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An analysis of the spatial qualities of the waterfronts: conceptual proposal projects for Istanbul Sarayburnu

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Abstract

Purpose – This paper's main objective emphasizes the importance of waterfront design in coastal cities. It reveals that a location is associated with the activities it hosts to become attractive for people or, in other words, to be a destination. In this respect, it proposes students' concept projects for the selected waterfront field study in Istanbul.

Design/methodology/approach – This study's conceptual framework is designed according to the qualities compiled from the place-diagram and the power of 10+ (plus) concepts of the PPS (project for public spaces). Accordingly, a fieldwork study based on the qualitative and quantitative research method was conducted as fieldwork in the Istanbul Sarayburnu waterfront, where historical and touristic sight-seeings of the Golden Horn meet with the Bosphorus coastal line. In addition to photo-video recordings, survey questions were also prepared during the field study.

Findings – Survey questions inquiries multi questions searching for the place-diagram qualities provide suggestions of 90 people who responded *in situ*. Results of the case study highlight six alternative proposal projects for the fieldwork prepared based on the power of 10+ concept by the third grade students of the School of Architecture of Istanbul Sabahattin Zaim University (IZU). Based on the survey questions and literature review findings, 10 sub-spatial qualities of waterfronts were disaggregated at the end of the study.

Research limitations/implications – The power of 10+ concept in the study provides a gauge for architects and urban planners; it gives them an excellent tool for assessing the quality of public spaces for placemaking in waterfronts.

Originality/value – Previous studies have generally been based on the PPS's place-diagram qualities with little mention of the interaction with the power of 10+ concept in placemaking. The proposed sub-qualities in the paper's conclusion contribute to architects and urban planners considering a model approach derived from those PPS concepts.

Keywords Architectural design, Istanbul Sarayburnu, The power of 10+ concept, Spatial qualities for the waterfront design, The place diagram

Paper type Research paper

1. Introduction

The quality of life for people in urban areas is directly connected to people's interaction with public spaces. Therefore, one of the critical elements of the urban environment is the quality and diversity of available activities located in public spaces. Public spaces are optional and discretionary places: people have to choose and use them or conceivably go elsewhere. A successful place must suggest what people want in a safe, exciting and attractive environment (Carmona *et al.*, 2003). Gehl declares that public spaces provide humans with the

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possibility of interaction. According to him, life between buildings comprises the entire spectrum of human activities in public space- necessary, optional, and social activities (Gehl, 1987; Gehl and Svarre, 2013). As a vital component of successful cities, public spaces are commonplace for people to carry out functional and/or ceremonial activities as routine daily activities or periodic pleasures in festivities (Carr *et al.*, 1992). Public spaces simplify social incomes, economic improvement and society revitalization (Public Project Spaces, 2007; Whyte and Underhill, 2012). According to the project for public spaces (PPS), "when you observe a space", what is important is how it is used, rather than how the designer thinks about the space. At this point, Fred Kent suggests that everyone has the right to live and contribute to making the place where they already live great (Kent and Madden, 2003; PPS, 2018). Carmona points out that; all users of the public spaces have the right to roam freely, relax, rest, interact with others, take photographs, campaign politically and demonstrate peacefully without the local controls' imposition, etc. (Carmona and Wunderlich, 2013).

Waterfronts as special public spaces which establish the relationship between the water and the city have a crucial role in creating vibrant public spaces and flowingly vibrant cities. In the example of Istanbul, the waterfront quality and the number of activities are the issues that need to be focused on. It has been determined that the waterfronts in the city, which lines about 310 miles (appx 500 km), are generally invaded for public transportation piers, private estates (like Bosphorus yalı style luxury housings), or junk spaces of industrial complexes. Therefore a significant need can be observed and noticed for a well-planned, sustainable, user-friendly, welcoming different age groups on waterfronts as Istanbul's dynamic and tiring daily urban flux. From this point, this paper discusses two main research questions; "what makes a great waterfront?" And accordingly, "what are the interactions between the spatial qualities and the people using waterfronts?" This paper is structured on literature and a methodological frame based on a case study conducted in Istanbul's Sarayburnu waterfront on the city's historical peninsula to answer these questions.

The literature frame includes spatial quality concepts for designing waterfronts. Among these, the four main qualities that PPS (Public Project Spaces) suggests as "place-diagram" and "the power of 10+ concept of the PPS," which are common and references in public space designing, are the principal foci of this paper. The methodological frame is based on both qualitative and quantitative approaches, which suggests observation and questionnaires about the existing situations that need to be researched. Therefore a fieldwork study was conducted on Sarayburnu waterfront, a Seraglio Spot where the Golden Horn and the Bosphorus Sea meet. This area also highlights the historical journey of the city's deep roots from ancient Greek cities such as Byzantium, the Roman Empire capital Constantinople and today's modern city of Istanbul as a prominent trade, culture and tourism center that connects Europe to Asia. Despite its excellent location, the area has been neglected due to administrative and financial challenges over the past decade. From that point in the Sarayburnu waterfront area, it has been given as a fieldwork study to the 3rd.Grade students of School of Architecture of Istanbul Sabahattin Zaim University (IZU) 2020–2021 Fall term (September–January). During that time, 30 students were studied as six design teams and proposed six alternatively different projects to regenerate the waterfront area where public use was observed, and visual data was collected *in situ*. Accordingly, interviews and surveys were conducted with 90 people during the fieldwork process. Based on the fieldwork findings, which are dependent on the place-diagram of PPS, proposal models of "the power of 10+ concept of the Sarayburnu waterfront" was prepared. Additionally, the study disaggregated ten sub-spatial qualities of waterfronts at the end.

1.1 The historical context of waterfront public spaces

Waterfronts can be defined as a piece of land in a city near an area of water (Shaziman *et al.*, 2010). According to Doucet, waterfront areas possess valuable because of their spatial qualities (Doucet, 2010). Based on their locations, most waterfronts offer great opportunities

to symbolize the city's image and people's social interactions in their daily lives. According to Hall, waterfronts are highly exploitable because of their fundamental characteristics of being the interface between water and built environments (Hall, 1998). Waterfront projects as a vital interaction point of the city, especially in the 21st century, have a crucial role in gathering people, making significant investments and the sustainability of the economics of the society, representing the signature of a great city. Urban waterfronts have transformed during times as part of urban development (Jones, 1998; Sairinen and Kumpulainen, 2006). Generally, five different periods in the urban regeneration projects have been distinguished: The 1950s as the reconstruction period, the 1960s as the revitalization period, the 1970s as the renewal period, the 1980s as the redevelopment period, and the 1990 and 2000s as the regeneration period (Clemente *et al.*, 2017; Reiser and Crispin, 2009).

1.1.1 Reconstruction/revitalization the 1950–1960s. The First-generation period is related to the middle of the 1950–1960s in North America (Boston Quincy Market, Baltimore Inner Harbor and San Francisco Giradell Square, New York Battery Park City) in abandoned harbor areas. First examples of this period include areas for work, commercial, recreational, cultural, tourist facilities, mixed land use functions, restaurants, cafes, entertainment areas, etc. especially for the solution of urban environmental problems in coastal areas. One of these projects is Baltimore Inner Harbor. The Baltimore project was successful in different aspects; The 1950s Charles Center Plan encouraged the government to focus on the Inner Harbor. After Baltimore's Inner Harbor success, waterfronts became associated with ways to recreate the city's image, recapture economic investment and attract people back to abandoning downtown (Rio, 2016). Other projects include Boston Quincy Market, New York Battery Park City and San Francisco Ghirardelli Square. Most of them as financial centers include housing, commercial and entertainment usage.

1.1.2 Renewal/redevelopment the 1970–1980s. The second face is the early 1970–1980s, post-industrial waterfront development based on private-public partnerships with long-term urban planning approaches and private investments in containers and ships transport in large-scale coastal areas (Marshall, 2001). The main fundamental criteria of this stage are mixed land uses, leisure activities and containing offices. The most controversial and practical examples of these projects are the development of metropolis like Docklands in London, Sydney, Cape Town, Barcelona, Shanghai, Hong Kong, Singapore, etc. and their fast adaptation to the globalization challenges and transformation of these cities to service and knowledge-based metropolis (Feldman, 1999; Marshall, 2004a).

