

# An Analytical Study of the Impact of Streetscape in Jeddah on Social Behavior of the Users

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**Abstract—** The streetscape is considered a very important issue in architecture and urban design as well, as it affects the whole society and has an enormous impact on humans' quality of life. Streetscape can change people's behavior and the way they interact in society and the public realm. Streetscape has an enormous impact on human's social behavior; however, and it impacts on how they behave and interact in a public realm. In Arab cities, through the history they used the street to socialize, meet and getting food and products. Plaza outside mosques was used for social and public use each Friday after Jumah's prayer and in other days as well. Nowadays, streets in Saudi Arabia are known to be transition links that people use to go from one place to another while in many other countries streets are used to socialize with people. This research will investigate how to encourage people to use the streets to create social interactions. The main goal of this research is to conclude a set of criteria for the successful design of streetscape that would have a positive influence on human social behavior. The research paper aims to examine the impact of streetscape on the human's social behavior in Saudi Arabia's streets; especially Jeddah city. The study will include the streetscape elements which are: sidewalks, trees, and landscape, street corners, planters, street paving, benches, lighting, trash receptacles, bicycle facilities, crossing, public art, signage, & fountains. Then it relates them to the human's social behavior through analyzing the current streetscape and the people's opinion that is measured through the surveys and interview with the users of the streets in Jeddah like; Filastin Street and Cornish promenade. This will help in build a road map for designing the streetscape in Jeddah in a way that has a positive influence on human social behavior.

**Keywords—** Streetscape - social behavior - streetscape elements.

## I. INTRODUCTION

The topics that will be covered in the literature review are Jeddah city, open spaces in Jeddah, and design & social interaction. The review of the literature on streetscape design is divided into two sections, streetscape definitions and street scape in Jeddah. This study provides insight. The design and social interaction section examine the current theories and concepts of streetscape design.

## II. OPEN SPACES IN JEDDAH

### A. Historical Background

Throughout ages, Jeddah has gained its significance from its great location on the Red Sea, on caravan routes and nearness to Makkah. Muslim Pilgrims in the past used to cross the deserts by camels along the eastern coast of the Red Sea, or come to Jeddah on ships and continue their trip to Makkah for Hajj and Umrah, and to Madinah to visit Prophet Muhammad's Mosque and shrine. The city was and is still a gate to the Muslim holy places. The real development jumped in 1957 when King Saud ordered to remove the wall to embark on expanding the city northwards, eastwards, and southwards and to change it into a modern city. Like other cities in Saudi Arabia, Jeddah has experienced significant changes and developments. The indication of modernization can be observed in the organization of the streets and the architecture of the buildings; in power and telephone networks, postal service and water, in well-equipped hospitals, in the large number of parks, restaurants and hotels; and in the countless schools, modern universities, colleges and training centers [1].

Worthily mentioned Jeddah has the highest rating for the most visited city among all the Saudi cities, this is caused by two main reasons: the first is as we mentioned before the gate of the holy mosques which attracts tourists or religious tourists from around the globe, the second is that Jeddah is considered the first destination for local tourists which attracts people from around the Kingdom. The explosive development of Jeddah resulted and followed the discovery of oil in 1938. The boom period of 1974-1983 saw the rapid physical development of the city of Jeddah supported by a series of Action Area Plans to bring Jeddah its new soul, where the Corniche played a significant role in the project [2]. The urbanization of Saudi Arabia is one of the world's fastest. The existing major urban centers of Riyadh, Jeddah, Madinah, Dhahran, and Makkah have experienced dramatic growth since 1973[3]. Jeddah urban fabric and settings today are still following the planning and design methods established by the Western models with its two main approaches; the Modernism approach, and the functional approach. Thus, resulting in newly formed urban places that lack local identity and character. Furthermore, the recent developed urban fabrics and settings suffer from the absence of using successful contemporary trends that emphasize connectivity, sustainability and walkability; those trends existed in the design principles of traditional neighborhoods of the Historic town of Jeddah [4].

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Fig 1: A view of Jeddah in 1940. Source: (Mandeli).

