Toward A Conceptual Framework for Evaluating the Quality of Urban Open Spaces

Sara Eltarabily

Port-Said University, Faculty of Engineering, Architecture and Urban Planning Department, Port Said, Egypt

*Corresponding author: **sara_eltarabily@eng.psu.edu.eg***

Abstract

Urban open spaces have frequently been a vital destination for people to connect with one another. The efficiency of urban open spaces depends on their social, health, environmental, and economic benefits. However, little attention has been given to the impact of the relationship between the spatial environment and social interactions on the quality of urban open spaces to be vibrant spaces responding to the change in users' needs. This study examines the integration between placemaking and space syntax approaches where overlapping relationships between the social and spatial aspects are found. This study aims to extract a conceptual framework with specific stages that can be followed for evaluating "quality" in urban open spaces and then can enhance the weaknesses. Thus, it is to direct the designers' attention to rediscovering social and recreational uses in these spaces according to people's needs and spatial configurations. The De Lesseps Bay project in Port Said city, in Egypt, was firstly analyzed through a quantitative method using the space syntax tool "DepthmapX" to understand social decisions and behaviors based on the selected spatial indicators, and secondly through a qualitative method using face-to-face interviews and field observations checklists to understand users' needs in the place using the Pareto principle and a scoring system. The findings revealed the quality indicators of the place as the most needed factors for users such as attractiveness, vitality, clustered and integrated activities, visual appeal, safety, people connectivity, and accessibility. The spatial relations directly affected the "access and linkages" and "comfort and image" attributes of the placemaking approach, as well as indirectly affected the "uses and activities" and "sociability" attributes. This paper suggests expanding the concept of "quality" to include the comprehensive principles of creating vibrant spaces to continue responding to the change in community needs and renewal of other things in an urban environment.

Keywords: urban open spaces, placemaking, quality indicators, space syntax, DepthmapX.

Introduction

In response to the COVID-19 pandemic considered one of the most difficult challenges that affected the urban design of the city (Bereitschaft & Scheller, 2020; Sharifi & Khavarian-Garmsir, 2020), the relationship with urban open spaces fundamentally changed (Honey-Rosés et al., 2020; Shawket, 2020; Venter, Barton, Gundersen, Figari, & Nowell, 2021). The importance of having urban open spaces that consider human behavior has increased, as it is one of the solutions used during past pandemics (Eltarabily & Elgheznawy, 2020).

Urban open spaces have frequently been a vital destination for people's connection with one another, and people's recreational and social interactions are greatly dependent upon them (Bishop

& Marshall, 2017; Hasan, 2020). The quality of urban open spaces is an integral part of a good city's practice since they are involved with people's essential needs, whether these needs involve passive or active engagement or discovery (Carr, Francis, Rivlin, & Stone, 1992; U. A. E. Nassar, El-Samaty, & El-Zeni, 2018; Salama & Azzali, 2015). Furthermore, urban open spaces contribute to enhancing people's well-being, providing satisfying experiences that lead to happiness, comfort, and security (Subramanian & Jana, 2018b; Weijs-Perrée, Dane, & van den Berg, 2020).

Previous studies have investigated the efficiency of urban spaces regarding three important growth attributes – functional, social, and perceptual – (Salama & Azzali, 2015; Salama & Gharib, 2012; Salama, Khalfani, & Al-Maimani, 2013). As the importance of the relationship between the spatial environment and the social one in urban open spaces grows(Zaleckis et al., 2017), the interest in social value has recently increased in urban studies (Jalaladdini & Oktay, 2012; Salama & Azzali, 2015). Hence, the spatial characteristics of urban open spaces influence their social value and quality which can reveal why some spaces are well-attended, whereas others remain abandoned.

Because of the complexity of the quality concept of urban open spaces, extracting basic criteria to assess their quality in a framework that combines spatial and social attributes is not easy. Thus, the main aim of the research is to direct the designers' attention to rediscovering social and recreational uses in these spaces according to people's needs and spatial configurations.
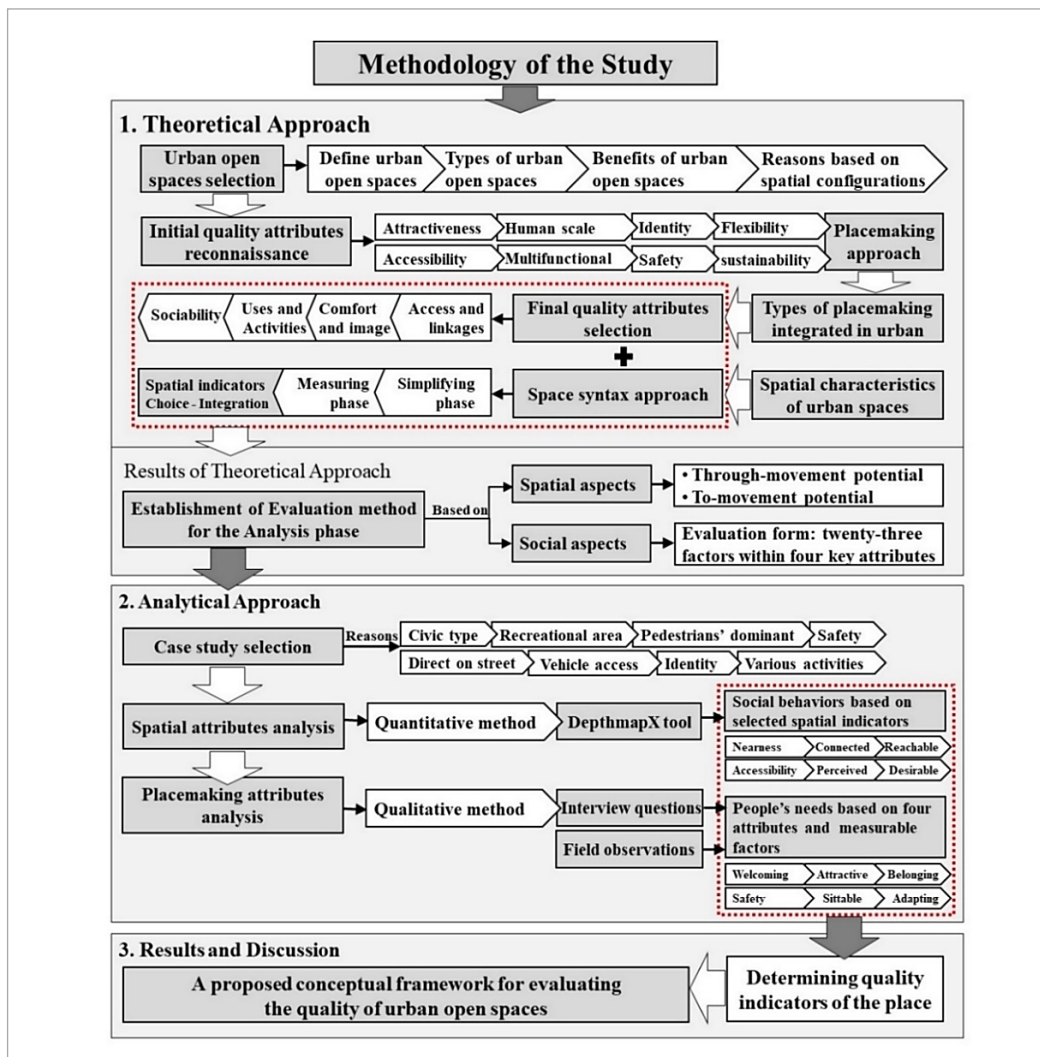

Fig. 1

Methodology of the study (Source: Author)

The main questions are, "Can the quality of urban open places be predicted by the analysis of spatial and placemaking attributes? Is this supposed to predict the decisions and the behavioral patterns of users for these places or respond to their needs? Would these social interactions likely promote the success of places?". To answer these questions; this paper consists of three sections. The first section includes the theoretical approach, which discusses urban open spaces' benefits, their quality criteria based on placemaking theory, and how space syntax can be used in spatial analysis. The second section includes the analytical study of using placemaking attributes and space syntax metrics for analyzing the quality of the selected urban project in Port Said, Egypt. The third section concludes with findings and a discussion to formulate a proposed conceptual framework that identifies assessing the quality of space where people gather and spend considerable time. Fig. 1 shows the methodology of the study for evaluating the quality of urban open spaces.

Theoretical Approach

A theoretical approach explains the relationship between urban open spaces' quality and placemaking and space syntax approaches. This segment of the study defines the types of urban open spaces and the social features that distinguish a good design that satisfies people's needs. It concentrates on the integration of the placemaking approach in urban practices, and on the role of space syntax in analyzing the spatial attributes of urban spaces.

Defining urban open spaces, types, and benefits

Although there are multiple definitions of urban open spaces, there is agreement on their great importance in cities. In terms of the concept of the physical environment, a group of terms has been used to describe open spaces – land, water, and an area without any buildings (Francis, 2003) – and it agrees with Lynch's definition when the term "accessibility" is added to the meaning of "open" (Lynch, 1981). From a user's point of view, it has been described as an appropriate space for carrying out social activities, whether necessary ones, such as going to school and work, or optional ones such as walking or sitting in the open-air (Gehl, 2011). Thus, the relationship between the physical environment and social activities affects how a space meets people's expectations, especially the youth (Phan, Chu, & Pham, 2020), and can influence the quality of life in urban (Ibrahim, Omar, & Mohamad, 2019; Jalaladdini & Oktay, 2012; Oktay & Rustemli, 2011).

