libeskind. Have created what will bw referred to here as the new museum (new in design as well as age) (Marotta, 2012; Newhouse, 1998).

In the 1980s, museums began to be designed as iconic structures, transforming them into cities within the city, giving the architect a one-time opportunity to display his creativity, using monumental forms that attract attention and add to the image and identity of the city. By overcoming the existing museum typologies, the museum structure itself was evaluated as a work of art (Ataoğlu, 2016a).

The most eleborate "exhibit" into which museums today invest for their future is their own museum building, whether a new building, or the extension or renovation of existing buildings…There can be a focus on its role in the urban setting or the collection. Following the example of Gehry's Guggenheim Museum in Bilbao, today's museums are also tourist attractions. While this tendency started to emerge in the 1970s already, the Bilbao effect was nevertheless a turning point of modern museum construction (Uffelen, 2011).

Along with their activities, the museum garden and open spaces also constitute a strong focal point as new urban public spaces. Many examples can be given in this context. Recent museums that have been

influential in the literature include the Pompidou Cultural Center (Rogers and Piano, Paris, 1977), the Jewish Museum (D. Libeskind, Berlin, 1998), the Guggenheim Museum (F. Gehry, Bilbao, 1997), the Quai Branly Museum (J. Nouvel, Paris, 2006), the MAXXI Museum (Z. Hadid, Rome, 2010), the Louvre (J. Nouvel, Abu Dhabi, 2017), and many more.

"In the urban context, a museum building points out a collection well worth seeing, seperates it from its trivial surrounding, since art museums are often located in the historic district or the periphery of the 19th century city center. At the same time, new museum buildings are also preferably built in inner cities where they have to fit in and find their place in a frequently heterogoous setting" (Uffelen, 2011). Following modern architecture came the different approach of holistic architectural design, with its original and extraordinary use of outdoor open spaces. Its content, architecture, and open spaces allowing different user activities contribute to public life, adding it to the city as a part of urban design, The open space use of the Pompidou Cultural Center is one example.

Pompidou Cultural Center: According to Grunenberg (1999), perhaps the most significant change in the concept and function of the modern art museum has been in the Pompidou Center. As a product of futuristic design, the grand building is much more than a traditional museum. In addition to the modern art collection and exhibition galleries, the center includes a public library, an industrial design center, a forum, a performance center for dance, theatre, and music, a cinema, a children's workshop, museum shops, and a cafeteria. Rich examples of 20th century art movements can be seen in the museum.

"The Pompidou is located on 2-ha among traditional building blocks of the historic Beaubourg district, an area of Paris that was in need of urban transformation. The building covers half of the area. The other half contributes to urban life as an open public space. The Pompidou Art Center is designed as a square for everyday urban life and as a building for official cultural events" (Gehl, 2019).

Piano and Rogers scored positively, however, by leaving more tahan half the site open for public square on which the area's rich street life could continue (Newhouse, 1998). The activity around the façade of this extraordinary museum enlivens the center as visitors move from one end of the square to the ground floor and then up the escalators (Foster, 2011). "Their concept of lively outdoor plaza, whose animation would be reflected in the facade's moving escalators, proved successful and the vitality of this space is one of the Centre's greatest accomplisments. Huge video screens planned fort he plaza facade to delşver the building's media role were also jettisoned for political as well as economic reasons" (Newhouse, 1998).

The square provides an open-air platform for the exhibition of the museum's large-scale works of modern art. To the west of the square, the pool is decorated with sculptures symbolizing the works of Igor

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Stravinsky, which visually enliven the area, and seating accommodation is positioned around the pool. The escalators on the facade and the mechanical installations give a colorful appearance to the building and a strong identity to the square. Facing the square, there are large symbolic white ventilation pipes that feature on the façade of the Pompidou. Activities such as sitting, relaxing, watching, and walking, along with the artistic activities, open-air exhibitions, film shows, concerts, and performances that are held in the museum square invigorate the social life. The buildings surrounding the square are linked to the square via the cafes and restaurants and souvenir shops on their ground floors, all of which enliven the square with their activities (Fig. 9).