1.1.3 Starting regenerations early 1990s. The third phase relates to the early 1990s, participatory planning methods in European port cities like Barcelona, Oslo, Berlin, Liverpool, Gothenburg, Amsterdam, Bristol, London, Dublin, etc. Effective characteristics of this period are holding urban design competitions in parallel with place-making as an outcome of neoliberal strategies, step-by-step planning and design approach with considering the industrial heritage, architectural, cultural, economic, social and technological changes. Also, the introduction of the marina and its functions with the world city's image started in this period.

1.1.4 Regeneration beginning of the 2000s. The fourth-generation projects, which started at the beginning of the 2000s, are based on professional planning management, public–private partnerships, mixed land use and an international image of the port period (Smith and Garcia Ferrari, 2012). Denmark Aalborg, HafenCity and Rotterdam can be given models as notable projects of this period. Generally, focused topics of this transformation phase are based on sustainable design approaches considering industrial heritage, comprehensive strategies for public areas, increasing economic and spatial charm of the city, mixed-use, productive and innovative models in office and residential planning models for preventing the privatization of the project, flexible planning and implementation process of design considering public participation in all steps of the project (Bunce and Desfor, 2007; Desfor *et al.*, 2010; Marshall, 2004b; Mikkelsen *et al.*, 2018).

1.2 Waterfront design approaches in Istanbul

Istanbul's location made it an ideal natural toll-gate and interaction point as a city surrounded by water. As such, waterfront projects have a crucial role in the development of Istanbul. Water has always been a dominant intersection point for Istanbul's industrial activities, defense, trade, recreational and transportation. When the exemplary waterfront projects in Istanbul are examined in terms of spatial quality, the inadequacy of activities according to the PPS diagram and The Power of 10+ principles, especially activities unrelated to water, draw attention.

Since the 1960s, according to economic and urban redevelopment strategies of the era, some regeneration projects within the scope of the competition were developed for the port areas of Istanbul. Since the 1970s, with the adaption of neoliberal policies, the idea of making Istanbul a "world city" became the purpose of Turkey's pursuit of globalization (Kaplan Cincin and Erdogan, 2016). In the early years of 1980, the first steps that carried Istanbul into this period (post-industrial) were taken. Re-vitalization and decentralization strategies for port areas of inner Istanbul caused one of the significant macro-scale decisions for regenerating and transforming service functions. These approaches defined a new discourse on Istanbul through starting a primary urban transformation on environmental quality, identity and urban image. After the 1980s to late 1990s transformations, especially in waterfront projects as a significant point in the city image, prominently appeared.

Istanbul's green areas, including recreational areas, playgrounds, botanical parks, waterfronts, gardens, city parks, etc. which cover (appx) 40 million m^2, are mainly in the inner-city rather than on the seashore. From this amount, the waterfront park area is only (appx.) 11,000,000 m^2, i.e. the ratio of 33%. This percent for the city surrounded by the water is low (The Marmara Sea waterfronts are the most expansive area, covering 7.475,000 m^2 green area with the highest level of the reclaimed project. The Bosphorus waterfront parks are 2.850,000 m^2, and the Halic Province waterfront parks are 1.150,000 m^2) (Butuner, 2006; Gunay and Dokmeci, 2012; Turkoğlu and Secmen, 2019; Koramaz and Türkoğlu, 2014). Unlike most of Istanbul's coasts located in the north, the waterfronts in the city's south are built up. In the 2000s, to increase waterfront park and recreation areas, under the "The vision of Global City Istanbul" concept, new and alternative park investments become part of urban development plans of government and metropolitan administrations. These investment projects and dominant residential-commercial functions made the public's small-scale maritime and green uses. They mostly located along the seashore of Istanbul from Kumburgaz seashores, Kucukcekmece, Bakirkoy, Zeytinburnu, Kadıkoy, Uskudar and Besiktas to Beykoz province of the city (Figure 1).

Accordingly, when several coastal areas of Istanbul are analyzed, they are only considered small-scale green areas. Although Istanbul is surrounded by water, water is usually used for transportation functions. On the other hand, main waterfront transformation points among Golden Horn (Halic), Marmara Sea and Bosphorus coastal lines have planning strategies that have neglected the fact that as a crowded city in Istanbul, there is a lack of multi-age groups people can gather and spend time, entertain, leisure and comfortable urban places near waterfronts. Among them, to give a brief perspective to the architectural and planning context of recent waterfront projects, the three latest samples as (1) Kartal re-urbanize project, (2) Maltepe recreation park and (3) Galata Port cruise ship landing Port as a regeneration project are analyzed according to the current status and based on the PPS diagram principles (Table 1).

1.2.1 Kartal urban regeneration project. The purpose of the transformation project in Istanbul Kartal; is to make the Anatolian Side a sub-center by decentralizing the industry that has lost its function by developing trade, housing and cultural activities in these areas. It is aimed to create employment for 100,000 people in approximately 10–15 years. When the land use in the project area is examined, it is seen that 81% of the area consists of industrial areas.

(1) Kumburgaz sea side, (2) Büyük Çekmece province, (3) Küçükçekmece province, (4) Bakırkoy province, (5) Zeytinburnu province, (6) Kadıköy province, (7) Karaköy Galata Port (8) Beşiktaş (9) Beykoz (10) Bostancı water front, (11) Maltepe waterfront, (12) Kartal water front

Source(s): Prepared by authors

Figure 1.
Waterfront spots of Istanbul along the shores of Golden Horn, Marmara Sea and Bosphorus

Existing residential areas constitute 9% of the total area. The vast majority of the industrial regions are a facilitating factor for transformation. There are active, empty (brownfield), commercial and service buildings, public (school, hospital, etc.), quarry and coastal filling areas within the industrial transformation areas. At the beginning of 2006, three international architectural offices participated in the international competition organized by IMP (Istanbul Metropolitan Planning and Urban Design Center) to plan Kartal Industrial Zone as a central business Area; Kisho Kurokawa Architects and Associates, Massimiliano Fuksas Architects and Zaha Hadid Architects were invited. The project prepared by Zaha Hadid Architects (ZAHA) in April 2006 was chosen as the competition's winner. According to the statement made by the Project Evaluation Board, the regulatory network structure proposed by the Zaha Hadid Project, a loose (non-grid) grid system, distribution of densities and uses in creating an equality-driven, responsive development status project phasing (positive spatial qualities), also an abstraction, and connections with the existing texture around the project is among the factors found successful. During the process, the Urban Strategy Company coordinated between the parties in the project (IBB, IMP, Kartal Municipality, KentDer and ZHA), participation in the planning process and consensus in decision processes (Ozlem, 2012). Based on the litigation process of the chamber of architects, the project was canceled about four times. Some of the critical points of the Kartal project are the lack of financial support, the absence of a liable and responsible association for transformation, the social and environmental transformation of the area and offering just space-oriented solutions to the area (lack of comfort and image), the lack of internal and external sources of social water-related activities, mainly focusing of activities on business towers, cultural areas, opera house, park, hotels and restaurants (consumption-oriented). Just a small number of residences are planned in the proposed project. Despite these criticisms, the 1/5,000 scaled project was finally unanimously approved in 2015.

1.2.2 Maltepe recreation park project. Maltepe coast fill area project covers an area of 1,200,000 m^2 on the Anatolian side of Istanbul. Maltepe landfill project was put forward to provide enough public space to the city and provide user-friendly, sustainable social places to the metropolitan city of Istanbul. The fill area in Maltepe reaches 3.5 km along the coast and

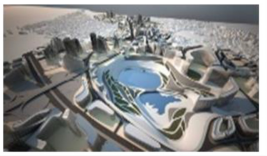
SPATIAL ATTRIBUTES	SAMPLE PROJECT		
	Kartal Province Regeneration Project	Karakoy Province The Galataport Project	Maltepe Province Coastline Recreation Project
			