### B. Open Spaces in Jeddah

The huge revenues from the oil industry in Saudi Arabia are a machine for economic growth. They have combined with the desire of the government to centralize economic activities in the major cities such as Jeddah, have fulfilled a wish to modernize society through an array of development strategies, and have been put to use in order to integrate the Saudi economic system with Western economies and to bring into existence a way of life modelled on modern Western luxury lifestyles. These concerns manifest themselves physically when they change the physical character of cities and alter the nature of the urban and suburban public realms. While implementation of some development projects led to social heterogeneity and polarization and caused the displacement of many people from their communities by emphasizing the clearance of traditional neighbourhoods, the destruction of traditional urban spaces, and the emergence of a series of dispersed residential areas alongside segmented urban spaces, encouraged the creation of exclusive and depersonalized public spaces that limit public access; this in turn undermined the quality of the public realm. In general terms, the development strategies and the invention of planning and architectural practices that prioritize single-use areas and foster the separation of people into different types of living environments have resulted in deep divisions in the urban landscape. Generally speaking, the fragmented urban fabric together with the heterogeneity of its inhabitants has not only separated people and established a feeling of being unable to move freely and safely within its borders, but has also violated traditional requirements for privacy, social interaction, children's and women's activities, social status and community wellbeing. More to the point, they identified some functional and objective aspects of the problem, such as increased distances between buildings as a result of building wider streets, the creation of widely dispersed and barely accessible outdoor spaces that lack an identifiable hierarchy and fail to provide protection from the extremely hot weather, as well as a lack of public facilities and services. These have all acted as major obstacles that discourage people from exploring their urban environment and decrease opportunities for people to enjoy physical activities

and social experiences in outdoor areas. In general terms, the imposition of an economic system and spatial planning and design practices resulted in crises in the built environment and has disturbed the social harmony of traditional societies in Saudi cities [5].

By studying the current situation of the existing open spaces in Jeddah, it is figured out that a lot of enhancement is required. Such planned and developed areas are considered as attractive destination for different classes and types of people. The planning of these areas should be done, so that utmost importance is given to pedestrians and the public in the design plan. They should also be equipped with the most modern services and facilities in order to make them more practical and safer [6]. Therefore, designing and planning the urban environment should be based on the idea of building community wellbeing rather than focusing on the physical design of local space. This involves understanding the relationship between daily activities carried out in urban spaces by diverse individuals and communities. Such an identification of people's activities would assist urban specialists to obtain a broader view of how to maintain the quality of the public realm. Additionally, for securing the provision of public space, local authorities should support the development of vibrant local communities as a form of public space management, within which context these communities should have an active role.

### C. Streetscape in Jeddah

The pedestrian system presents the connections between the different forms and is an important element in supporting the transit system. And the lack of a pedestrian system is also now identified as a major obstacle to active living. Unfortunately, some Saudi City streetscape development infrastructure had not been so adequate in providing pedestrian sidewalk system. According to Hammadi [7]; The main problems of Saudi cities can be summarized as follows:

- Existing streetscape provision did not provide a continuous network so that pedestrians are stranded short of their destination or pushed into difficult or potentially dangerous situations.
- The planted median between traffic roads cause some people to go through them causing fatal traffic accidents.
- No pedestrian system. People have no room to walk on existing pavements, due to plants and posts a postictal.
- Some road traffic system did not consider or allocate pedestrian crossing zones.
- By examining some contemporary planned residential plots, the whole grid system did not provide a separate or safe a pedestrian circulation pattern, to avoid conflicts with traffic system.
- Many traffic roads had insufficient and not adequate pedestrian bridges (skywalk), in which it was poorly designed and had no handicapped facilities.
- Some traffic roads have been inadequately planted with trees and shrubs, on both sides of each type of roads.

### III. ANALYTICAL METHODOLOGY

#### A. Current Theories and Concepts of Streetscape Design

It is important to examine current theories and concepts of streetscape design to come to some conclusions regarding their influence on the success of streets. The following academics have each contributed to our current understanding of what physical qualities and elements are required for the creation of vibrant streets. In the early 1970's William Whyte undertook the Street Life Project. His research involved hours of direct observations of the behaviors of individuals in our built environment. His primary objective was to discover why some city spaces work for people, and some do not (Whyte, 1980). Throughout his research Whyte was fascinated with the "behavior of ordinary people on city streets- their rituals in street meetings, for example, the regularity of chance meetings, the tendency of reciprocal gestures in street conferences and the rhythms of the three phase good-bye". Whyte went on to describe what he believed were the essential elements of a successful street. He acknowledged that sitting space; sun, trees, water and food are essential elements but of greatest importance is one's relationship to the street. Whyte argues that retail stores are essential in creating an active, inviting environment [8].

One of the most influential pieces of work on streetscape design and the physical, designable characteristics of successful streets is Great Streets by Allan Jacobs. Jacobs (1993) examines what he believes are the best streets around the world and their form. Through this examination, he has created a set of guidelines that he believes essential to the creation of a successful street. Jacobs writes that "Beyond functional purposes of permitting people to get from one place to another and to gain access to property, streets- most assuredly the best streets- can and should help to do other things: bring people together, help build community, cause people to act and interact, to achieve together what they might not alone. As such streets should encourage socialization and participation of people in the community" [9].