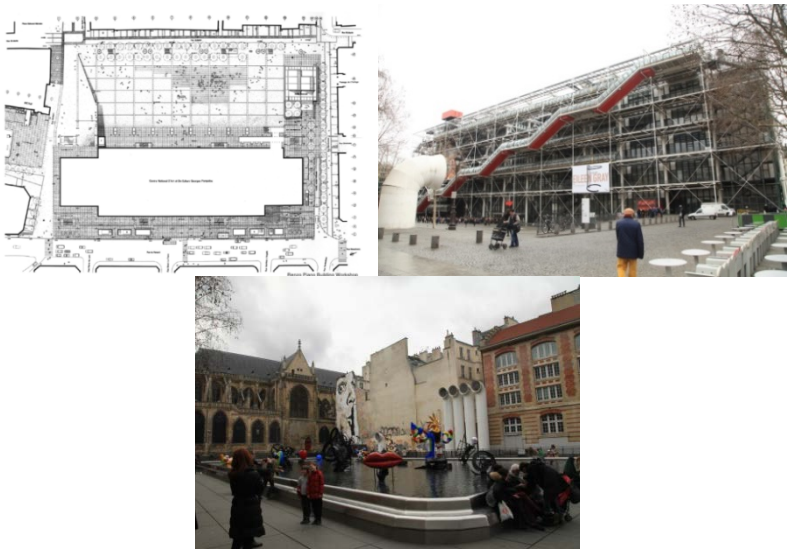

Figure 9. Pompidou Cultural Center, Rogers and Piano, Paris, 1977 plan *(URL-10)*; *(Ataoğlu, 2013)*

As can be seen in the Pompidou Cultural Center and many contemporary museums, building design and open space design are emphasized as an important part of urban design. With their effective use of open spaces, museums play an important role as public spaces in the image of the city, in the recognition of the city, and in the quality of urban life. Museums that comprise the brand of a city are important for the city as centers of public focus and social activities, along with the importance and value of the collections within them and the value they add to their surroundings. "Planning of museum exhibition venues should be considered together with planning of outer space" (Erbay, 2016).

In this context, systematic studies are needed to determine how visitors perceive and accept the museum and its immediate surroundings and exhibition settings. When we look at the literature, multi-dimensional research has been carried out on museum architecture and design and indoor spaces. "Visitor-behaviour studies in museum's began with Benjamin Ives Gilman's work in 1909. An abundance of studies, headed by Edward Stevens Robinson and Arthur Melton took place between 1923 and the early 1930's" (Robillard, 1982).

For example, Graburn (1977), studied the museum and the visitor experience. Jeong and Lee (2006) examined user satisfaction by investigating the relationship between museum size, exhibition design, and circulation. In their study, Düzenli et al. (2017) discovered that the quality of the landscape features has a significant impact on how satisfied users are with museum gardens, and that the level of satisfaction rises as the quality of the features rises.
Chen and Ryan (2020) studied visitor preferences in museums. Determining the perspectives of visitors is also effective on the preservation, usage, and management models of museums (Moreno-Mendozaa etc, 2020). Kim, Park, and Xu (2020) examined tourist experiences in museum restaurants. Gong, Zhang, and Tsang (2020) investigated the role of educational activities at children's museums in developing children's creativity.

Museum's planning of outer space and museum open space is rarely studied in museological research. There are a few who have examined aspect of museum open space. Goulding (2000), investigated éthe museum environment and the visitor experience. Bollo and Pozzolo (2005), studied "Analysis of visitor behaviour inside the museum: An empirical study". "Museums compete increasingly more with very diverse entertainment providers, such as theme parks, despite the fact that their offer is mainly cultural. Museums have had to be more active and they have had to diversify their offer, in order to be more popular, therefore to better achieve their complex cultural missions" (Zbuchea, 2015). Zbuchea (2015), discussed in what extent the market approach of theme parks could be a viable marketing strategy for museums. Düzenli et al., (2017), examined the physical landscape features of the museum gardens in Trabzon, Turkey and determined the satisfaction level of the users. Erenler (2021), studied "The effect of using museum gardens as an alternative open space on urban life: İstanbul case". Besides this studies, no comprehensive study has been carried out on museum open spaces. Consequently, this study focused on the interaction between museum open spaces and visitors.