Many types of urban open spaces meet people's needs at different times, such as domestic, neighborhood, recreational, and civic urban open spaces (Woolley, 2003). Domestic spaces meet the family's needs. Neighborhood spaces are outside the home where people meet their neighbors and friends. Civic-type open spaces involve recreational urban spaces that are occasionally visited to partake in passive activities or activities in parks (Rakhshandehroo, Mohdyusof, Tahir, & Yunos, 2015). This type will be considered in the study where the journey to an urban open space requires transportation other than walking, and the spatial attributes of the urban context affect decision-making.

The efficiency of urban open spaces depends on their benefits. Fig. 2 shows four benefits. The first relates to community and social life, the second corresponds to physical and mental health, the third includes climate and environmental effects, and the fourth involves economic opportunities and positive impact on land and property prices (Chou, Lee, & Chang, 2016; Heidt & Neef, 2008; Jiao & Liu, 2010; Rakhshandehroo et al., 2015; Rakhshandehroo, Yusof, Arabi, Parva, & Nochian, 2017; Woolley, 2003). This study is concerned with the quality of urban open spaces which in turn enhances social life by creating opportunities for all people to participate in activities in the same space.

The concept of urban open spaces' quality is a combination of features that determine a city's design that satisfies basic people's needs (Radfar, 2013; Streeck, 2012). Some studies focus on the quality of recreational urban spaces and how they influence people's well-being. And their attraction to them. Attributes such as attractiveness, size, and distance are strongly associated

with the walking concept (Salama & Azzali, 2015; Salama & Gharib, 2012; Subramanian & Jana, 2018a, 2018b; Weijs-Perrée et al., 2020). The indicators of attractiveness and productivity of these spaces were rated regarding characteristics such as distinctiveness, accessibility, safety, comfort, diversity, flexibility, and interactivity (Faragallah, 2018; Phan et al., 2020). Other studies extracted the quality criteria of accessibility, legibility, identity, flexibility, interactivity, etc. (He, Herthogs, Cinelli, Tomarchio, & Tunçer, 2020; Kozlova & Kozlov, 2018) from the four key elements – sociability, uses and activities, access and linkages, and comfort and image – used to evaluate the quality of open spaces and develop the concept of placemaking (Cilliers, Timmermans, Van den Goorbergh, & Slijkhuis, 2015; Deniz & Kılıçaslan, 2020; PPS, 2016).

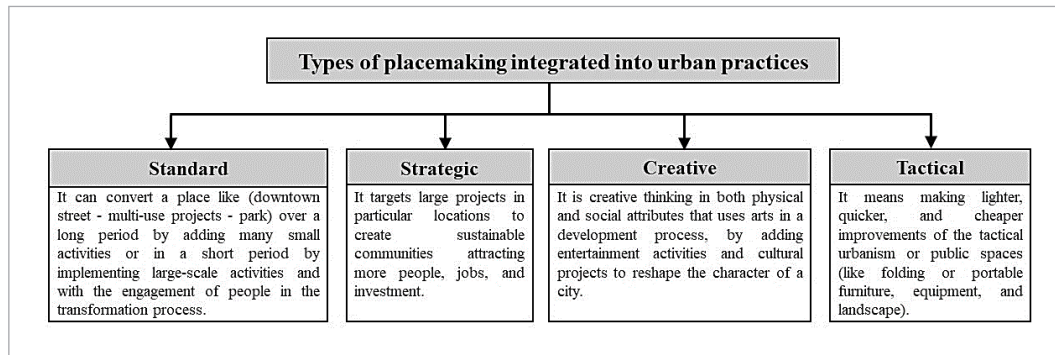### Integration of placemaking approach in urban practices

The concept of space is completely different from the concept of place. Space is an abstract meaning that refers to geometrical location and its structural elements without any consideration of human social links (Seamon & Sowers, 2008; Tuan, 1977), whereas the concept of place refers to the incorporation of memories and feelings based on human social experiences and spatial actions within physical space (Ivanovic, 2014). Environmental psychology contains various theories that focus on the relationship between people and the built physical environment, i.e., placemaking (Friedmann, 2010; Hauge, 2007).

The placemaking approach of urban design thought came into practice in the late 20th century (Ghavampour & Vale, 2019). The concept "placemaking" in urban spaces was developed by the Project for Public Space (PPS) (spaces, 2007) and was defined as a transformation process to shape a public realm that promotes the interaction between people and the places where they feel a sense of belonging. The process of placemaking is concerned with studying space's qualities that transform a place, depending on the integration of three components that form a sense of place – physical, activity, and meaning – (Relph, 1976) which explains the presence of people in one place and their absence from another place.

The benefits of the placemaking approach are found not only in the life quality field but also in achieving sustainability goals (Ghavampour & Vale, 2019), in the economic sector (Institute, 2015), and in the process of urban regeneration (Shih et al., 2021). As shown in **Fig. 3**, four types of placemaking – standard, strategic, creative, and tactical – were categorized, as to be integrated into different urban practices (Ellery, Ellery, & Borkowsky, 2021; Wyckoff, 2014). "Standard" placemaking is the common term for promoting the quality of place and was created by the PPS. The other three types of placemaking were later advocated to focus on outcomes of the quality of life by engaging stakeholders in the transformation process before allocating funds or creating permanent infrastructure.

Types of placemaking integrated into urban practices			
Standard	**Strategic**	**Creative**	**Tactical**
It can convert a place like (downtown street - multi-use projects - park) over a long period by adding many small activities or in a short period by implementing large-scale activities and with the engagement of people in the transformation process.	It targets large projects in particular locations to create sustainable communities attracting more people, jobs, and investment.	It is creative thinking in both physical and social attributes that uses arts in a development process, by adding entertainment activities and cultural projects to reshape the character of a city.	It means making lighter, quicker, and cheaper improvements of the tactical urbanism or public spaces (like folding or portable furniture, equipment, and landscape).

It is worth noting that the success of urban open spaces involves overlapping criteria whose ignorance thereof leads to unsatisfactory results, as in the abandonment of public spaces despite their great cost, or location. Hence, great efforts need to be made to rediscover public places and good urban environments for people by evaluating their quality depending on the four key attributes of the placemaking theory – access and linkages, comfort and image, uses and activities, and sociability (Cilliers et al., 2015; Deniz & Kılıçaslan, 2020; PPS, 2016). Here each attribute is briefly explained below:

Access and linkages

Access refers to physically entering a place, as well as the place corresponding to different transportation options. Visually access refers to a place's interior being visible from a distance and from the outside. Linkages refer to the clear connections between the place and its surroundings that encourage people to enter without any obstacles and to the presence of elements, such as interesting edges, paths, and sidewalks that lead to a desired destination (Latip et al., 2016; PPS, 2016; spaces, 2007).

Comfort and image

The term "comfort" means safety because of pedestrians use domination, in addition to finding adequate seating located in the sun or shade (Latip et al., 2016; PPS, 2016; spaces, 2007). "Image" is related to other external urban qualities and means a place making a good first impression with unique characteristics that also provide an enjoyable social experience that one may photograph.

Uses and activities

Activities are one of the basic features of a good place where something is interesting to do over different periods of the day. A distinctive place is measured by its crowdedness and the existence of different types of activities used by diverse age group, in the presence of good management (PPS, 2016). When a place does not give people a reason to use it, it becomes empty and abandoned.

Sociability

William H. Whyte expressed the meaning of sociability through the statement "what attracts people most is other people" (PPS, 2016), which means choosing a place with distinguishing features that encourages community connectivity where one can meet friends, talk to people in groups, and frequently use it. Sociability depends on a strong sense of adaptation to a place where a pleasurable experience comes out of the comfortable feeling of interacting with friends as well as strangers (Latip et al., 2016; U. A. E. Nassar et al., 2018).

Role of space syntax in analyzing the spatial attributes of urban spaces

Predicting what people will do in spaces or guessing the paths that they will take is difficult. Therefore, this study subscribes to the premise that if the quality of urban open places can be predicted

by analysis of spatial attributes, then the people's decisions and behaviors in these places can be predicted. Such a strategy can create an opportunity for local authorities to implement actions to develop urban open places according to the expected usage.

The relationships between urban spaces and the network of streets that they are connected to affect what activities occur in the spaces, thus the space syntax approach (developed at UCL university by Hillier and Hanson (Hillier & Hanson, 1989)) is defined as a network method for modeling cities that is supported by a social theory of space to analyze the potential influence of spatial layouts and configurations on social behavior such as pedestrian movement (the ease of access and the passing flow) (Lerman, Rofè, & Omer, 2014; Lopes & de Hollanda Cavalcante, 2012), visibility perception (Li, 2011; Mahmoud & Omar, 2015), and activity patterns in urban spaces (Can & Heath, 2016; McCahill & Garrick, 2008).