	Concept design and Project architects		
	Zaha Hadid Architects Kisho Kurokawa Architects	TA İstanbul Tabanlıoglu Architects	AARTI Planning Landscape Architecture Limited Company
	Project type and construction area		
	Waterfront revitalization and recreation Project (appx) Construction area 3.000.000 sqm.	Waterfront revitalization and recreation Project (appx) Construction area 200.000 sqm.	Waterfront revitalization and recreation Project (appx) Construction area 1.000.000 sqm.
	Fundamental goals of the project		
	▪ Transition between small scale manifacturing complexes to a center for mixed land use. ▪ Branding new housing zones, cultural and art exhibition centers ▪ New image for old unused-quary and waterfront. ▪ Providing alternative linkage between new residential zones and new recreation parks.	▪ Alternative transition to old historic peninsula with a contemporary art and cultural complex. ▪ Providing a new Cruise Port and Tourism center to city of Istanbul. ▪ Revitalizing old renovation area near the waterfront. ▪ Sustaining the social and cultural attraction of the historic Tophane Square.	▪ Providing an alternative social places near high density housing zone. ▪ Place branding as designing the multiple social activities in the largest recreation waterfront park. ▪ Bringing attention to the importance of linkge between the green parks and waterfront to housing zones.
	Starting and opening date		
	Start: April 2005 Suspended: January 2010	Start: March 2015 Opened: March 2021	Start: February 2011 Opened: March 2014
	Negative (–) and Posivite (+) spatial qualities of the Project		
Access-Linkage	▪ (+) The Kartal-Pendik line has an important place for Istanbul with its ring roads connecting Asia and Europe and its proximity to the coastline. ▪ (+) Availability of different transportation alternatives in the area	▪ (+) Availability of different transportation alternatives in the area ▪ (+) Ease of access to alternative destinations in the area	▪ (+) Availability of different transportation alternatives in the area ▪ (+) Having enough parking spaces ▪ (–) Because the scale of the area it is not easy to pedestrian access between activities
Uses-Activities	▪ (–)The lack of internal and external sources of Social activities ▪ (+) Creating an equality-driven, responsive development status ▪ (–) There will be mainly business towers and a small number of residences. Inclusion of cultural area, opera house, park, hotels, restaurants, marina in the Project (consumption oriented).	▪ (–) Not equal and free- into private use. ▪ (–) Contradiction of the said plans to planning principles and public welfare. ▪ (–) Lack of emphasis on water-related activities. (mainly including terminal, hotels, shopping, entertainment, offices, restaurants in the design (consumption oriented).	▪ (–) None of sports relates to any kind of water sport ▪ (–) There are various function areas such as sports fields, walking tracks and bicycle paths, children's activity and sports areas, entertainment and activity areas, sitting areas, cafeterias, viewing platforms, but most the planned functions are actually terrestrial functions.
Sociability	▪ (–) Social and environmental transformation of the area constituted the negative aspects of the planning period. ▪ (+) Re-balancing the participation public, private sectors and local community to the planning process	▪ (–) Public participation in the planning process was not encouraged (passive participation during design Process)	▪ (–) Not improving the existing landscape and waterfront design vision to a green sustainable waterfronts. ▪ (+) Providing user friendly, sustainable social places to metropolitan city of Istanbul.
Comfort-Image	▪ (–) Offering space-oriented solutions and excluding goals for the comfort. ▪ (+) Planning within a vision regardful of regional integrity ▪ (+) Providing a different image to the city with the combination of different architectural pieces made of geometric shapes.	▪ (–) Lack of alternating functional and physical image to historic province ▪ (+) Adding a new image to the city with the arrival of local visitors, tourists and cruise passengers to this area. ▪ (+) Buildings with LEED certificate candidates, Use of recycled materials in offices, use of special air conditioning systems working with sea water, ensuring user comfort	▪ (–) There are no apparent design considerations in the project about seasonal changes (user's comfort) ▪ (–) Insufficient social activities (meeting points, diversification of urban furniture, etc.)

Table 1.
Kartal, Istanbul Galata Port, and Maltepe waterfront projects spatial qualities and attribute analysis (prepared by authors)

covers 1,200.00 m^2 with a width of 400 m. The project is planned with 2,865 capacity car parking (positive point in terms of transportation, access and linkage to the area), 255,000 m^2 of passenger way, 76 capacity bus parking, 24,000 m^2 of tulip garden with playgrounds, playfields, a 4,600 capacity amphitheater, 10 fountains, exhibition areas for cultural activities, picnic areas, viewing platforms, exterior sports equipment and three heliports. Creating such a large fill area within the coast produces many environmental and ecosystem issues and interrupts the relationship between the sea and the city (Kaplan Cincin and Erdogan, 2016). Landfills by massive constructions (3,500,000 truckloads of excavation waste and fill material were used during the project), lack of water-related functions (none of the sports relates to any water-related sport, and the planned functions for this area are terrestrial functions), densely wooded areas, lack of consideration of seasonal changes in designing activities and urban furniture are some of the negative points of the area. Adequate planned playground design related to any natural elements such as waterfront, greenery, mud, sand, or trees, not improving the existing landscape, and waterfront design vision to a green sustainable waterfront are other criticism of this project. The scale of the project and its 400 m distance from the normal state lacks its integration with the buildings and urban context in its environment.

1.2.3 Galata Port cruise ship landing project. The Galata Port cruise port project has been designed with the concept of regulating and unifying the historical and natural values in its environment, creating business centers, bringing individuals and the sea closer and enriching the area with creating new functions such as art, hotels, restaurants, culture and various commercial centers. In this context, the historical Mimar Sinan University building, Kılıç Ali Pasha Mosque, Tophane Fountain, Tophane Clock Tower and its continuation city context, parks and Istiklal Avenue connection were arranged. In particular, Istanbul Modern Arts Museum and exhibition galleries were replaced, and a new spatial attribute and image were aimed to be given to the city's waterfront of the historic Karakoy Province. The port area is a vital viewing point due to its location and Bosphorus view. Opening this area to the public is a long-term influence on improving a new and different city branding. In addition, the use of hotels in most of the area and commercial areas that will serve local and foreign tourists is decisive on the space user group. There have been many criticisms regarding the project. Controversially the port is open to public access during 2020, and still, some parts are under construction. Since the architectural context is structured on commercial and recreation of the waterfront as a privatized public space, spatial effects of changing waterfront areas can be observed in coming years (Topçu, 2020). Some of the critical views about the Galata Port project are as follows: not equal and free – into private use, lack of emphasis on free water-related recreational activities, activities mainly include a terminal, hotels, shopping, entertainment, offices and restaurants, the contradiction of the said plans to planning principles and public welfare (negative point in terms of uses and activities), public participation in the planning process was not encouraged (negative point according to the sociability of PPS), lack of an alternating functional and physical image to historical province (comfort and image).

2. Spatial qualities of the waterfronts according to the place diagram of PPS

Jan Gehl uses the human dimensions in his analysis and examines spatial (building heights, active frontages, transport, accessibility, the orientation of entrances, multi-function areas, visibility, etc.) and physical dimensions (social distance, smell, seeing, hearing, etc.) of public spaces. His analysis background comprised necessary/functional, optimal/recreational and social activities. While necessary activities are related to the quality of the physical environment, optional activities depend to a consequential degree on what the place suggests and how it makes people treat and feel about it (Gehl, 2003; Public Project Spaces, 2007). At this

point, in his empirical observations, he examines issues such as mixed land use, usability and security of the space, shared spaces, sustainability and level of comfort for pedestrians as a prioritized group (Gehl and Gemzøe, 2000). He focuses on the public spaces as an urban social cohesion and interaction point. Creating socially attractive places like waterfronts and seaside promenades helps increase individuals' sociability and provides a healthy mix of residential, commercial and entertainment components (Lotfata *et al.*, 2022). The PPS team is one of the institutions that have worked intensively since 1975 on spatial quality and placemaking. Placemaking results from improving a place's spatial quality to create bonds between a sense of that place and users. The place-making curriculum supports multi-use of activities sequentially or consecutively, depending on the objectives to reach in different projects. Placemaking inspires people to reshape the public spaces of their community collectively. It strengthens the attachment between places and people and helps build great places for communities (Public Project Spaces, 2007; Whyte and Underhill, 2012). To answer the question "what makes a great public space?" PPS shared the following four qualities as a place-diagram;

(1) *Access and linkages:* This means the place's connection with physical and visual surroundings. A reachable place should be visible and easy to get to and get through. Accessible spaces are convenient for public transportation and have a high parking capacity. Especially in waterfront projects, public transport has a crucial point in the design process. Pedestrian promenades and biking paths are a vital part of the transportation mix. The other factor is diverting pathways to the water, direct or indirect (swimming, fishing, picnicking dockside, dining, boarding boats, etc.) or another type of water activities like spray play, fountain and swimming pools next to the seashore. Unimpeded by cars or parking lots, people are more at ease, and the full breadth of waterfront activity can flourish.

(2) *Uses and activities*: Human activities and attention to destinations and districts can profoundly impact space users. Activities are the base criteria for making a great place, why people prefer a place or not, why they continue to use it and what makes a place unique and special. The waterfront's main aim is to put public goals as long-term. Community participation, access to urban amenities and local ownership will flow from this basic premise. People should come to the waterfront not just for green spaces but also for mixing activities and uses, which are additional reasons to go to the area at different times. An ideal combination of commercial and public uses "24-h activities" should be considered on waterfronts. Also, waterfront programming should consider activities for all seasons. Waterfronts with these amenities will reap the benefits of more significant economic activity and higher attendance at public facilities (Public Project Spaces, 2007).