MATERIAL AND METHODS

The research's objective is to assess the museum's physical, social, perceptual, and content attributes as well as those of its immediate surroundings and outdoor areas. In this study, within the discipline of planning and design, museums have been handled as multi-layered structures, not only as indoor spaces but also with their immediate surroundings and open spaces, with the focus on the design of open spaces. The main material of the study consisted of users' evaluations of museum open spaces. Therefore, a survey was conducted with 74 volunteers. In the survey, users who had previous experience of visiting museums evaluated museums and their open spaces in terms of their physical, social, perceptual, and content value. In addition to answering questions about demographics, the participants rated 32 different

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content analysis-created expressions on a 5-point Likert scale (Strongly Agree, Agree, Disagree, Strongly Disagree) for planning and design, usage, satisfaction level, and expectations (Table 1). Since the 1960s, user satisfaction studies have been conducted in public spaces (Ayhan and Atabeyoğlu, 2020). Users' levels of satisfaction must be identified to evaluate current applications and collect data for upcoming research. In their research on the quality of urban public spaces from the user perspective, Zamanifard et al. (2019) evaluated a wide range of studies on the topic. In these studies, they carried out online surveys and evaluated the techniques for gauging the quality of public spaces. In the research conducted in open spaces with different functions (museum, city park), user satisfaction level analysis was carried out with the survey study; quality of the green area, service quality, positive-impact activities, parking facilities, cleaning/maintenance, security, noise, relationship with the environment, accessibility, equipment, water element, security, comfort, design, topography, landscape, functional quality, aesthetic quality, structural quality, economic quality, ecological quality parameters are discussed in terms of existence and quality (Önal and Sağır, 2018; Gürer and Uğurlar, 2017; Ayhan and Atabeyoğlu, 2020; Düzenli et al., 2017; Bekar and Sekban, 2020; Eren et al., 2018). The level of user satisfaction with the museum's outdoor spaces was investigated in this study in terms of the range of activities and opportunities provided by the area, landscape value, social and cultural benefits, semantic and perceptual value, originality, educational value, accessibility, readability, and relationship with environmental parameters.

The evaluation of museum open spaces was not made for a specifically selected museum. The purpose of the study is to assess the public areas of the museums or museums that the participants visited, as well as their interactions with these spaces—even though they may have different contents—under the predetermined headings. As stated in the conceptual framework of the article on museum gardens, this is intended to conclude various usage areas. The participants were asked to read each statement and evaluate the museums they have visited so far, rating each on a scale of 1 – 5, with 1 indicating the lowest value and 5 the highest. The survey was conducted online (using Google Forms) in July 2020. (Table 1).

Using SPSS for Windows 23, statistical analyses of the collected data were carried out. Descriptive statistics (frequency, percentages, and arithmetic means), correlation analysis, regression analysis, and factor analysis were used to analyse the data set. With the help of Cronbach Alpha analysis, the data's dependability was evaluated.

Table 1. Statements evaluating the museum, its close surroundings, and open spaces

1.	**Spatial interventions** to accommodate a cultural heritage should be **compatible** with the importance of the building.
2.	If a cultural heritage is to be protected by functional change, **the historical identity** of the building **should be respected**.

3. A cultural heritage that has lost its function should be given **a new function**.
4. Symbolic structures can be deliberately left in ruins in open public spaces for a **perceptual experience**.
5. Museums have the mission of **guiding** future generations and **preserving** human heritage.
6. Museums and their immediate surroundings provide opportunities for the appreciation, understanding, and management of **natural and cultural heritage**.
7. Museums intervene in the lives and spaces of individuals by creating **social identity** and **"collective consciousness"** in the **individual**.
8. Museums **establish relationships** between their interior designs and **open spaces in a semantic dimension**.
9. Museums and their immediate surroundings, with their public and social dimensions, are **flexible structures**.
10. Museums are **prestigious buildings** not only for their content, but also for their important architects, styles, and structural and spatial features, as well as **their gardens**.
11. Museums and their gardens have the functions of preservation and exhibition, and serve as places for research, education, relaxation, and social interaction.
12. With the integration of museums into the education system, there are **sections for children** and **educational programs** in the museum and its gardens.
13. Museums and their gardens promote a **universal** view and respect for diversity.
14. Museums and their gardens are updated according to the requirements of the times and **offer educational and social benefits**.
15. By **informing** the visitor and increasing his **interaction** with the artistic works, museums and their gardens enable the visitor to **think and interpret.**
16. Important objects in the accoutrements placed in museums and gardens provide **user satisfaction.**
17. Museums and their gardens are seen as **cultural centers and a social tools.**
18. Museums and gardens are used for **enjoyment, learning, and socializing,** and as centers that have many functions and increase social and community awareness.
19. Museums and their gardens comply with the principle of **accessibility**.
20. The gardens of the museums are created **in accordance with the philosophy** of the museum, according to the architectural form, spatial setup, type and purposes of the museum.
21. In the design of the museum and its immediate surroundings, many factors such as the **comprehensiveness** of the exhibited works, the perceptions of the visitors and their comfort levels are taken into consideration.
22. Spaces should be arranged in museums and gardens according to the **experiences and discoveries** they wish to convey to the visitor.
23. According to its type and purpose, the **design** of the museum and its immediate surroundings and open spaces is **created by considering many elements** such as the type of exhibitions, target audiences, space setups, lighting, and acoustics.
24. The gardens of museums are designed in such a way that they can reveal many **local** and **universal ecological, cultural, and artistic values**.
25. With **"interactive space"** and **"interactive applications"** in the gardens of museums, spaces can be created that can sense people's movements, respond to them simultaneously, and interact with them.
26. In order to **attract people's interest** in museums, **digital elements** such as videos and virtual reality with themes of science, art, children's topics, and history can be added to the traditional collection displays in the open spaces of museums.
27. With the technology developing within the scope of exhibitions in open spaces of museums, the **phenomena of flexibility and changeability** can be added to the space and the artefacts.
28. **Signs**, maps and plans, colors, textures, and lights for **informative** and **guiding purposes** in the open areas of museums allow the visitor to make his own way without any guide.