Space syntax is an analytical tool for studying social variables and is useful to integrate into the design process of urban spaces (Bendjedidi, Bada, & Meziani, 2019), in addition to the approach's efficiency in analyzing the physical, social and sensory attributes of the changes in a city's local identity in terms of location and cultural and social interactions (Barkat, Ayad, & Elcherif, 2019). Regarding street network connectivity that is indicated by integration values, space syntax explores the relationship between spatial configurations and actual pedestrian movement in urban spaces where historical districts that have lost their importance can be regenerated and presented as pedestrian friendly (Mansouri & Ujang, 2017). Additionally, accessibility, choice, and connectivity values are important spatial metrics in investigating the impact of movement patterns on activities in urban open spaces (FAROUK & YOUSSEF, 2020).

The main benefit of the integration of the space syntax method into urban design is the easy procedure of transforming the urban morphological structure into lines and graphs for analyzing urban spatial qualities and their correlations with human behavior patterns (Jeong & Ban, 2014; U. Nassar, Samaty, & Elzeni, 2016; Xia, 2013). Furthermore, it directly reflects the performance of the urban design system that can be effectively enhanced (Karimi, 2012).

Alasdair Turner developed free simulation software, DepthmapX, to derive the visual and spatial analysis of numerous scales, ranging from buildings to cities (Turner & Penn, 2002). The space syntax analysis process is conducted in two phases. The first phase simplifies units, and the second phase measures spatial relations. The commonly used unit is an axial map that is derived from many intersected sets of the least and longest straight lines passing through a space (Kostakos, 2010). The efficiency of axial maps lies in their ability to capture movement within spatial settings and corresponds to a sight path (Batty & Rana, 2004). Integration and choice metrics are analyzed as helpful spatial indicators linked to people's behavior and urban movement, respectively (Al-Sayed, Turner, Hillier, Iida, & Penn, 2014; Alalouch, Al-Hajri, Naser, & Al Hinai, 2019; Alitajer & Nojoumi, 2016; Jiang, Claramunt, & Klarqvist, 2000; Kostakos, 2010) as shown in **Table 1**.

PHASES	UNITS	INDICATION
1.SIMPLIFYING PHASE	**Axial maps**	Representing the movement paths between two points in the space corresponding to the sight path. The clearest path is the most chosen and used.
2.MEASURING PHASE	**Integration**	Measuring the to-movement potential and how space is a destination: shallow (high values are when space is near) or deep (low values are when space is far).
	Choice	Measuring the through-movement potential from point to point in a spatial system. High values indicate the most used space that generates the shortest path to a destination.

Table 1

Analysis phases in space syntax process of the case study (Source: Adapted by Author from (Al-Sayed et al., 2014; Alalouch et al., 2019; Alitajer & Nojoumi, 2016; Batty & Rana, 2004; farouk & youssef, 2020; Jiang et al., 2000; Kostakos, 2010))

Results of the theoretical approach

The main result of the theoretical approach is to extract essential criteria to assess urban open spaces' quality in a method that combines spatial and social aspects. Establishing an evaluation method that can be used for the analysis phase is depending on two aspects. The social aspect comes from the analysis of placemaking attributes that determine people's needs in these spaces based on a total of 23 different factors within four key attributes: (A1- proximity, A2- connectivity, A3- accessibility, A4- walkability, A5- linkages, A6- visual appeal, A7- convenience, C1- safety, C2- cleanliness, C3- sittable, C4- attractive, C5- identity, U1- clustered activities, U2- integrated facilities, U3- vitality, U4- economy, U5- management, S1- gender diversity, S2- people connectivity, S3- neighborly, S4- welcoming, S5- adaptation, S6- sense of belonging) as shown in **Table 2** while the spatial aspect determines the movement potentials and spatial relations based on the spatial analysis for indicators selected from the measuring phase in the space syntax tool as shown previously in **Table 1**.

Table 2

Evaluation form of placemaking attributes (Source: Adapted by Author from (Cilliers et al., 2015; Deniz & Kılıçaslan, 2020; PPS, 2016))

FOUR KEY ATTRIBUTES	INTANGIBLE FACTORS	CONCEPTUAL POINTS	CLASSIFICATION OF ASPECTS
1. ACCESS AND LINKAGES	**A1- Proximity**	Nearness in the urban context, time, or relationship	Spatial aspect
	A2- Connectivity	Compatibility with transportation options and parking usage or its surrounding	Spatial aspect
	A3- Accessibility	Quality of being able to be reached or entered without any obstacles	Spatial aspect
	A4- Walkability	Making interesting edges where they are safe to walk along	Spatial aspect
	A5- Linkages	Presence of effective elements such as paths and sidewalks that lead to where one wants to go	Spatial aspect
	A6- Visual appeal	Seeing what is happening there both from a distance and the outside	Spatial aspect
	A7- Convenience	Fitting well with people's needs, and activities	Social aspect
2. COMFORT AND IMAGE	**C1- Safety**	Feeling safe because of pedestrians' use domination and bicyclists in the place	Social aspect
	C2- Cleanliness	Spaces are clean and free of litter, and there's responsibility for maintenance	Social aspect
	C3- Sittable	Having comfortable furniture, and the choice to sit and find adequate seats located in the sun or shade	Spatial aspect
	C4- Attractive	Making a good first impression of a place represents a part of a good social experience	Social aspect
	C5- Identity	The unique character of the environment's image reflects the identity of the city or other external urban qualities	Spatial aspect
3. USES AND ACTIVITIES	**U1- Clustered activities**	Existence of different types of activities used by varied ages of people	Social aspect
	U2- Integrated facilities	Existence of interesting things to do over different periods of the day	Social aspect
	U3- Vitality	Crowdedness in the space and using each part or not	Social aspect
	U4- Economy	Providing an opportunity to participate in economic and social exchanges within a place	Social aspect
	U5- Management	The presence of good management	Social aspect

FOUR KEY ATTRIBUTES	INTANGIBLE FACTORS	CONCEPTUAL POINTS	CLASSIFICATION OF ASPECTS
4. SOCIABILITY	**S1– Gender diversity**	There are as many women as men, and with different ages	Social aspect
	S2– People connectivity	A place with distinguishing features that encourages community connectivity	Spatial aspect
	S3– Neighborly	Social process or action that depends on the interaction with friends as well as strangers	Social aspect
	S4– Welcoming	Behaving in a polite or friendly way to a guest or new arrival	Social aspect
	S5– Adaptation	Giving people a reason to come and obtains a pleasurable experience	Social aspect
	S6– Sense of belonging	People bring their relatives with pride	Social aspect

Analytical Approach

This segment of the study attempts to investigate the term "quality of urban open spaces" and how the spatial characteristics affect social interactions. It will be limited to evaluating the quality of the selected case study in Port Said, Egypt according to two methods of analysis. Firstly, the analysis of the spatial attributes explores the social behaviors based on the selected spatial indicators through a quantitative method by using the space syntax tool (DepthmapX). An axial map of the city is drawn and then the choice and integration values are measured over axial maps to illustrate how the space is perceived spatially from many streets in the city. Secondly, the analysis of placemaking attributes that were chosen based on the results of the theoretical approach explicates people's needs in the space and whether it is an attractive leisure destination through a qualitative method by using questions of interviews and field observations technique.

Case study selection

A coastal nature of a small city affects the existence of the entertainment places in certain areas near the sea view. Consequently, most of the recreational projects in Port Said city are located along the northern coastline of the city extending from east to west. Since the author is a local resident of this city, it is easy to recognize the behavior of people and their frequent visits to one place rather than elsewhere.

The newly developed urban open spaces that become the most famous destinations in the city are 3rd July St. project, De Lesseps Bay project, Misr plaza project (still under construction), princess Ferial Park, and Al Shuhada park as shown in **Fig. 4**. The case study selection is based on excluding the two parks and the plaza from these five projects. When comparing the other two projects, they are both located on the same street and are similar in their activities. But the disadvantage of the 3rd July St. project is that is far from the main street with a long distance from the sight of pedestrians or vehicle access. As a result, despite the people's satisfaction with the new image of the project, the absence of users is an indicator of the project's inefficiency.

De Lesseps Bay project as a civic type of urban open spaces located on the northern coastline of the city was selected for the study as shown in **Fig. 5** and was analyzed to induce the impact of placemaking attributes and spatial configurations on the quality of such urban open spaces according to people's usage. The selection was based on a set of reasons as follows:

_ The selected urban open space is directly located on a vital street used by both pedestrians and vehicles. Accordingly, it will affect the quality of being able to be reached and the compatibility with transportation options in addition to feeling safe because of the observation of passersby.

_ The location of the project is close to the northern coastal line of the city, which has a unique character of buildings that reflect the identity of the city. Thus, it will reflect on people's impression of the architectural character of the place.

_ The case study is in the urban context of the city which has varied land uses such as commercial, residential, and entertainment inside the spatial configuration along the street where they are giving people a reason to frequent visiting.

The analysis of the spatial attributes

This segment of the study represents the quantitative method of the analysis. Spatial relationships between the case study location and the connected network of streets in the city are clarified. A map of Port Said was imported into DepthmapX as geometrical data to be converted into spatial networks. Axial maps were produced to capture the movement within the urban system. The results rested on analyzing the choice and integration metrics to illustrate the ease of access to the De Lesseps Bay project and the desire of users to consider it a destination. The red color indicates the high values of choice and integration, whereas the blue color indicates the low values of these metrics as shown in **Table 3**.