(3) *Sociability:* means the quality of place for interacting with neighbors, strangers and new people. People feel comfortable and have a stronger attachment in places that stimulate optional and social activities. When people quickly connect with their friends and neighbors in a place, they feel a stronger sense of that place (Gemci and Ferah, 2020; Whyte, 1980). The better a place, the more optional activity occurs, and the more prolonged necessary activity lasts. Social activities depend on the optional and necessary activities and their qualities. It happens in combination with other activities and spontaneously when people spend their time in a particular place. Social activities include conversation points, communal spaces, children's play and generally places for hearing and seeing other people (Boland *et al.*, 2017; Marshall, 2004a).

(4) *Comfort and image:* The other criteria for having a great place is its image and comfort that can be achieved with the perception of security, attractiveness,

cleanliness, accessibility to places to play, stand, sit, etc. Comfort is the importance of allowing users to choose where they want to sit, walk, run, etc. As an image of the waterfront, an iconic structure as a boon to the waterfront should strive to achieve flexibility and a public-spirited presence; additionally, it acts as a multi-use destination on the waterfront.

2.1 The power of 10+ concept of PPS

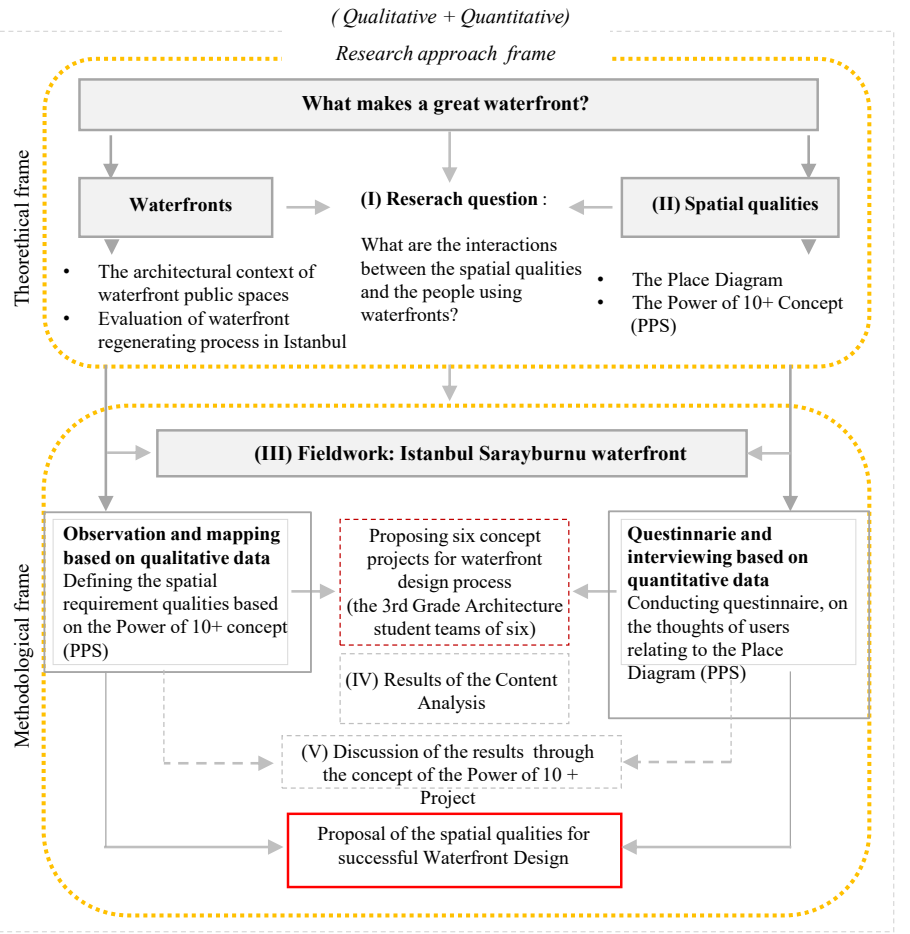
Early in 2004, PPS President Fred Kent and Senior Vice President Kathy Madden were touring the Seattle Art Museum with local citizens, brainstorming how best to generate public activity around the building. Someone asked, "How many separate focal points do you need to make the place precisely successful?" After a few minutes of thought, Kent said 10 points; however, it does not mean ten pieces of the same thing. It represents ten things to do at each focal point. Accordingly, PPS has found the power of 10+ that effectively creates a remarkable and dynamic place (Public Project Spaces, 2007; Whyte and Underhill, 2012). The power of 10+ is a simple approach to creating a place. In very basic terms, this approach is that a location needs ten or more things to become a place that attracts people. PPS believes a great place should provide a minimum of ten activities, ensuring non-predominant actions and creating layered, multi-function and diverse ones. The power of the 10+ concept facilitates place-making at different scales in designing projects. Further, when cities contain at least ten or more than 10 (as + plus) districts or destinations, their public perception shift amongst locals, tourists and urban centers that can become well equipped to generate resilience and innovation (PPS, 2009b).

The idea behind this concept is that places thrive when users have a range of reasons (10+) to be there. These reasons might include food to eat, music to hear, shopping, a place to sit and relax, meeting points, photographing points, playgrounds to enjoy, history to experience, art to touch, recreate, etc. Ideally, some of these activities will be unique to that particular place, reflecting the surrounding community's socio-economic values, culture and history. Residents who regularly use the space will be the best references for ideas for which activities/destinations will work best. This approach can be applied not only to small-scale projects but also to urban design macro projects. Urban planners can use this approach as an assistant tool for designing successful places. It helps people provide ideas and innovation and create great places and destinations. The power of 10+ concept on a regional scale means linking cities and countries with significant public spaces and mixed-land use neighborhoods as the connections. To build a great city, it is not enough to have a single-use dominate a particular place; an array of activities is needed. According to PPS, "It is not enough to have just one great place in a neighborhood; many great places are needed to create a lively community. It's not enough to have one great neighborhood in a city; it is needed to provide people all over town with close-to-home opportunities to delight in public life. It is not satisfying to have a vital city or town in one region; a collection of these communities is needed" (PPS, 2009a; Cilliers *et al.*, 2015).

As both artificial and natural city boundaries, waterfront design has a crucial role in expanding the positive audial, aesthetic, visual, tactual and psychological effects on space users. Focus on planned destinations rather than parks or open spaces enables a genuine community-led also open-ended design process to take root. By identifying the destinations, stakeholders, nearby residents, public or private investors and community organizations, the business can define the uses and activities they want to engage in and suggest their ideas at each destination. The other main point in the destinations is that each of the 10 points should be incorporated into the waterfront's vision. Connection means enticing people to the waterfront on foot or bike. Each activity along the waterfront should connect and strengthen the others. Creating these connections entails mixing activities (parks, retail, housing, entertainment, etc.) and partners (public or private institutions and local businesses).

3. Research methodology

The methodology of this research is based on integrating the qualitative and quantitative research techniques into the paper's literature review. According to qualitative analyzes, this research includes the visual documentation of the waterfront, while quantitative data propound the response from the users of the Sarayburnu waterfront. From this respect to the fundamental aspects of the research methodology, this research is based on mixed (quantitative and qualitative) research approaches, integrating the place-diagram of PPS and the power of 10+ to fieldwork as a case study. The study's conceptual framework is structured on steps connected to the theoretical and methodological frames of the study (see Figure 2). Research design aims to develop knowledge that can improve the options to provide a vision of the study's focused theory or conceptual scope (Creswell, 2009; Neuman, 2007). To determine the factors that contribute to the success of a research paper, it is necessary to define five basic steps to follow:



Source(s): Prepared by authors

Figure 2.
The conceptual framework of the paper

(1) This research aims to understand the importance of waterfronts for urban planning and propose a set of design criteria and sub-qualities to create great waterfronts.

(2) The spatial qualities of the place are set according to the place-diagram of PPS and related to the concept of the power of 10+. Accordingly, the essential qualities of the research are focused on four main spatial quality and their sub-criteria provided from the seminal literature of this paper. (a) Uses and activities; optional and social activities, daytime use, physical environment, multi-purpose use of the space. (b) Comfort and image; reliability of time, maintenance, vitality, green space and walkability. (c) Access and linkage; car park, environment, linkage of the destinations. (d) Sociability; daily flux, disabled friendly, urban furniture, community and interaction.