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29. Depending on the museum type (history, industrial, science, nature, etc.), **three-dimensional displays** and narrative sound effects can be used in the open spaces of museums.
30. Museum gardens are sufficient in terms of **landscaping criteria** (accessibility, location, close relations with the surroundings, plant landscape elements, display systems, information and direction signs, social spaces, equipment, and comfort).
31. **Interactive exhibitions** in contemporary art museums and open spaces draw the attention of visitors.
32. When visitors take part in workshops in the open spaces of museums, the resulting artefacts enhance the **recognition** and **social interaction** of the museum.

FINDINGS AND DISCUSSIONS

Statistical analyses of this study, which evaluated museums and their immediate surroundings and open spaces in terms of physical, social, perceptual, and content value, were carried out using SPSS version 23. The dataset was analyzed by performing descriptive statistics (frequencies, percentages, and arithmetic means) analysis, correlation analysis, regression analysis, and factor analysis. The reliability of the data was tested using Cronbach Alpha.

In the survey conducted with a total of 74 people, 66% of the participants were women and 34% were men, with 47% being young people between the ages of 18-25. In the sample, 42% of the participants were determined to be students. In addition, an evaluation of the educational status of the participant showed that 57% held bachelor's degrees (Table 2).

Table 2. Percentage distribution of the demographic characteristics of the participants.

		Percentage (%)			Percentage (%)
Gender	Male	34	**Occupation**	Student	42
	Female	66		Housewife	8
Age	18-25	47		Officer	32
	26-35	26		Worker	4
	36-45	11		Self employed	14
	46-55	14	**Educational status**	Primary education	3
	56-65	1		High school	8
	65 and above	1		Bachelor's degree	57
				Master's degree	15
				PhD degree	17

Considering the average values among the responses regarding the museum and its immediate surroundings and open spaces, respectively (Table 3), the following were determined as the most prominent statements, having the highest averages:

- "Spatial interventions to accommodate a cultural heritage should be compatible with the importance of the building." ($\bar{x}$ = 4.824),

- "If a cultural heritage is to be protected by functional change, the historical identity of the building should be respected." ($\bar{x}$ = 4.797),
- "Museums have the mission of guiding future generations and preserving human heritage." ($\bar{x}$ = 4.622),
- "Museums and their immediate surroundings provide opportunities for the appreciation, understanding, and management of natural and cultural heritage " ($\bar{x}$ = 4.527), and
- "In order to attract people's interest in museums, digital elements such as videos and virtual reality with themes of science, art, children's topics, and history can be added to the traditional collection displays in the open spaces of museums." ($\bar{x}$ = 4.486).