The case study is in Port Said where its planning style is a semi-grid shape. It is characterized by ease and flexibility of movement in which all the streets intersect longitudinally and crosswise. **Fig. 6** illustrates a set of main longitudinal axes that connect the north and south of the city (from axis 1 to 6) and a set of main

Fig. 6

Main movement axes and the location of the case study in Port Said city (Source: Author)

transverse axes that connect the east and west of the city (from axis 7 to 11). The selected case study is located on Atef Al-Sadat St. (axis no.7), which is intersected by four longitudinal axes (from axis 1 to 4).

Generally, the choice analysis of the axial maps revealed the most used streets that generated the shortest paths to pedestrians' destinations within Port Said. Axis no.11 and axis no.3 had the highest choice values. Axis no.4, 8, 2, 9, and 10 had moderate choice values. Axis no.5, 6, 1, and 7 had the lowest choice values respectively. Additionally, the integration analysis of the axial maps revealed the desire to use a certain street. Axis no.11, 3, 8, 4, and 9 had the highest integration values respectively. Axis no.2, and axis no.10 had moderate integration values. Axis no.1, 7, 5, and 6 had the lowest integration values respectively.

Table 3 shows the through-movement potentials in the city's streets for the De Lesseps Bay project. In the north, it is bound by Atef Al-Sadat St., which had a low choice value and was considered partly segregated, but the longitudinal, intersected streets – Mohamed Ali, Salah Salem, and Mohamed Sarhan Streets – had moderate and high choice values. These values indicate the easy spatial uses of those streets, which in turn reach Atef Al-Sadat St. The probability of using main transverse streets such as Atalateny and 23rd July streets increases because of their short paths to different destinations.

Additionally, the to-movement potentials revealed the desirable destinations in the city's street network, such as Atalateny, Mohamed Ali, 23rd July, and Mohamed Sarhan streets. Although Atef Al-Sadat St. is not considered one of the desirable destinations on the city map, it can be easily reached via many alternative directions across those high-integration streets. Directions give an easy spatial perception of the De Lesseps Bay project, such as when using Atalateny St. or 23rd July St. via Salah Salem St. to Atef Al-Sadat St., as shown in **Table 3**.

In summary, the spatial attributes directly affected the location's nearness in the urban context and compatibility with transportation options and parking for the project. The analysis illustrated that although the project is located on Atef Al-Sadat St. which has a low choice and integration values in the spatial system of the city, its connection with intersected streets that have high choice and integration values makes the location easy to be reached or entered without any obstacles, and to be a desirable destination that is easy to be perceived spatially from many streets in the city or seeing what is happening there both from a distance and the outside.

Table 3

Axial Maps and Through-movement Potentials Analysis for the Case Study (Source: Author)
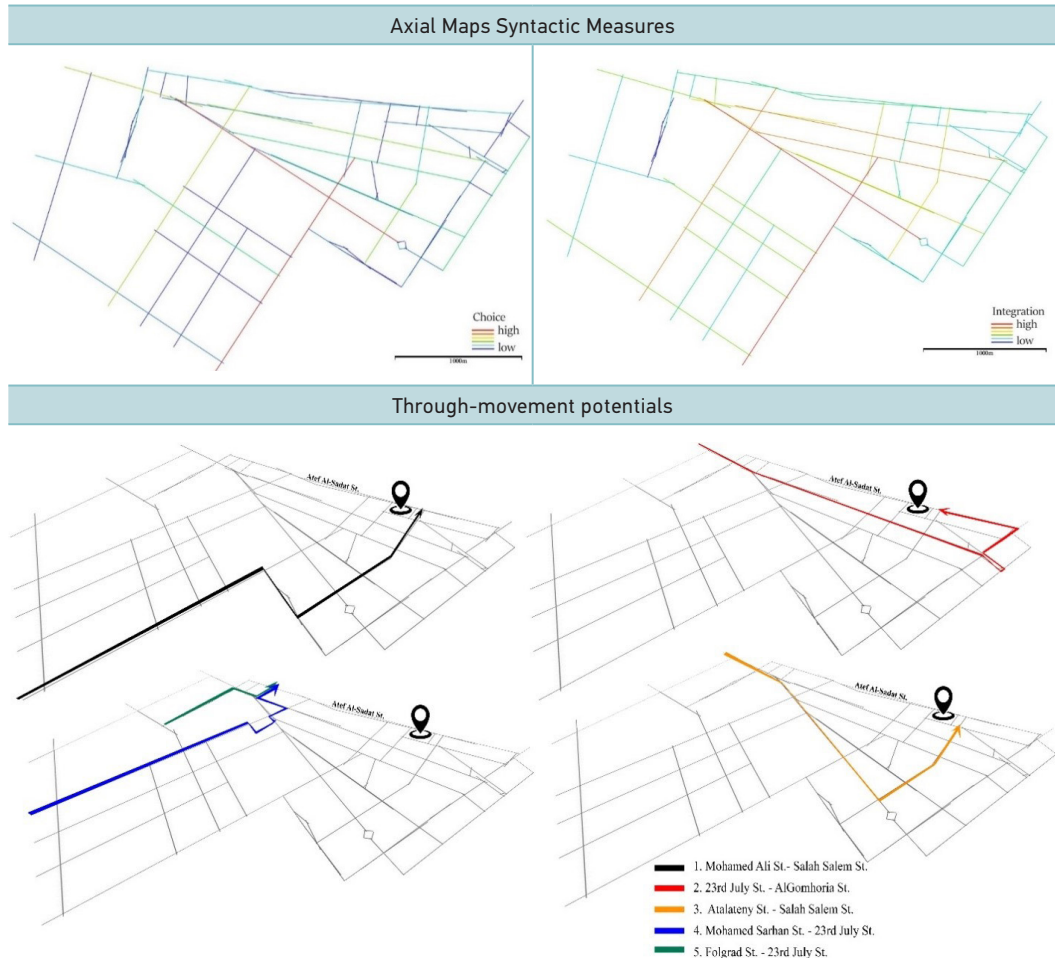
The analysis of the placemaking attributes

This segment of the study presents a qualitative method attempts to evaluate the quality of the De Lesseps Bay project from the placemaking view as shown in **Fig. 7**. Indeed, it is not possible to sepa-

Fig. 7

Analysis model of placemaking attributes (Source: Author)
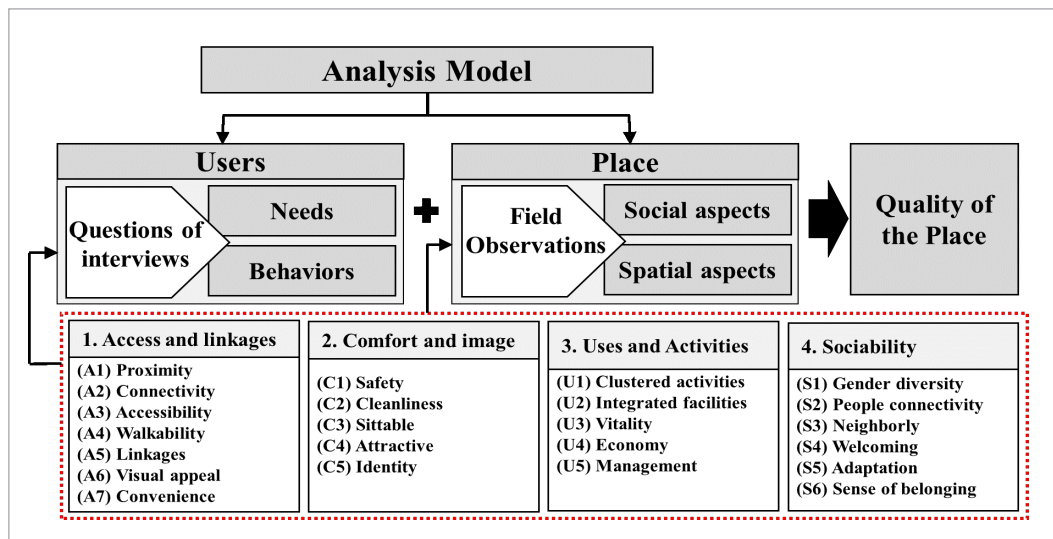
rate the quality concept from the actions that meet people's needs in the place. Aiming to understand these social needs, the intangible factors within four key attributes of placemaking are evaluated based on the information obtained from interviews that have been conducted with place users, and from the field observations of people's common behaviors in the place such as walking, sitting, and talking, etc.

Description of the place

De Lesseps-Bay project is the main case of the study. It is in the northern area of Port Said. Before December 2020, the project design was only the mall building (without operation) and a large parking area. Some movable kiosks frequently existed in the parking area offering food and drinks. The youth began to crowd in the place where there are a variety of activities and connect with others in a large open area. People firstly chose the location and the activities of the project, and people's needs induced the authorities to take a step toward implementing a civilized project instead of random kiosks in the parking area. Thus, People indirectly made the decision, participated in clarifying information about the area, and expressed its important issues. So, this is in accordance with the principle of **"The community is the expert"**.

The project was redesigned in late 2020 by integrating a tactical strategy of placemaking into the space. The project followed the principle of facing obstacles that said **"It can't be done"** for creating places by starting with small-scale improvements that were done in a short time and can be developed over the long term. This principle was combined with **"Create a place, not a design with the lighter, quicker, cheaper elements"** by adding commercial containers, seats, shading devices, sidewalks, and murals aiming to create vitality in the place and enhanced its image.