(3) Data collecting for this paper relies on two sets of information:

- Observation and mapping (qualitative database on observing *in situ* fieldwork). This period lasts two months in 2020, September and October. During this fieldwork, locations were visited on irregular days and weekdays of frequencies approximating two to four times per week. During that period, a group of six students among the third grade architectural students organized to prepare the mapping of the existing spatial usage, and the needs of the people visiting the waterfront were observed and noted. Accordingly, each project group prepared a proposal to re-design the waterfront fieldwork based on the qualities and sub-criteria of this project combined with the place-diagram and the power of 10+ concept of the PPS. Visual documentation is also prepared from the Sarayburnu waterfront photographs uploaded to the Internet archive via Instagram in the fieldwork (Account name @Sarayburnu_Project2020).

- Questionnaire and interviewing based on a quantitative database of interviews and questionnaires conducted in 2020 in 10 days. The group of 90 people has been picked as the purposive (non-probabilistic) sampling group of the research. Subsequently, according to the place-diagram, student project teams pinned the Sarayburnu waterfront's spatial qualities. In supporting these qualities shown on the fieldwork maps and respondents, people among the actual waterfront users have been interviewed based on semi-structured and open-ended questions combined with a basic rating from 1 to 5 to display a scale of respondents' answers. A total of 18 questions in four main categories, including sub-categories (mentioned above) relating to the place-diagram of the PPS, were prepared and distributed among the Sarayburnu waterfront users.

(4) The data collected by these stages is disaggregated according to content analyses of the data sets with the help of the graphic tables prepared according to the qualities and sub-criteria of the seminal literature review. Answers given to the questionnaire were classified by the frequency analysis of the data demonstrated as bar graphics.

(5) Results and conclusion part of the fieldwork are discussed under this heading title; discussion and results of the case study and conclusion.

4. Fieldwork: Istanbul Sarayburnu waterfront

Sarayburnu is a promontory quarter separating the Golden Horn and the Sea of Marmara, included in the historic areas of Istanbul. It was added to the UNESCO World Heritage List in 1985. The first settlement on the Sarayburnu goes back to the Neolithic, 6600 BC. The construction of a railway line in 1890 split the park into two parts (Gulhane Parkside and

Sarayburnu). A bridge connected the two parks until 1958 when a seaside highway (now Kennedy Avenue) separated them permanently. Also, Sarayburnu, known as the first Ataturk statue in Turkey, was erected there in 1926. On September 1, 1928, Ataturk introduced the new Turkish letters in the park. There is a spectacular panorama of the Bosphorus and the city's Asian and European sides. Since the head of the historic peninsula ends along the waterfront of Sarayburnu, the location has access from either railway or private vehicles. Unfortunately, there is no direct sea access in the area. As for the morphological features, the field area rises about 1 meter from the coast on a sloping site. It grows to 10 meters in the direction of Gulhane Park and the borders of the selected region. In consultation with experts in the Istanbul Metropolitan Municipality (IBB), since the site is located in the Historical Peninsula of Istanbul, just 50 cm excavation was allowed by the International Council of Monuments and Sites of Turkey (Gümüş, 2018). However, heavy vehicle traffic on Kennedy Ave blocks the physical access to the seafront. Even though The Eurasia Tunnel (2016) takes vehicle traffic underground, the ruins of the old Port and neglected physical conditions cause multi-layered challenges that need to be solved. Therefore, despite its historical characteristics and magnificent location, it is mainly used by people from different age groups for a short-term day, for using anglers, or for those who want to visit Gulhane Park to park their car and cross over Kennedy Ave. Figure 3 shows a panoramic view of the case study and photographs of its surroundings.

5. Collecting data in the fieldwork

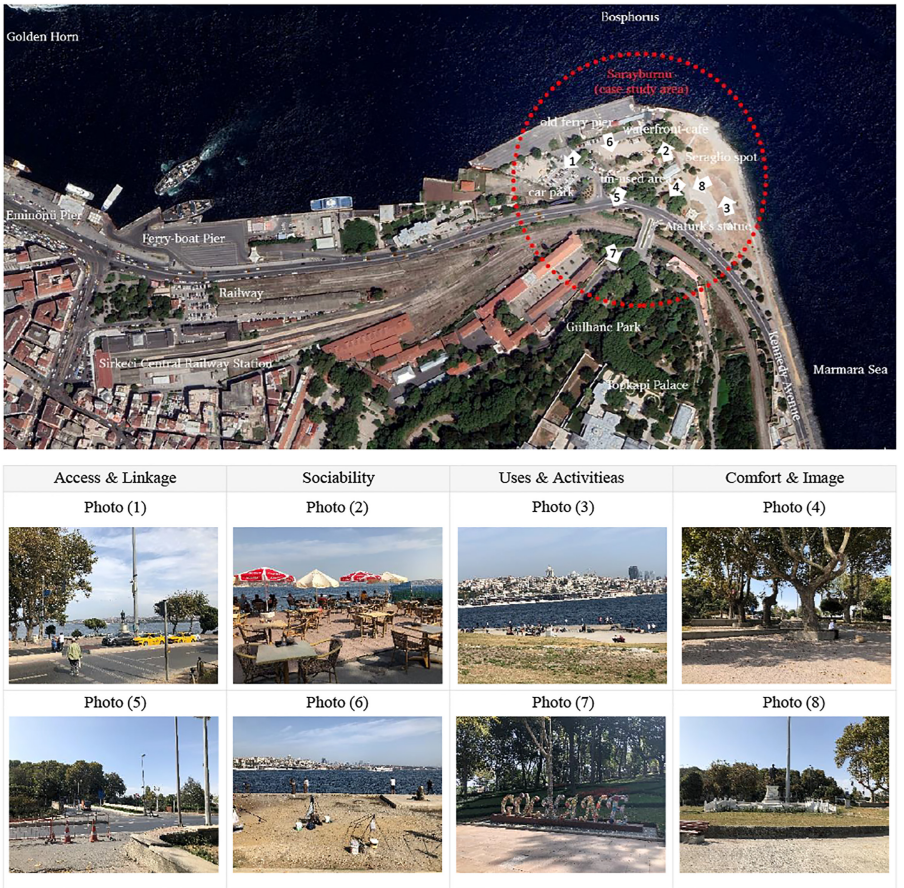
Collected data are disaggregated according to on-site measurements, interview questionnaire questions and design process evaluation. There are just eight spots that have been pinned on the aerial map view of the fieldwork:

Existing Parking lot and Port, Sarayburnu garden cafe, Sarayburnu seashore, existing trees in the area and connection axis with Gulhane Park, anglers' place, Gulhane park entrance and Ataturk statue inside the area. Because of the choppy water in the Sarayburnu, the ferries cannot dock at the port, which is not actively used now. According to the quality categories from the literature review, the field area was analyzed under four titles of PPS's place-diagram; access and linkage, sociability, uses and activities, comfort and image. Questions were prepared according to the generic profile of field area users. Everyone can easily answer and rate it between 1 and 5 points (1 point in the answers was evaluated as the lowest and five as the highest). Based on the generic profile of 90 respondents, including users from the near and far distance of the area (locals, non-locals), respondents can be classified as 38% women – 62% men. Accordingly, fieldwork findings proceed in two steps:

5.1 Findings of the questionnaire

According to the place-diagram of PPS, four major spatial qualities have been discussed under the questionnaire as follows:

(1) *Uses and activities;* can be categorized into these main titles: activities diversity, active, sustainability and indigenous, special, vital and fun. All participating groups agree about the lack of interaction points in the area for the Combination level of optional and social activities (e.g. for rest and interaction). There is not enough diversity in seating elements, and the existing ones are not considered for all weather conditions. 53% gave 1 point to this question and the rest, 47%, pointed 2. For "Level of using at any time of the day (morning to evening)," scoring ranges from 1 to 4. (From 90 users, 52% replied 1, 36% (2), 11% (3) and 1% (4)). Those who give 3 and 4 points are generally men. Women did not find the area useful all the time. Due to the insecurity of the area and lack of adequate lighting, they prefer to use it until evening.