With these statements, the participants drew attention to the fact that they supported measures to protect, manage, and transfer our natural and cultural heritage values, being respectful of their identity in transferring them to future generations, to apply compatible interventions, and to implement the latest technologies. Many new technologies can therefore improve the visitor experience and overall satisfaction with it, enable the collection of data on visitor behaviour, make the museum more attractive to younger visitors, encourage the museum to establish collaborative relationships with private companies and make the museum accessible to specific types of visitors, e.g. those with visual or hearing impairments. (Izzo et al, 2023). In the study of Orhan and Yılmazer (2021), visitors similarly evaluated museums as exhibition places and stated that they expected museum building designs to have historical features, regardless of the physical characteristics of the museum buildings. In addition, they stated that they wanted not only to see the historical features, but also to feel as if they were in the period of the exhibited objects. Soundscapes can play an important role here because when sound is used as a design element, museum experiences are much more positive, as visitors can interact with the objects on display and feel as if they are living in a certain period. These details should also be considered in the design.

A correlation test was conducted to determine the functions that the participants considered necessary in the design of a museum and its immediate surroundings and open spaces. The correlation test was applied using the element to be searched for (the dependent variable) and the elements that may be related (independent variables).

"According to its type and purpose, the design of the museum and its immediate surroundings and open spaces is created by considering many elements such as the type of exhibitions, target audiences, space setups, lighting, and acoustics" (Statement 23).

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Table 3. Mean values with deviations (SD) for the participants' responses to the statements regarding the museum and its immediate surroundings and open spaces

Item No	Concepts	Arithmetic mean	SD	Factor Loads	Cronbach Alpha
s1	Compatible with spatial interventions	**4,824**	0,45	,659	,922
s2	Respectful for the historical identity of the building .	**4,797**	0,44	,734	,923
s3	New function.	3,581	1,01	,799	,925
s4	Perceptual experience.	3,203	1,19	,657	,927
s5	Guiding and preserving	**4,622**	0,61	,756	,919
s6	Natural and cultural heritage.	**4,527**	0,74	,732	,918
s7	Social identity and "collective consciousness"	3,649	0,97	,763	,922
s8	Associated with outdoor spaces	4,081	0,89	,558	,919
s9	Flexible structures	3,527	1,14	,653	,920
s10	Respectable buildings with gardens	4,446	0,76	,799	,919
s11	Protection, exhibition, research, education, recreation, communication functions	4,405	0,83	,702	,918
s12	Include special sections and educational programs for children	3,986	1,01	,756	,917
s13	Universality	4,189	0,89	,543	,919
s14	Providing educational and social benefits	4,095	0,91	,634	,918
s15	Think and interpret	4,446	0,74	,762	,918
s16	User satisfaction	3,378	0,96	,609	,923
s17	Cultural center and social tool	4,135	0,78	,699	,919
s18	Enjoyment, learning, and socializing	4,027	0,92	,642	,919
s19	Accessibility	3,730	1,05	,699	,921
s20	In accordance with the philosophy	4,189	0,85	,723	,918
s21	Comprehensiveness	4,189	0,95	,804	,916
s22	Experiences and discoveries	4,311	0,81	,779	,921
s23	The effectiveness of many elements in its design	4,297	0,81	,818	,918
s24	Design with local and universal ecological, cultural, and artistic values.	4,135	0,96	,610	,919
s25	"Interactive space" and "interactive applications"	4,149	0,82	,666	,919
s26	Adding digital elements to attract people's interest	**4,486**	0,67	,677	,920
s27	The phenomena of flexibility and changeability in the display dimension	3,878	1,10	,753	,922
s28	Presence of signs for information and direction	4,176	0,93	,811	,920
s29	Three-dimensional displays	4,297	0,75	,687	,919
s30	Landscape criteria	2,865	1,00	,635	,925
s31	Interactive exhibitions	4,149	0,77	,593	,920
s32	Recognition and social interaction	4,419	0,83	,660	,919

With this approach, the relations between the dependent variable and the independent variables consisting of statements describing functions of museums and their open spaces were examined using the correlation test. Statements with significant correlations to each other at the -0.01 level according to the correlation test are shown with ** in

Table 4. Accordingly, among the elements and other functions to be considered in the design of museum open spaces that were in a positive relationship with their statements, the most correlated, respectively, were:

- By **informing** the visitor and increasing his **interaction** with the artistic works, museums and their gardens enable the visitor to **think and interpret.** (n = 74, r^2 = 0.736, p <0.01),
- In the design of the museum and its immediate surroundings, many factors such as the comprehensiveness of the exhibited works, the perceptions of the visitors and their comfort levels are taken into consideration. (n = 74, r^2 = 0.715, p <0.01),
- The gardens of the museums are created **in accordance with the philosophy** of the museum, according to the architectural form, spatial setup, type and purposes of the museum. (n = 74, r^2 = 0.692, p <0.01),
- The gardens of museums are designed in such a way that they can reveal many **local** and **universal ecological, cultural, and artistic values**. (n = 74, r^2 = 0.587, p <0.01),
- "**Signs**, maps and plans, colors, textures, and lights for **informative** and **guiding purposes** in the open areas of museums allow the visitor to make his own way without any guide." (n=74, r^2=0,571, p<0.01),
- Supporting these results, Gouilding emphasized that the visitor should feel comfortable in the study.