Fig. 8 illustrates the layout of the project. The project is surrounded by commercial, tourism, residential, and administrative buildings, but is mainly characterized by its mall building which is considered an important complementary part of people's use within the project, and by its private parking areas where occasionally events and celebrations, such as book fairs and other bazaars are held. A northern boundary is Atef Al-Sadat St. which is a transversal movement axis in the city's network. The main path in the De Lesseps Bay project lies between the mall building and the private parking areas with two gates for entering and exiting. It contains 13 commercial containers whose arrangement is in a linear shape representing a pedestrian walkway that measures 10 × 240 m.
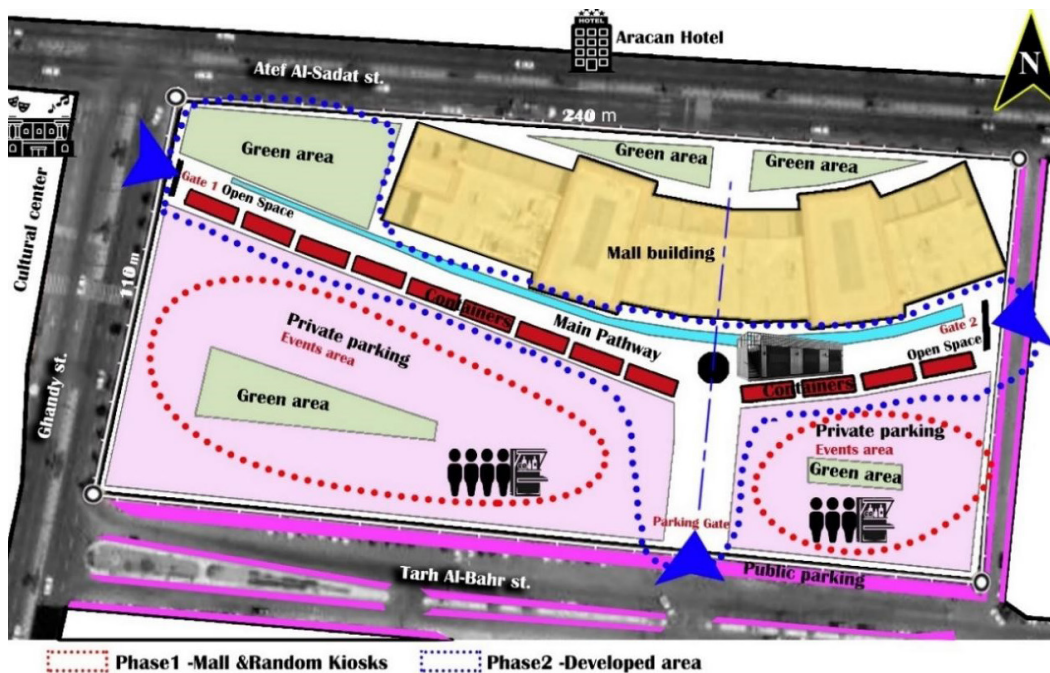

Fig. 8

The layout of De Lesseps-Bay project (Source: Author)

Method of interview

This section of the analysis model aimed to evaluate the quality of the place by the users depending on the spatial and social aspects to explore how the place meets users' needs and requirements through the interview method. The in-depth interviews were conducted face-to-face with 100 individuals at different times on weekdays and weekends. The form of interview questions was constructed under the four key attributes of the placemaking approach as shown in **Table 4**.

The interviews were conducted with 100 individuals over two weeks, 50 on weekdays and 50 on weekends. In total, the individuals' ages were between 15 to 60 years old. The usage pattern of the place revealed that teenagers and individuals between 45 to 60 years old mostly visit the place during the day for about one hour, but the individuals between 20 to 45 years old mostly visited the place at night for about 2 hours. All individuals answered each of the 50 interview's questions. Finally, the data obtained from the interviews were organized and analyzed using the Pareto principle (rule states that 80% of the outcomes come from 20% of the reasons) to visually identify the most important factors that lead to achieving quality in the place by fulfilling 80% of the users' needs.

Table 4

Questions' form set to use for interviews (Source: Author)

ATTRIBUTES	QUESTION FORM
ACCESS AND LINKAGES **A1– Proximity** **A2– Connectivity** **A3– Accessibility** **A4– Walkability** **A5– Linkages** **A6– Visual appeal** **A7– Convenience**	1. Do you find the project suitable in the urban context? 2. Can you reach the project by different transportation options? 3. Do you use a nearby parking area? 4. Is there easy access to the project by walking or by transportation? 5. From what direction and district in the city do you come? 6. Does the project provide effective walking paths? 7. Does the project provide clear linkages with the surrounding streets? 8. Can you see what's happening inside from the outside? Does this encourage you to enter? 9. Is there a clear main entry and orientation on the street? 10. Is the project considered close to the entertainment area in the city?
COMFORT AND IMAGE **C1– Safety** **C2– Cleanliness** **C3– Sittable** **C4– Attractive** **C5– Identity**	11. On your first visit to the place, did you feel a good impression? 12. Do you like the architectural character of the buildings and details in the project? 13. Have you seen similar architectural character in the city? 14. Do you feel safe in the place? 15. Are there sufficient security services? 16. Is the place always clean? Is the number of litter boxes enough? 17. Does the place have adequate and comfortable seats? 18. Does a sitting area vary between shade and sun? 19. Are the pavements practical to walk and well maintained? 20. Do you like the appearance of green areas and lights? 21. Are there special locations to take pictures? 22. Does the place provide a distinctive view of the city?
USES AND ACTIVITIES **U1– Clustered activities** **U2– Integrated facilities** **U3– Vitality** **U4– Economy** **U5– Management**	23. When do you go to the place? And why? 24. Is there a variety of activities in the place? 25. What is your favorite activity in the place? 26. Have you used the games area in the parking? 27. Have you attended any exhibitions or events in the place? 28. Do you prefer walking or sitting in the place? 29. Name five things that you can enjoy in the place. 30. Do you find the place crowded? And when is that? And in what area exactly? 31. Do you agree that "the crowding of the place is an indication of its vitality"? 32. Do you think the activity in the place serve the purpose? 33. Do you frequently buy from commercial shops? 34. Do you think there is a proper financial return for the owners of these commercial activities? 35. Do you find it easy to communicate with the management of the place?

ATTRIBUTES	QUESTION FORM
SOCIABILITY **S1– Gender diversity** **S2– People connectivity** **S3– Neighborly** **S4– Welcoming** **S5– Adaptation** **S6– Sense of belonging**	1. Is there user diversity in the place; male/female? 2. Does the place intensively used by people of all ages? 3. Do you think it is a suitable place for meeting friends? 4. What do you do with your friends in the place? 5. Do you think the activity areas are well-connected? 6. Do you use the place regularly or have a particular activity then leave it immediately? 7. Does people connect and talk in groups? 8. Do you feel comfortable where people sit beside each other? 9. Do you see the place users from any of the immediate vicinity? 10. Do you agree that "what attracts people most is other people"? 11. When do you prefer to use the place? 12. What attracts you during; day/night? 13. Are you having a good time at the place? Name one reason to come. 14. Do you feel pride to introduce the place to others? 15. What do you like more: form, activities, or the sense of the place?

The questions were posed to evaluate whether the place provides easy access and clear linkages in the urban context, comfortable elements, attractive image, and whether there were sufficient activities intensively used throughout the day by people of all ages. According to the analysis of the interviews' results shown in **Fig. 9**, it was found that the place had achieved 14 of 23 factors compatible with users' needs in the place that is used mostly for long-term entertainment.

When the "Access and linkages" attribute was evaluated, it could be easily seen that the factors such as "visual appeal, accessibility, linkages, and connection" represent the most important factors for the place's users. The responses show that people can be stimulated to participate in inner activities because of the clear linkages with the surroundings, easy access, and visual orientation to the entrance on the street.

a) Intangible factors of "Access and linkages" attribute

b) Intangible factors of "Comfort and image" attribute

c) Intangible factors of "Uses and activities" attribute

d) Intangible factors of "Sociability" attribute
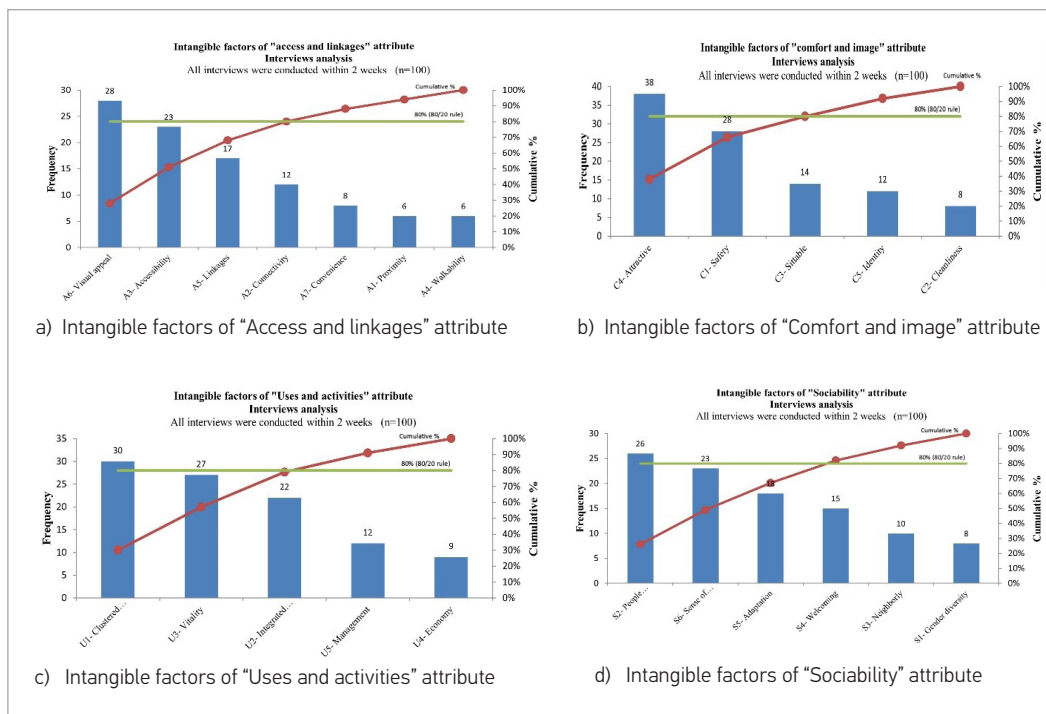
Fig. 9