Source(s): Aerial map source is from Istanbul Metropolitan Municipality e-map service 2020 and the photographs by the authors

Figure 3.
Shows the Sarayburnu waterfront location and photographs of its surroundings

"Identity and level of connection between physical environment and history," although the area's rich history, there is no connection between past and physical environments (80% answered 1 and 20% replied 2). From the level of "Use of space for multi-purposes," the field area is weak too. Just anglers scored 3 (16%). The rest of the respondents used 1 (49%) and 2 (36%) in their answers. (Table 2)

(2) *Comfort and image;* we sorted this part into four sessions, questions about "safe, clean, attractive, charming and spirituality of the area" and the last category "green and walkable." We asked four questions about the level of reliability of the area for using all hours of the day, regular maintenance and repair level of the area, level of vitality, relevance and attractiveness of activities and lastly, adequacy level of walkable and green spaces. As mentioned in the previous parts, the fieldwork could achieve just 1 (83%) and 2 (17%) scores from the first question. All participants agree they cannot spend a long time, especially in the evening and night in the area. High-quality materials have not been used in the area, and sidewalks in the field study can be dangerous for use,

especially at night. Because of lack of maintenance, they answered "Regular maintenance and repair level of the area," 59% (1 point), 34% (2 points) and 7% (3 points). For the third question about vitality, relevance and attractiveness of the area, despite its remarkable views from Bosphorus and Gulhane Park, no design reflects its characteristics. From this question, just 4% (3 points), i.e. moderately pointed, and the other ones, 67% (1), 29% (2), scored. The last question was about the adequacy level of walkable and green spaces. No landscaping has been done except for the area's trees left over from the past. Walking paths are irregular and do not lead to any destination. Seating elements are insufficient and not designed for different preferences. The maximum score from this question is 2 (19%), and the rest is 1 point (81%). (Table 2)

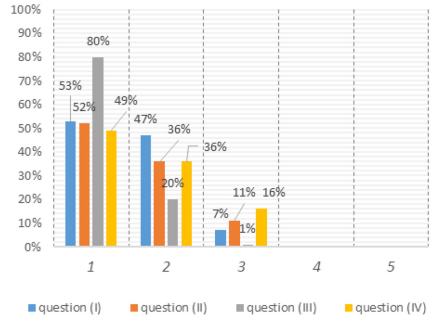
(3) *Access and linkages;* we asked five main questions based on accessibility, connectivity–continuity and readability; First and second question was about the

Uses & Activities

age group	18 to 24	24 to 39	40 to 64	65 to 84	Frequency respondents	Frequency %
Levels	*question (I): Combination of optional and social activities (e.g. leisure and entertainment)*					
1	6	15	21	6	48	53%
2	2	5	16	19	42	47%
3	_	_	_	_	6	7%
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (II): Level of using at any time of the day						
1	3	2	21	21	47	52%
2	4	11	13	4	32	36%
3	_	7	3	_	10	11%
4	1	_	_	_	1	1%
5	_	_	_	_	_	_
question (III): Identity and level of connection between physical environment and history						
1	7	16	28	21	72	80%
2	1	4	9	4	18	20%
3	_	_	_	_	_	_
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (IV): Use of space for multi purposes						
1	5	10	15	14	44	49%
2	3	7	13	9	32	36%
3	_	3	9	2	14	16%
4	_	_	_	_	_	_
5	_	_	_	_	_	_

Comfort & Image

age group	18 to 24	24 to 39	40 to 64	65 to 84	Frequency respondents	Frequency %
Levels	*question (I): Reliability level of area for using all hours of the day*					
1	8	18	28	21	75	83%
2	_	2	9	4	15	17%
3	_	_	_	_	_	_
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (II): Regular maintenance and repair level of area						
1	3	12	17	21	53	59%
2	4	7	16	4	31	34%
3	1	1	4	_	6	7%
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (III): Level of vitality, relevance and attractiveness of activities						
1	6	16	19	19	60	67%
2	2	4	15	5	26	29%
3	_	_	3	1	4	4%
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (IV): Adequacy level of walking, sight-seeing and green spaces						
1	7	18	30	18	73	81%
2	1	2	7	7	17	19%
3	_	_	_	_	_	_
4	_	_	_	_	_	_
5	_	_	_	_	_	_



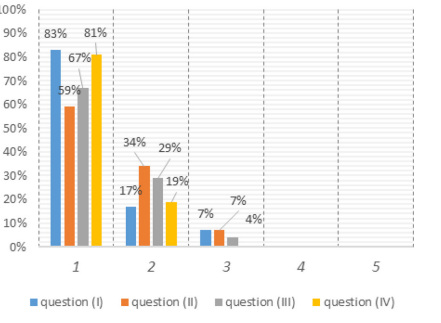


Table 2.
Shows the data related to the "uses and activities" and "comfort and image" of PPS

transportation alternatives to the fieldwork and the adequacy of the parking lot. According to the diversity of transportation respondents use to reach the fieldwork (by walking, using a private vehicle, public transport, bicycle, or motorcycle), they answered the question with 1–5 points. Those who gave 5 points to the first question were 68%, and those who gave 4 points were 32%. Those who answer the question with 4 points mostly enter the Sarayburnu from Gulhane Park by walking or using bicycles. They complain that there is no overpass to join the Gulhane Park to Sarayburnu. Also, 87% of users answered "Adequacy of the parking lot" with 5 points. It seems there is no parking problem in the field area. Connectivity–continuity questions are generally about connecting the existing activities and the seashore. For the "connection between the existing walking paths and seashore" question, all generic groups from children to adults, those who gave 1 point (54%), 2 points (37%) and 3 points (9%). It means that there is not enough connectivity between water and land. Connection with Gulhane Park, 47% gave 1 point (week), 34% (2 points), 11% (3 points) and 8% (4 points). The users with the lowest score are generally the groups that reach Gulhane Park by bicycle or on foot. For the last question, based on the readability of the field area, we asked users to give points to the question "Perception level for the first-time visitors (e.g. sign and orientation elements, texture, material, etc.)." When they are inside the area, existing paths, intersections, urban furniture, materials, etc. can help them find their destination or not. This question was more about their perception of the fieldwork. Unfortunately, 78% percent answered this question with 1 point, and the rest, i.e. 22%, gave 2 points. (Table 3)

(4) *Sociability;* examined in four main categories: diversity, welcoming, interactive and friendly. For the diversity question, we asked them about the "level of inclusivity" (women, children, elderly and disabled people) and "diversity of urban furniture." Since there is a lack of security in the field study and no activities for different age groups and genders, the respondents voted this question between 1 (51%)–2 (42%) and 3 (7%) with low scores. There are not enough seating elements in the area, and the existing ones are not used in all seasons because they are positioned in the wrong places. The maximum score from this question is (83% answered 1), and the rest pointed to 2 (17%). "Suitability of the place for social activities" (e.g. concert, open-air museum, fishing, walking, etc.) is another question. As we mentioned, because of the choppy water of this area, anglers prefer this area for sailing, but there are no suitable platforms for sailing or for leaving their fishing rods there. Also, there are no water-related activities like water plazas, water-related sports, etc. Despite its historical background, there are historical monuments in the area, but no planning has been done. There is no walking parkour on the site, and the connection of pedestrians with the sea stays disconnected. For this question, 80% noted 1, and 20% pointed to 2. "Is it an Interactive place" can you use the field area as you want, alone, with friend groups, or with family, 58% pointed 1, 24% (2 points), and 16% answered this question with 3 points. It means that the level of interactivity in the field area is weak to medium. People cannot enjoy going to Gulhane for resting, walking or sport. For friendly: we asked them about the "Communicating level of the users with each other and existing activities." For this question, anglers answered with 3 points (10%), and the remaining age groups responded with 61% (1 point) and 26% (2 points). (Table 3)

5.2 Concept proposal projects for the Sarayburnu waterfront

After the results of the fieldwork and survey questions, students were asked to design their proposed landscape plans (Figure 4). As per the information collected from questionnaires, alternative destinations, optional and social activities, reliability of time, maintenance,

Access & Linkage

age group	18 to 24	24 to 39	40 to 64	65 to 84	Frequency respondents	Frequency %
Levels	*question (I): Transportation alternatives (public bus, metro, tramway, sea ports).*					
1	_	_	_	_	_	_
2	_	_	_	_	_	_
3	_	_	_	_	_	_
4	2	3	5	19	29	32%
5	6	17	32	6	61	68%
question (II): Adequacy of parking lot (car parking, bcycle, bike).						
1	_	_	_	_	_	_
2	_	_	_	_	_	_
3	_	_	_	_	_	_
4	_	2	4	6	12	13%
5	8	18	33	19	78	87%
question (III): Connection between the existing walking paths and sea front.						
1	3	12	15	19	49	54%
2	3	6	18	6	33	37%
3	2	2	4		8	9%
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (IV): Access to historic peninsula and Gulhane Park.						
1	8	12	3	19	42	47%
2	_	6	19	6	31	34%
3	_	2	8	_	10	11%
4	_	_	7	_	7	8%
5	_	_	_	_	_	_
question (V): Perception level for the first time visitors (sights, seeing, signage, access points)						
1	6	15	29	20	70	78%
2	2	5	8	5	20	22%
3	_	_	_	_	_	_
4	_	_	_	_	_	_
5	_	_	_	_	_	_