It is essential, therefore, not to let the experience start with frustration, anxiety and disorientation. Clear and easy to follow maps will allow the visitor to focus attention on the exhibit and enable the planning of a particular route. Seats and areas for contemplation will also allow individuals to absorb information and reflect on the object of their gaze (Goulding, 2000).

- "With the integration of museums into the education system, there are **sections for children** and **educational programs** in the museum and its gardens.", (n=74, r^2=0,558, p<0.01),
- "Museums and their gardens have the functions of preservation and exhibition, and serve as places for research, education, relaxation, and social interaction." (n=74, r^2=0,557, p<0.01),
- "Museums and their gardens are updated according to the requirements of the times and **offer educational and social benefits**. (n=74, r^2=0,540, p<0.01),
- It is a widely-shared view that museums should be hybrid places that balance learning and fun, using entertainment only to the extent of its role in edutainment, or infotainment for adult audiences, i.e. as a mechanism for learning and knowledge (Izzo et. al, 2023).
- "Museums and their immediate surroundings provide opportunities for the appreciation, understanding, and management of **natural and cultural heritage**." (n=74, r^2=0,511, p<0.01),
- "Museums have the mission of **guiding** future generations and **preserving** human heritage." (n=74, r^2=0,508, p<0.01) .

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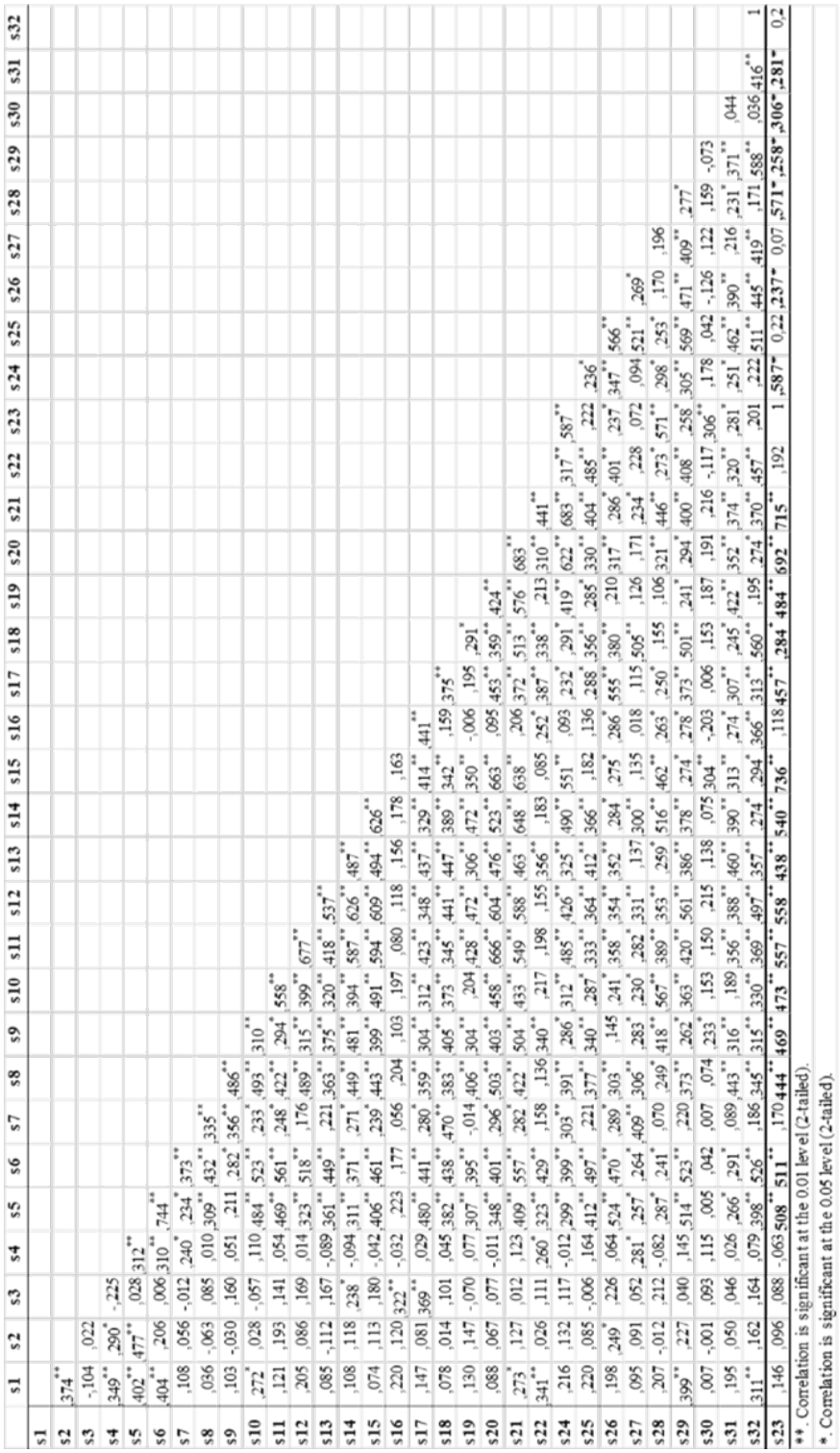
These findings highlight the spatial, cultural, sociological, and educational value that the museum and its immediate surroundings contribute to urban life. Similar results were found by Erenler and Kürkçüolu (2020), who showed that using museum gardens as alternative open spaces will improve urban life's quality and keep it in a healthier state.