Analysis of the most important factors that meets users' needs (Source: Author)
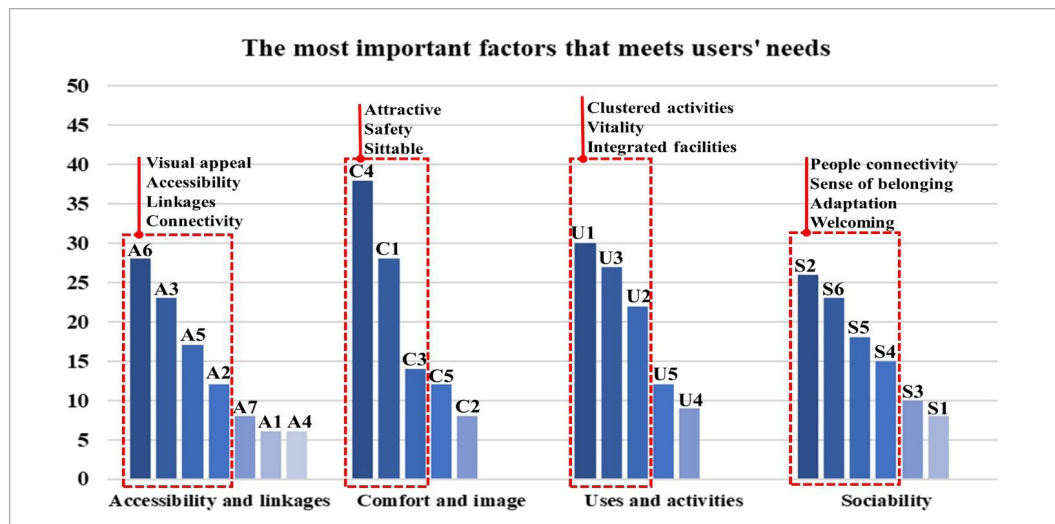
According to the "Comfort and image" attribute, the factors such as "attractive, safety, and sittable" represent the most important users' needs. The responses show that the place is well presented by a good first impression of the place's image. A feeling of safety in the place is sufficient because of the existence of enough security staff who protect people from unlikely issues that may cause danger. People stay and leave with a great social experience through achieving the **"triangulation"** process by which some external like (arrangement of furniture and containers) stimulus provides people connectivity.

The answers to the questions on the "Uses and activities" attribute showed that factors such as "vitality, clustered and integrated activities" are important for generating interactivity in the place throughout the day. It provides more connection between users through the arrangement of different patterns such as shopping, sitting, walking, etc. in a relation to each other.

According to the "Sociability" attribute, the factors such as "people connectivity, sense of belonging, adaptation, and welcoming" express the principle of **"place has a vision"** where people in the surrounding area want to be and have a sense of pride to introduce the place to others. these factors are the most important users' needs in a place where one can meet friends and feel comfortable with strangers.

Method of observations

The procedure for field observations is to ensure the objectivity of interviews' results and to analyze the placemaking attributes of the De Lesseps Bay project, its spatial and social aspects, and the users' needs associated with them. The method of observations is structured based on preparing checklists for each of the four key attributes of placemaking: "access and linkages, comfort and image, uses and activities, and sociability". Checklists are divided into questions for each attribute. The score follows a numerical degree of appropriateness from a 1 to 4 scale. The observations were conducted by three architects whose scores were calculated as an average score for each attribute. Besides the numerical scores, observations were based on descriptions and illustrations of the place as shown in **Table 5.**

Field observations within the place demonstrated the principle of **"You can see a lot just by observing"**; observing public places and evaluating the existing activities that people frequently use and integrating other missing needs. According to the results of the observations shown in **Table 5**, it was found that the average score in the "Access and linkages" attribute was 3.14, the "Comfort and image" attribute was 3.2, the "Uses and activities" attribute was 3.34, and the "Sociability"

1. ACCESS AND LINKAGES		Total average = (Total score/7)	3.14
Descriptions and illustrations of Factors	Range:	(4) Very appropriate (3) Average (2) Below average (1) Inappropriate	**Score**
A1- Proximity	Nearness in the urban context, time, or relationship.		2.3

Despite the project not being in a central area of the city, the planning pattern of this coastal city (Port Said) reveals that the most used recreational and public areas are located along Atef Al-Sadat St. in the northern part of the city where the project located.

A2- Connectivity	Compatibility with transportation options and parking.	3.0

The project is connected to public transportation options. As Through-movement potentials revealed the use of 23rd July St. for a public transportation line. The layout has adequate preparation for a private parking zone and good compatibility with its surrounding public parking.

A3- Accessibility	Quality of being able to be reached or entered without obstacles.	4.0

The project's location, being on the most used recreational street of the city, is also close to the micro-bus line at 23rd St., positively affecting the physical accessibility of the project to surrounding areas by different transportation options or on foot. There is an entry clear of any obstacles and visibility of the place from its surroundings.

A4- Walkability	Making interesting edges where people are safe to walk along.	2.0

The main walking path is based on the inner longitudinal axis between the mall building and the commercial containers. But there are not adequate edges where people are safe to walk near the surrounding streets.

A5- Linkages	Presence of effective elements that lead to where one wants to go.	4.0

The main effective linkage in the project is the inner longitudinal axis from gate 1 to gate 2 from the west to the east, which separates the mall and the commercial containers. Other effective elements, such as the intersected secondary paths between containers, represent linkages between the inside of the project and destinations from the south to the north.

A6- Visual appeal	Seeing what is happening there both from a distance and the outside.	4.0

The commercial containers' arrangement along the project's axial line provides repetitive open spaces between them. **People can easily see what is happening from a distance and from the outside.** It is visual appeal and stimulates participation in interior activities.

A7- Convenience	Fitting with people's needs for activities	2.7

The location and type of the project fit well with people's needs within the urban area where entertainment and commercial activities are found along Atef Al-Sadat St.

2. COMFORT AND IMAGE	Total average = (Total score/5)	3.2
C1- Safety	Feeling of safety and security	3.7

People feel safe where other people are and can see each other. The feeling of safety is high because of pedestrian use domination and the visual connection with surrounding streets, in addition to the presence of enough security staff.

C2- Cleanliness	Spaces are clean and free of litter, and there's responsibility for maintenance	2.7

Although the central path is very long and crowded with fast-food container visitors, spaces are kept clean and free of litter by providing an adequate number of litter bins that repeat along the path. Moreover, maintenance and cleanliness are responsibly maintained.


C3- Sittable	Having comfortable and enough seats located in the sun or shade.	3.3

The place has an adequate number of comfortable wooden furnishings in front of some containers. The wide stairs create some seating areas in front of the mall. There are a variety of seating choices located in the sun or shade.

C4- Attractive	Making a good impression on the spatial and social experience.	4.0

The place is very attractive because of having urban elements such as decorated green areas, paths, sidewalks, a central fountain, light devices, and harmonious materials in a diversity of heights and styles between the mall and the containers. Therefore, a good first impression is created for users and is a part of a great social experience.
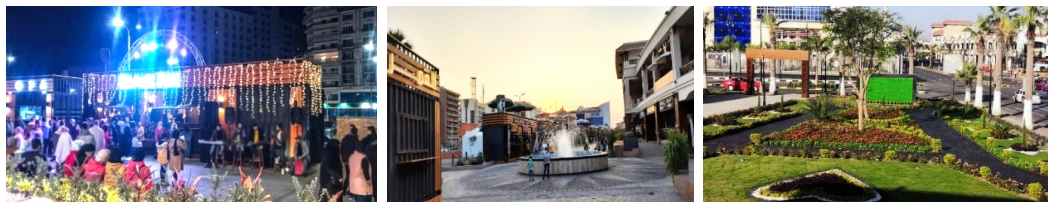
C5- Identity	The image of the place reflects the identity of the city.	2.3

The project has some elements that reflect the identity of the city and other external urban qualities. Wooden elements on the mall building, inclined brick ceilings, wooden urban furniture, and shipping containers are unique elements that belong to Port Said city as a port.