Sociability

age group	18 to 24	24 to 39	40 to 64	65 to 84	Frequency respondents	Frequency %
Levels	*question (I): Level of inclusivity (women, children, elderly, disable people)*					
1	3	11	14	18	46	51%
2	4	9	18	7	38	42%
3	1	_	5	_	6	7%
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (II): Diversity of urban furnitures						
1	8	17	30	20	75	83%
2	_	3	7	5	15	17%
3	_	_	_	_	_	_
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (III): Suitability of the place for social activities (e.g. concert, open-air museum, fishing, walking, etc.)						
1	8	17	27	20	72	80%
2	_	3	10	5	18	20%
3	_	_	_	_	_	_
4	_	_	_	_	_	_
5	_	_	_	_	_	_
question (IV): Interactivity of the palce (alone, with friends or family)						
1	6	12	19	15	52	58%
2	_	5	10	7	22	24%
3	_	3	8	3	14	16%
4	_	_	1	_	1	1%
5	_	_	_	1	1	1%
question (V): Communicating level of the users with each other and existing activities						
1	5	13	20	17	55	61%
2	_	7	8	8	23	26%
3	_	_	9	_	9	10%
4	_	1	_	_	1	1%
5	_	_	1	_	1	1%

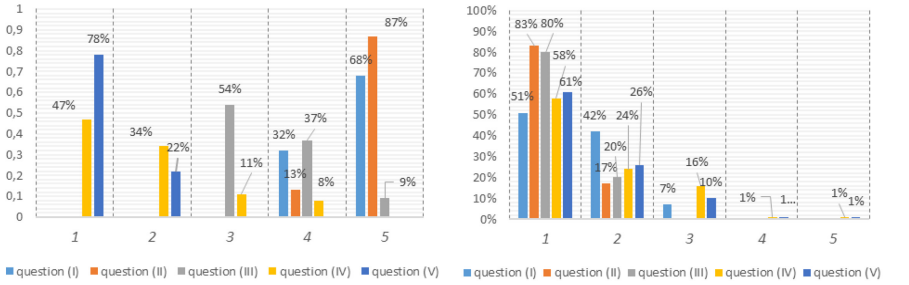


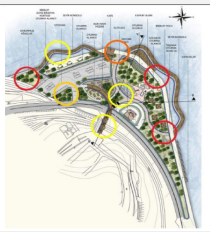
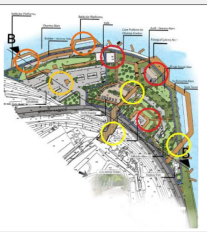
Table 3.
Shows the data related to the "access and linkage" and "sociability" of PPS

vitality, green space, walkability, car park, urban furniture, community, interaction points, prioritizing pedestrian promenades, bike paths and diversity in activities (mixed land use-seasonal activities), especially water-related activities are taken into account.

6. Discussion and results of the case study

According to the demographic analysis results, a significant difference is detected in the percentage use of men and women (62–38%). This shows that the area is not used equally and

Qualities for the concept of Power of 10+

Proposal projects	Project (1)	Project (2)	Project (3)
PPS Spatial Qualities			
Access & Linkages	1. Arrangement of existing parking lot and destinations in the field study area 2. Directing destinations to water or a water-related activities 3. Overpass design to provide easy access between Gulhane park and field work	1. Designin the destinations with considering the existing trees 2. Designing a historic pedestrian crossing and extending it to the waterside 3. Use of green spaces as connecting elements between destinations	1. Bicycle track design for easing access to the area especially waterside 2. Green corridor connects waterfront with historic Gulhane Park 3. Connecting the waterfront with Gulhane park with continuing path axis until park
Uses & Actitivities	4. Paying attention to the power of 10+ in designing activities (having a minimum of 10 space quality, for example: open air art exhibition corner, skateboarding area- bike track, fishing platform for anglers, walkways, etc.) 5: Connection of the related activities	4. Linking activities in the field with the historical context (for example: Exhibition of historical artifacts in open space) 5. Prioritize waterside activities (designing sea side, panaromic view cafe and restaurants, observation decks (for users and fishermen), etc.	4. Designing a cycling track throughout the area 5. Connecting the Gulhane Park and waterfront with multi-function destinations
Sociability	6. Designing new cafe instead of the existing one 7. Platform for public , multi-use urban furniture, new meeting spots according to historical infrastructure of the fieldwork	6. Arrangement of various urban furniture 7. Designin group activity areas (concert area, sea viewing platforms, etc.)	6. Providing diversity in designing social and optional activities 7. Open air naval museum, cafe and fish restaurants for gathering people, sea view cafe places, outdoor amphitheater, pier design for fishermen for socializing users
Comfort & Image	8. Diversity in urban furniture 9. Landscaping statue of Ataturk as an iconic symbol of the area 10. Arrangement of existing parking lot for easing access to the area	8. Arrangement of existing parking lot 9. With the design of standard inclined ramps, it makes it easier for everyone to connect to activities, especially waterside 10. Strengthening placemaking sense by creating intersection points, and their conneciton with the fields tudy's landmarks	8. Diversity in urban furniture 9: The relationship of the green area with the open-air naval museum supports the image of the region 10: Giving priority to the statue of Ataturk as an iconic symbol of the area and directing users there

Qualities for the concept of Power of 10+

Proposal projects	Project (4)	Project (5)	Project (6)
PPS Spatial Qualities			
Access & Linkages	1. Considering conservation of existing trees when designing access within the area 2. Revitalizing the historical link between Gulhane Park and the field study (bridge design) 3. Directing destinations to water or a water-related activity	1. Overpass design suitable for landscape design form 2. Attracting attention to the Ataturk statue with its radial design and the connection of destinations with the water 3. Bicycle track design for easing access to the area especially waterside	1. Bridge design between Gulhane park and Sarayburnu area 2. Designing pedestrian roads according to destinations, using green areas for connection among activities 3. Directing the users directly to the water by designing pathways or destinations
Uses & Actitivities	4. Designing a hobby garden for children 5. Designing activities according to the Power of 10+ concept, water-related activities in the field study (viewing platforms according to different user profiles, photograf points, fishing etc.)	4. Designing an amphitheater for activities around the Ataturk statue 5. Designin all destinations base on the Power of 10+ concept of the PPS and integration of social and optional activities	4. Diversification of sitting areas (closed open-semi-open), cafes, skateboarding area, water-related activities (fishing boards, observation decks, water plaza, etc.) 5. Designing activities for individual and group use, appealing to different age groups
Sociability	6.Skateboarding area for socializing children and their family 7. Designing new cafe, group activities etc. for interactivity with the place	6. For socializing people, designing sunset viewing platforms, photo spots, skateboarding, platforms for fishing, a viewing terrace on the abandoned pier etc. 7. With designing the open-air theater, not only the interaction between people increases, but also the connection with the Ataturk statue and the water strengthened.	6. Designin group activity areas (concert area, observation decks , etc.) 7. Ensuring the socialization of people with designing different seating element
Comfort & Image	8. Diversity in Urban furniture (with taking into account the ease of use in all seasons, open and semi-open) 9. Social media support 10. The inclusion of Ataturk statue and Gulhane park as the image of the region in the design	8. A radial design plan centered on the Ataturk statue (strengthening the image of the area) 9. Diversity in urban-furniture suitable for group or individual use 10. Designing wooden platforms to enable users to communicate closely with water	8. Emphasizing ergonomics and comfort in the design of urban furniture 9. The inclusion of Ataturk statue and Gulhane park as the image of the region in the design process 10. Easy access between destinations (width of paths, flooring materials, etc.)