Table 4. Correlation table of the elements to be considered in the design of museums and their immediate surroundings and open spaces



In addition, the statements questioning the expectations of the users of the museum and its immediate surroundings and open spaces were grouped by factor analysis. Gathering many variables into groups and interpreting them is performed by factor analysis. In this context, all the statements (variables) questioned were grouped together with related ones according to factor analysis. Before factor analysis was performed, the suitability of the data for factor analysis was evaluated using the Kaiser Meyer Olkin (KMO) and Barlett tests. The KMO value for the scale consisting of 32 items was evaluated as 0.793, and the result of the Bartlett test was found as $X^2 = 1428.14$ ($p \leq 0.0001$). The fact that the KMO value was higher than 0.6 and the Barlett test value was significant showed that the data were suitable for factor analysis, and the factor eigenvalues of the statements related to the scale were calculated. The museum, its immediate surroundings, and open spaces (space integrity) were evaluated in terms of meeting satisfaction levels and expectations (Table 5). The reliability of the factor groups was examined by Cronbach Alpha analysis and accordingly, the Cronbach Alpha value for the 32 statements was found to be 0.922. This value is well above the desired 70% level.

In order to determine the significance of the factor analysis of the groups, a test was conducted with the statements that were found to be related to each other at the ** level in the correlation analysis. In other words, factor analysis was conducted among the functions that users associated with the elements to be considered in the design of a museum and its immediate surroundings and open spaces.

At this stage, Statements 1, 2, 3, 4, 7, 16, 22, 25, 27, and 32 were excluded from the factor analysis. The KMO value was recalculated as 0.845, and the Bartlett test result was found to be $X^2 = 846.911$ ($p \leq 0.0001$) for the scale consisting of 22 of the items evaluated. The fact that the KMO value had increased to over 0.6 and that the initial KMO value and Barlett test were significant showed that the data were suitable for factor analysis. The factor eigenvalues were calculated for the statements related to the scale which questioned the satisfaction levels and expectations regarding the museum and its immediate surroundings and open spaces (Table 5).

Table 5. Results of the factor analysis evaluating the museum, its surroundings, and open spaces in terms of satisfaction levels and meeting expectations.

Factor groups	Eigenvalues	Explained variance %	Cumulative variance %
1	8,840	42,094	42,094
2	1,813	8,633	50,727
3	1,245	5,930	56,657
4	1,072	5,106	61,763

In the study, factor analysis was performed using Varimax rotation for grouping the factors. According to the data obtained, four factors with eigenvalues above 1.0 explained 61.763% of the variance in the

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scale scores. The total variance of the 1st factor group was 42.094%.These results revealed that the statements that met the satisfaction levels and expectations of a museum, its immediate surroundings, and open spaces under this factor group (Planning and Design) were more important than the statements under the other groups. The total variance of the 2nd factor group (Social) was 8.633% and for the 3rd factor group (Functional) the total variance was 5.93%. The 4th factor group (Perceptual) total variance was 5.106% (Table 6).