3. USES AND ACTIVITIES	Total average = (Total score/5)	3.34
U1- Clustered activities	Existence of different types of activities serves all ages	3.0

The dominant activity is the commercial activity of "food tourism" and is well liked by different age groups from the city and its neighbors. The shops offer services for different economic tiers. Generally, the crowdedness in the project confirms that it is a place where any demographic can enjoy an entertaining experience.

U2- Integrated facilities	Existence of interesting things to do over different periods of the day	3.7

The containers offer eating/drinking choices and opportunities to sit on their rooftops. The mall shops host some uses and offer the city view. The private parking area used for public events, such as exhibitions and ceremonies. There is a space for video game rentals. The main path and green areas are the favored places for photo opportunities. Generally, the main path is used not only for walking through the project but also for engaging in interesting activities throughout the day.

U3- Vitality	Crowdedness in the place and using each part.	4.0

Large crowds and the use of each part of the place are essential indicators of its vitality, especially in the main longitudinal axis. Crowds in front of different containers can be observed from the morning until the evening. Crowdedness in the rest of the spaces depends on the activities presented.

U4- Economy	Participate in economic and social exchanges within a place	3.3

Using containers as commercial shops offers mutual benefits for the owners and visitors. The shops provide job opportunities for the youth and encourage people to participate in economic and social exchanges.

U5- Management	The presence of good management	2.7

There is good management in the mall where owners can be in contact with people and customers can communicate their concerns directly to owners.

4. SOCIABILITY	Total average = (Total score/6)	3.48
S1- Gender diversity	Existence of as many women as men, and of different ages	3.3

There are as many women as men of different ages visiting this place throughout the day. But the most common category is teenagers and youths who are fond of trying everything new in eating and drinking.

S2- People connectivity	A place with distinguishing features that encourage community connectivity	4.0

The main path of the project is mostly used for passing through and has distinguishing features that encourage community connectivity where one can walk with and meet friends and purchase food and beverages from the containers. Additionally, the wide private parking area is available to rent for different public events where one can have a pleasurable time.

S3- Neighborly	Social process and actions encourage the interaction among people.	3.3

On the wide stairs in front of the mall, a comfortable feeling pervades where people sit beside each other, interact with friends, as well as strangers, and talk in groups.

S4- Welcoming	Behaving in a polite or friendly way to a guest or new arrival	3.7

The decorated green areas with the city's name and a lighting mural welcome guests and new arrivals. Crowds can be viewed from any of the surrounding streets due to the orientation of the containers. Therefore, the place achieves the declaration of "What attracts people most is other people".

S5- Adaptation	Giving people a reason to come and obtains a pleasurable experience	3.3

The shaded sitting area in front of the mall is attractive for people during the daytime. The fountain, the green areas, and the nighttime lighting decor in front of the mall attract people to walk around and take photos.

S6- Sense of belonging	Feeling of comfort to proudly bring relatives.	3.3

Generally, the project enhances the users' sense of belonging and gives them a reason to visit and have a pleasurable experience. People proudly bring their relatives and frequently use the place.

attribute was 3.48. Despite the total average scores of the four attributes showing little difference, it can be easily seen the significant difference in the detailed scores of factors in each attribute.

It is encouraging to compare the observations' results with that found in interviews which revealed that the most needed factors as indicators for the quality of the place in terms of placemaking attributes are similar in the results of the two procedures as shown in the two linear trends in **Fig. 10**. The observed increase in factors such as "attractiveness, clustered activities, visual appeal, safety, vitality, people connectivity, and accessibility" proved the importance of creating a comfortable and accessible place having a vision that comes out of the people's need for connectivity and interaction in an attractive spatial and social experience.

Fig. 10

Comparison between results from interviews and observations (Source: Author)

An obvious finding that emerged from the De Lesseps Bay project's evaluation is related not only to the spatial relation between the place and the urban system but also to the sociability and presence of effective elements that fit well with people's needs, namely, safety and partaking in a good social experience, in addition to different types of activities offered to people of assorted ages, and finally the strong sense of adaptation and interacting with friends as well as strangers. Furthermore, focusing on the quality indicators of urban open spaces as shown in **Fig. 11** is needed to ensure sustainable usage. Therefore, it is important to integrate social and spatial aspects into the urban design process to create attractive places, provide desired needs, and enhance social behavior.

Results and Discussion

Results from the spatial aspect

The results of spatial attributes analysis of the De Lesseps Bay project's location within the urban context directly affect the access and linkage attributes and some intangible factors measured in the analysis of placemaking such as accessibility, proximity, and convenience. Choice values pos-

itively affect the physical accessibility of the project reached by foot or by different transportation options from the surrounding areas. In addition to walkability and being visual appeal without obstacles from a distance and from the outside, an effective linkage that led to a desired destination was revealed by choice values. Furthermore, integration values revealed the proximity and convenience factors of Atef Al-Sadat St. in the northern part of the city where desired entertainment areas were found.

Additionally, other intangible factors in the comfort and image attributes, such as safety, suitable seats, identity, and attractiveness that were measured by observations, were originally derived from the spatial aspect of the place's design integrated with the social practices of individuals within the place. Spatial configurations directly affect feeling safe when the visual connection with surrounding streets and pedestrian use domination is achieved. Furthermore, it affected the availability of adequate seats and the experience of various attractive urban elements that represented a part of an enjoyable social experience.

Results from the social aspect

As for the sociability and activities attributes of the placemaking approach, more intangible factors measured by observations were revealed to be related to the social practices of individuals within the place. Use and activity attributes were affected by the idea of "the power of ten" where there is a choice of 10 activities to engage in. Therefore, a place's success in providing various patterns of social behavior, such as walking, sitting, eating, and shopping, provides every age group the opportunity to generate an entertaining experience and to pursue interesting activities throughout the day. Although all intangible factors of the sociability attribute seem to be the social practices of users, the spatial configurations of a place are the hidden element that affects the success of a place's design, which enhances a user's sense of belonging.

Fig. 11

Quality indicators in terms of placemaking attributes (Source: Author)
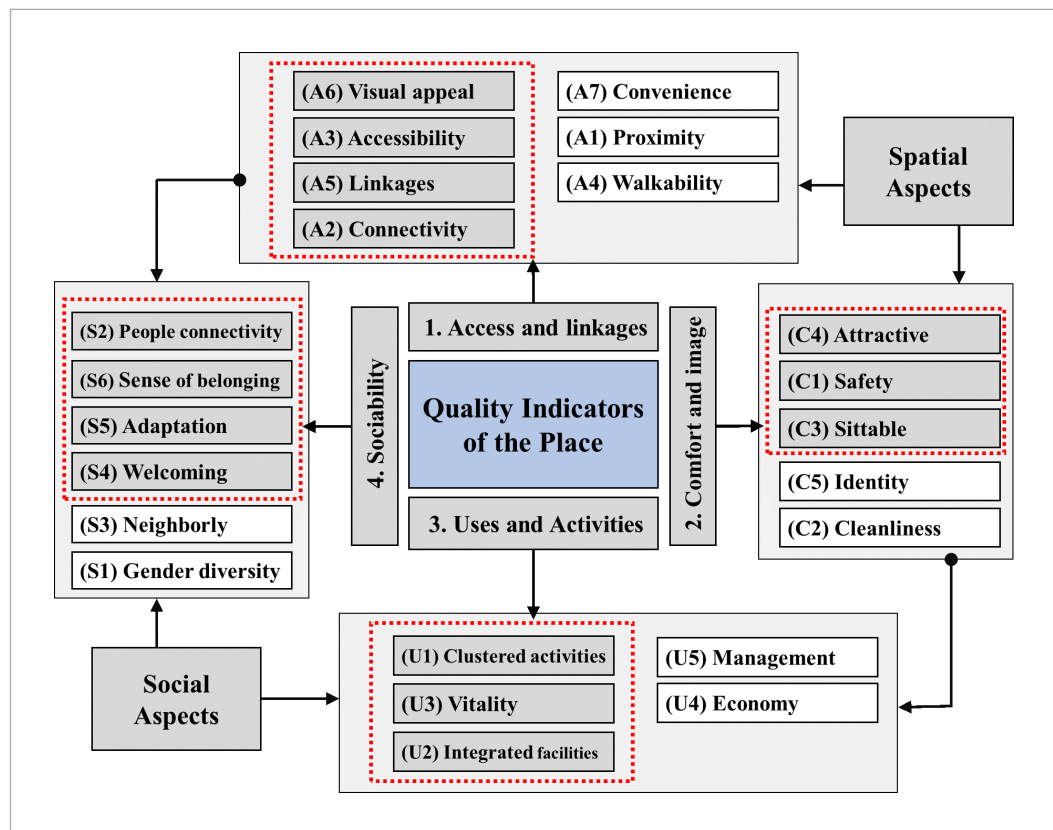
Finally, the project can be considered an emerging attempt that applied the attributes of the place-making approach, which in turn positively affected the achievement of its quality and sustainable usage. The spatial features of the project's location added other advantages that raised the social value of the place, despite its small area and its reliance on a rather short main path. Whether the availability of success factors for this project is the result of prior planning or a coincidence, it has become an attractive place of entertainment in Port Said for people from everywhere.

A proposed conceptual framework

The findings of this study are a new step for exploring the reasons for the attractive turnout of users of the De Lesseps Bay project according to integration between two methods of analysis. The quantitative method was used to illustrate how the space is perceived spatially from many streets in the city and the qualitative method was used to explicate people's needs in the space.