Figure 4.
Students' proposed projects based on the PPS place diagram considering the Power of 10+ concept of the Sarayburnu waterfront

balanced among male and female users. When we look at the age groups, the range of 18–24 years does not use the area actively. The remaining users, primarily men, either come to the area at a particular time of day for fishing or use Sarayburnu as a transition axis to pass to Gulhane Park. They leave their vehicles in the existing parking lot and continue on their way. The most critical problems of the area can be classified like this: there is no problem in terms of access to the area, but the most conspicuous point is the lack of various destinations in the area, the fact that all user groups do not efficiently use the activities at all hours of the day (24 h), insufficient urban furniture, not directing the existing destinations to the seaside or any water-related activity. Although it is an area with historical values, the Ataturk statue or existing historical remains are not evaluated in the field study.

When the proposed projects are examined according to the PPS categories, these findings have been observed:

(1) protecting the existing trees, open-air art exhibition corner, skateboarding area-bike track, meeting points, a fishing platform for anglers, water plaza in the project (1),

(2) exhibition of historical artifacts in open space, designing seaside, panoramic view cafe and restaurants, presentation of historical artifacts in open space, designing glass platforms on the sea surface in the project, observation decks, arrangement of the existing parking lot (2),

(3) platforms for portal fishing, bicycle track design, the green corridor connects the waterfront with historic Gulhane Park, an open-air naval museum, fish restaurants in the project (3),

(4) protection of existing trees, revitalizing the historical link between the park and the field study (crosswalk design), skateboarding area, incorporating the silhouette trace of the city walls into the design plan in the project (4),

(5) designing an amphitheater for activities around the Ataturk statue, designing wooden platforms to enable users to communicate closely with water, sunset viewing platforms-photo spots, platforms for fishing, designing a viewing terrace on the abandoned pier, a radial design plan centered on the Ataturk statue, urban-furniture diversities in the project (5),

(6) alternative sitting areas (closed-semi-open and open), skateboarding areas, observation decks (Instagram points), biking track and naval museum in the project (6).

When all these six proposal plans were examined, common approaches were observed: exhibiting historical values throughout the projects and transforming them into the image of the area, using green spaces to associate destinations and water-related activities, linking destinations with each other and directing them to water or water-related activities, designing activities that appeal to all age groups, planning decks for fishers, diversification of urban furniture (use as open and semi-open), arrangement of the car park without compromising the original values of the area, design of meeting points, taking photos points, cafe design, etc.

According to the results obtained from the survey questions of the field study and the proposed concept plans, this study develops a proposed disaggregate ten sub-qualities derived from The place diagram and The Power of 10+ concept of the PPS. While these qualities allow designing public spaces, they also guide comprehending the relationship between people and waterfronts as public spaces. The interaction of waterfronts as public spaces happens in the following ten sub-qualities accomplished as the basics of "waterfront design qualities":

6.1 Access and linkage

(1) *Access to the area-linkage among the destinations:* Different transportation alternatives in the project area provide all users with various options and enable them to use the area more frequently. Access is not only limited to area access but also includes the connection of destinations within the area. Links of destinations, reinforcing each other and intersecting pedestrian tracks leading to the water or water-related activities should be considered essential factors in designing an effective waterfront.

(2) *Prioritize pedestrian-bike access*: Biking and walking compose a vital part of the accessibility of designing the waterfronts. A more accessible and healthy waterfront can be achieved by prioritizing pedestrians, walking, or cycling rather than a vehicle-based waterfront.

(3) *Designing green areas as connective tissues:* In an interactive waterfront, green areas are not used as picnic areas but serve as connective tissue between destinations.

6.2 Sociability

(4) *Prioritizing social and optional activities:* Another essential criterion in increasing spatial qualities of waterfronts is designing activities that involve interaction and communication of users with others. According to Gehl, the better a place, the more optional activity occurs and the more prolonged necessary activity lasts. Social activities (such as diversity in seating areas, talking, making eye contact, eating food, touching the water) and optional activities like (skateboarding areas, biking track or fishing platforms, etc.) are indirectly reinforced when necessary and optional activities are provided with better conditions in public spaces.

(5) *Variety of urban furniture:* Diversification of the seating elements and their balanced distribution should allow all users to sit comfortably as a group or individually. Urban furniture unconsciously shapes our experience, sense and feelings about the area. They promote equality of opportunity for all waterfront users, as it provides rest places for elderly users, individuals with disabilities and people with mobility issues. Parents of small children can use urban furniture in public spaces and amenities to watch their youngsters, watch the sea, making accessibility.

6.3 Uses and activities

(6) *Create multiple destinations (water-related activities/seasonal/24-h activities/design for everyone):* The purpose of 10+ destinations or activities is that everyone should not come to the waterside for only one purpose. Various activities encourage users to go to the waterfront for different reasons. Various layered activities allow people to communicate about the place, perceive the space and socialize. An important issue is that the activities should be open for all users (including women, men, children, disabled individuals, etc.) 24 h a day, on weekdays and weekends, in all seasons.

(7) *The connection among destinations:* All destinations on the waterfront should be connected to water-related activities or directly to the water. These connections should be with walking paths and bicycle tracks. These connecting paths will also lead to different destinations (for example, green areas, street vendors, housing, retail, etc.) and help make the waterfront livelier.

6.4 Comfort and image

(8) *Cleanliness, safety and availability perception of the space:* The priority should be pedestrians on a vibrant waterfront, not vehicles. Pedestrians should easily get to the place, use the activities, touch the water or use any water-related activity, sit where they want and take pictures wherever they want. Users with different age groups (from children to adults) should feel safe, free and accessible in the area.

(9) *Community's vision, iconic buildings, or images:* landmarks or buildings on the waterfront represent economics, culture, religions and nations of the society and also contribute to the image of the waterfront. The image of being at the seashore before coming to the waterfronts is also an essential criterion in recalling the area, something memorable and recognizable (water-related activities or sports, water plazas, etc.). Iconic structures can also contribute to the image of the waterfront.

(10) *Ergonomic urban furniture:* In addition to the variety of urban furniture, the most critical issue is its comfort, functionality, and design according to human dimensions. The material used in urban furniture should be suitable for all weather conditions. It should be designed as an open or semi-open according to the different needs of the users.

7. Conclusion

The waterfront concept represents a multi-purpose structure of the physical, sociological, cultural, geographical, and psychological aspects of the interrelation between people and public spaces. This paper ensures that waterfronts should not be used just as green areas; they should contain diverse activities as a vital interaction point for public spaces and people. Accordingly, this study's primary approach and foci are to comprehend the relationship between waterfronts and the social qualities of public spaces. Waterfronts reflect the sense of place where people socially interact, regardless of their demographic differences, with each other and the city's waterfront. This relationship also motivates the recreation and entertainment facilities of the places where people gather and meet around spatial activities. Thus, waterfront projects cover large-scale areas, and the design process requires a multidisciplinary approach. Designing waterfront projects is mainly connected to social and optional activities. However, the waterfronts as public spaces have a wide variety of interactions; it is crucial to maintain simple and novel design qualities that can also vitalize the existing urban social flux.

The theoretical framework of this paper proposes a diverse perspective to the studies on the spatial qualities of the waterfront design process. Therefore, based on the four spatial qualities of PPS and the power of 10+, ten spatial qualities of the waterfronts are compiled as a guideline for future researchers working on designing waterfront projects. The proposed ten spatial qualities follow three fundamental steps that will provide a starting point for the design process; decision, design and build of the waterfronts. The first stage of the design process is the decision: it maintains creating a community vision and image. This requires a simple, practical approach that focuses on carefully detailed needs according to the availability of the urban amenities. It also avoids the extra cost of the budget for the waterfront areas.

The second stage is the design: it aims to access the area and link the destinations, prioritize pedestrian access, and design green spaces as connective tissues. The functional purpose of the design is to keep the existing context of the place. This also allows a better adaptation to the changing environmental conditions that can robustly fulfill the project's purpose.

The third stage is the build: it develops an involvement of the community in social and optional activities, multiple destinations, and the connection between them. Being open to the

changing social and spacial needs of the community should be considered as the primary goal of providing flexible, safe, clean, sustainable, aesthetic and cost-friendly projects. Waterfronts can boost an excellent interaction effect to professionally designed environments and transform them into great recreational places. However, it cannot be seen as the single solution to all social and spatial problems of the whole city, but it can still be taken as a benefit of public spaces. Designing waterfronts includes social interaction between that place and individuals sharing the same spatial experiences. As a result, waterfronts' spatial qualities provide multi-function activities that promote sociability in a public space. Through this, while waterfronts of the cities become an attraction place, this stimulates an alternative destination spontaneously or continuously processing, creating great public spaces near waterfronts.

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