In terms of the physical environment, social environment, and environmental perception, it can be seen that museum examples that make their open spaces available to the public across the globe share certain characteristics. The use grows as these criteria' diversity and density rise (Erenler and Kürkçüoğlu, 2020). The study's findings revealed that the four-factor categories of planning and design, social, functional, and perceptual were similarly grouped in terms of user satisfaction and expectations.

Table 6. Factor groups that met the satisfaction levels and expectations of users of museums, their immediate surroundings, and open spaces.

		Factor Loadings				
		1	**2**	**3**	**4**	
Item No	**Concept**					**Communality**
s24	Local and universal	,761				,628
s20	Compatible	,722				,682
s21	Readability	,718				,740
s19	Accessibility	,669				,627
s15	Meaning	,655				,697
s11	Multi-functionality	,637				,676
s12	Child friendly	,605				,629
s14	Educational and social	,529				,625
s30	Landscape value	,380				,356
s5	Guiding and preserving		,780			,720
s26	Attractive		,740			,635
s6	Possibility		,709			,709
s29	Three-dimensional displays		,645			,580
s17	Social and cultural		,585			,496
s31	Interactive exhibitions			,689		,586
s9	Flexibility			,682		,686
s13	Universality			,552		,516
s8	Related			,546		,503
s18	Socializing			,477		,449
s28	Information and direction				,796	,709
s10	Respectability				,701	,721
% of variance		***42,094***	***8,633***	***5,930***	***5,106***	

CONCLUSIONS

In the study, the cultural, artistic, and social attractions that museums contribute to public life and the different qualities they exhibit have been demonstrated. The open space designs of museums have been examined historically, the successful design approaches to their open spaces have been discussed, and the importance of museums as urban public spaces has been emphasized. Museums are important tools that support the economic, social, and cultural aspects of urban public life. The design and content of the museums have changed over time depending on communal and social life, cultural, and artistic events, and differences in their formal, conceptual features and typologies. The design of museum open spaces has also evolved depending on the change in museum architecture.

As can be seen in the findings, the museum contributes to urban life with its open spaces, social function, exchange of ideas, cultural values, and various pleasurable activities. In addition, museum open spaces attract attention as components of urban and museum identity, a part of urban design, and with the use of public space, a social tool.

A comprehensive analysis was made about which of the survey statements had more impact on visitor satisfaction. Accordingly, the four factor groups that had the greatest impact on visitor satisfaction were determined as the planning and design, social, functional, and perceptual factor groups. The most effective statements among these factor groups were:

- The gardens of museums are designed in such a way that they can reveal many local and universal ecological, cultural, and artistic values. (Planning and Design),
- Museums have the mission of guiding future generations and preserving human heritage. (Social),
- Interactive exhibitions in contemporary art museums and open spaces draw the attention of visitors. (Functional),
- Signs, maps and plans, colors, textures, and lights for informative and guiding purposes in the open areas of museums allow the visitor to make his own way without any guide. (Perceptual).

The statements that showed the most correlation among the elements to be considered in the design of museum open spaces were:

- By informing the visitor and increasing his interaction with the artistic works, museums and their gardens enable the visitor to think and interpret.
- In the design of the museum and its immediate surroundings, many factors such as the comprehensiveness of the exhibited works, the perceptions of the visitors and their comfort levels are taken into consideration.
- The gardens of the museums are created in accordance with the philosophy of the museum, according to the architectural form, spatial setup, type and purposes of the museum.

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In conclusion, the potential of museums and museum open spaces to create social environments that are dynamic cultural centers should be strengthened and should support urban life as a strong focal point and meeting place for the city. Depending on the content, museums and their open spaces should be able to create a dynamic and lively urban environment hosting different activities throughout the year. In addition, planning and design approaches should be developed that consider museums as an important part of the urban open green space system. A design approach should be adopted with everyone in mind, taking into account the comprehensiveness of the exhibited works, the perceptions of the visitors, and their comfort level. The open space design should be compatible with the identity of the museum, and it should be open to diverse visitors from all parts of the society. With their multifunctional structures, museums will become new centers of social attraction, as institutions that convey cultural, social, historical, and communal values to future generations.

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