The analysis showed that the project Adopted several principles of creating a vibrant place as indirect success factors, principles such as: 1. The community is the expert - 2. Create a place, not a design - 3. Start with the lighter, quicker, cheaper - 4. Triangulate process - 5. Have a vision - 6. They always say, "it can't be done". These principles were applied by including the most needed factors by the users in the place such as Attractiveness, vitality, clustered and integrated activities, visual appeal, safety, people connectivity, and Accessibility.

Finally, this study showed that predicting the quality indicators of urban open spaces is based on the integration between placemaking and space syntax approaches. **In terms of quality, the space syntax concept means that the place is more functional based on social attributes, and the placemaking concept means that the place is more sociable based on spatial attributes.**

Generally, quality is seen as an issue of creating a place that meets people's needs and sustainably uses the place in harmony with spatial and social features. Despite the promising results in terms of evaluating the quality of urban open spaces considering the integration between the two approaches, these results converged with 11 principles of creating vibrant community places as it is considered a comprehensive concept of improving the performance of urban environments (Madden, 2018; PPS, 2022) as shown in **Fig. 12**. Hence, furthermore, more detailed work is required to explore these principles in other urban open spaces.

Hence, a conceptual framework is proposed to be a helping step for integrating placemaking attributes, which positively affect a place's quality and spatial attributes which enhance the place's social aspects. These attributes can be explored and integrated into the early stages of creating new spaces or evaluating existing spaces in addition to integrating a proper type of placemaking

|					
Community participation in clarifying information about the area and expressing its important issues to people.	2. Create a place, not a design	Participation of local institutions in public places' improvement projects with ideas or developing scenarios.	4. You can see a lot just by observing	The good and comfortable place expresses a vision coming out of the community where people in the surrounding area want to be and have a sense of pride.	6. Start with the lighter, quicker, cheaper
1. The community is the expert	Adding physical elements and activities that create vitality in the place and enhance the comfort and image attribute.	3. Look for partners	Observing public places and evaluating the existing kinds of activities that people sustainably use, and developing them by integrating other missing activities.	5. Have a vision	The best experiment is to do short-term improvements in the place such as seatings, shading, sidewalks, and murals that can be refined over long-term.
Eleven principles of creating vibrant community places	11. You are never finished	The project follows the principle that the cost is not significant compared to the expected benefits.	9. Form supports function	Facing obstacles and the lack of clarity of responsibility for "creating places" by starting with small-scale improvements.	7. Triangulate
	Flexible management continuously responds to the change in community needs and renewals the amenities and other things in an urban environment.	10. Money is not the issue	the future vision for the place is the form coming out of the community and understanding of other places' functions.	8. They always say "it can't be done"	The process by which the arrangement of different elements or activities in a relation to each other can provide more connection between people.

Fig. 12

Eleven principles of creating vibrant community places (Source: Adapted by Author from (Madden, 2018; PPS, 2022))

into urban practices to enhance the performance of the place was categorized into four types: standard, strategic, creative, and tactical. Finally, achieving the quality of open urban spaces directly enhances the performance of the urban system, see **Fig. 13**.

Fig. 13

A proposed conceptual framework for evaluating the quality of urban open spaces (Source: Author)
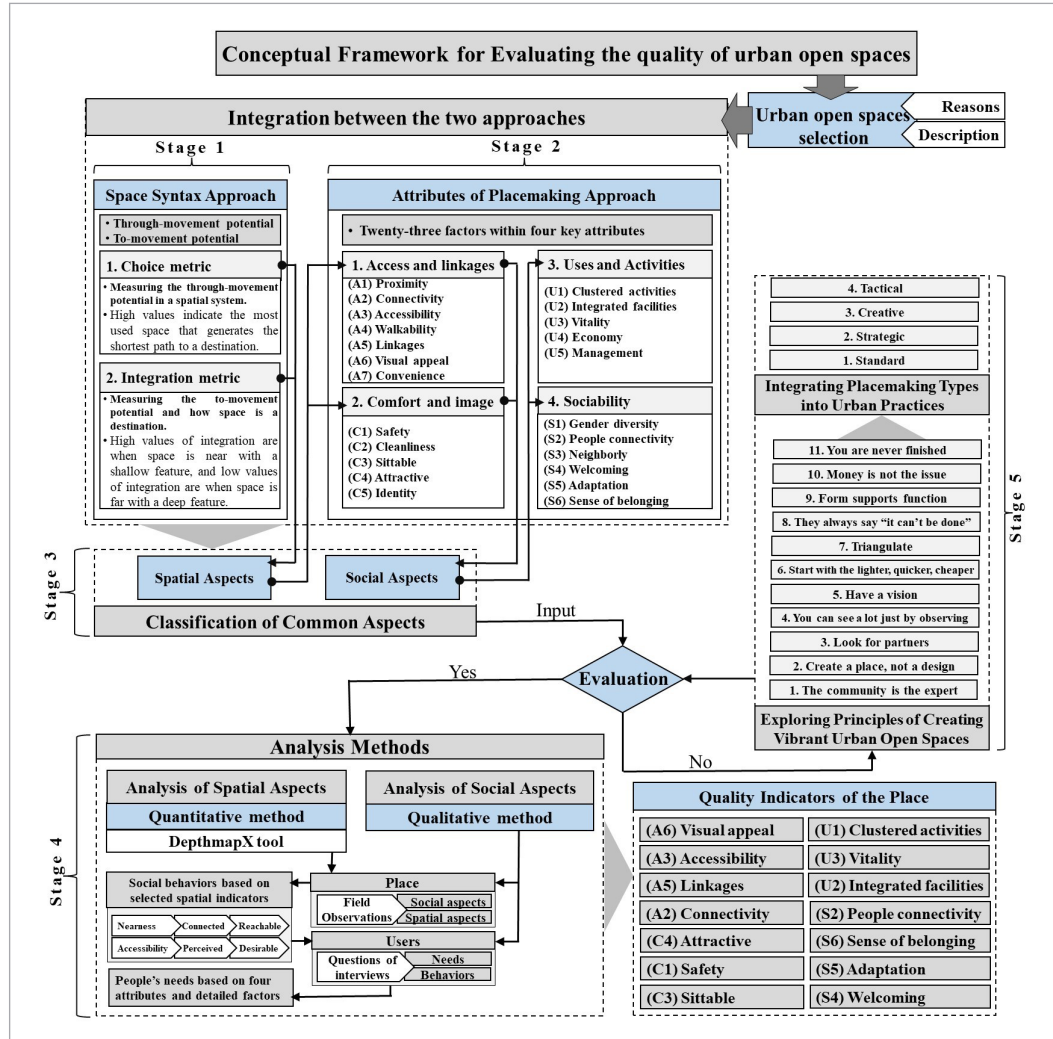
Conclusion

This study aimed to evaluate the quality of urban open spaces related to the integration between space syntax and placemaking approaches by measuring the extent to which these spaces meet the needs of users. Quality was assessed while considering spatial and social aspects. The space syntax approach was used in analyzing spatial configurations and reflecting users' decisions. The placemaking approach was used to add social aspects like people's needs and behaviors to spatial ones extracted from space syntax analysis. The following conclusions were drawn from the findings:

_ The spatial indicators analysis of the place reveals the through-movement potentials that people frequently use, and the easy perception of spatial relations between the place's location and the greater urban system.

_ The analysis of placemaking attributes reveals the social aspects of the place by extracting the most needed factors by the users in the place such as attractiveness, vitality, clustered and integrated activities, visual appeal, safety, people connectivity, and accessibility.

_ The spatial relations directly affect the analysis of the "access and image" and "comfort and image" attributes of the placemaking approach, as well as indirectly affecting the analysis of the "uses and activities" and "sociability" attributes.

_ The "sociability" and "uses and activities" attributes within the place directly affect the attraction and keeping of users of all ages by providing different activities that improve the interaction between individuals and enhance their sense of comfort and belonging to the space.

_ Evaluation of urban open spaces quality indicators is an important step towards addressing the lack of features that promote sustainable use of these spaces and make them more appropriate to users' needs which are sometimes ignored when making decisions about urban practices.

_ A proposed conceptual framework for evaluating the quality of urban open spaces is to direct the designers' attention to rediscovering social and recreational uses according to people's needs and spatial configurations.

_ The strategy of creating vibrant urban open spaces is a comprehensive vision for identifying the potential and obstacles in achieving quality in any space and understanding the community's needs from it. Such a strategy can create an opportunity for local authorities to implement actions to develop urban according to continued responding to the change in community needs and renewal of other things in an urban environment.

In general, paying attention to the relationship between the spatial environment and social interactions in urban open spaces has a significant role in expanding the concept of "quality". Quality indicators can promote the comprehensive meaning of creating vibrant spaces that always respond to the continued change in community needs and the urban environment.

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About the Author

SARA ELTARABILY

Assistant professor

Architecture and Urban Planning Department, Faculty of Engineering, Port-Said University, Port Said, Egypt

Main research area

Urban design, Thermal comfort, Sustainable Architecture.

Address

Port Said, Egypt. MI, 42526.
Tel. (+2)01224171518
E-mail: sara_eltarabily@eng.psu.edu.eg