Sucher (2003) has most recently published a set of guidelines that he believes contributes to a successful urban village. Within his recommendations, he focuses on the importance of specific designable elements that contribute to a vibrant street. These include implementing traffic calming measures, the widening of sidewalks and narrowing of streets, and the planting of street trees to create a buffer between the roadway and the walkway. He also recommends that there be a high level of transparency (user can see into buildings and stores fronting the sidewalk) as well as increased seating. Definition of the streets edge is necessary to enhance the consecutiveness between buildings and along the street. As well Sucher states that the prohibition of parking lots in front of buildings would do much to enhance the definition of the street [10].

The following table summarizes the three academic's recommendations as to which elements are essential in creating a successful street.

TABLE I: THE THREE ACADEMIC'S RECOMMENDATIONS AS TO WHICH ELEMENTS ARE ESSENTIAL TO CREATING A SUCCESSFUL STREET.

	William Whyte (1980)	Allan Jacobs (1993)	David Sucher (2003)
Sitting place	×	×	×
Physical comfort protection from the elements	×	×	×
Trees	×	×	×
Water and food	×		
Sightlines	×	×	
Place for people to walk with some leisure		×	×
Definition & meandering form		×	×
Qualities that engage the eyes		×	
Transparency	×	×	×
Complementarity		×	
Mainteneance		×	
Quality of construction & design		×	
Implementing traffic claming measures			×

### IV. CASE STUDY

Case Study Selection, the case study of Cornish promenade & Palestine streets, were selecting because of; High number of pedestrian that uses those two streets for walk and outing.

The two streets are recently developed by Jeddah municipality where there has been a conscious effort to create streets that are livable.

#### A. Direct Observations

The first data collection method was direct observations. Direct observations are a useful method to use, to document activities, behaviors and physical aspects of a site without having to rely upon people's responses to questions (Patton, 2002). Additionally, direct observations are useful when direct information is wanted and or when one is trying to understand the connection between individuals and the environment in which they are located. In this study, direct observations were carried out within each streetscape to detail the activities and types of social interactions that were occurring. Within each streetscape observations were made at two times of the day, in the afternoon from 4:30 am to 05:30 am and in the evening from 9:30 pm- 10:30 pm. These observations were carried out on the weekdays of February 19 to February 20th of 2016.

#### B. Jeddah Corniche

Jeddah has nearly 40 kilometers of coastline, over half of which has public access through the construction of a Corniche, providing a road, buildings and attractions along most of the coast. Stretching northwards and southwards, wharves and port facilities extend to the south as an active waterfront, while the Corniche extends to the north as a passive waterfront. Jeddah's Corniche is famous for its fountain; almost the highest one in the world and distinguished by the

existence of few mosques by the seashore. Jeddah's Corniche is divided into three areas, the Northern, the Southern and the Central Corniche. The central Corniche is related to the central sector of Jeddah with three bridges and an underpass providing vehicle access to the city center, but it lacks pedestrian underpasses or overpasses to attract people from the inner centers to the seashore, fig. 2 [11].



Fig 2: Photos for Jeddah Cornish

#### A. Palestine Street

On 2012, Jeddah Municipality implemented a development project for Palestine Street, the famous center of Jeddah Corniche and the Red. A project extended to a length of 1.2 Km from the crossing with Road Andalusia east to its intersection with Corniche Road. The scope of work in the project included the work of removal and infrastructure works, as well as the infrastructure of flooding and stormwater on the site, in addition to paving the area developed in the Palestine Street, and the use of granite in the pavement of sidewalks, footpaths, and the establishment of the necessary work to provide tracks and stations for the future project of public transport. The project included the establishment of models of water and small pots of flowers and floral elements and lighting columns, fig. 3 [12].



Fig 3: Photos for Palestine Street

#### A. Observation findings

TABLE II: COMPARISON BETWEEN THE TWO STREETS BASED ON OBSERVATION FINDINGS

Types of street activities	Cornish promenade	Palstine street
Number of pedestrians	200	140
People out walking	40%	60%
Chating with friends	20%	10%
Leisurely movement or staying	20%	10%
Purposeful movement (had somewhere to be) i.e. catching a bus	---	10%
Shopping	----	10%
People having coffee on patios	20%	
Feiendly interaction with strangers	0%	0%
Demographics:		
Youth		×
Adults	×	×
Parents with children	×	
seniors		

TABLE III: COMPARISON BETWEEN THE TWO STREETS BASED ON THE ACADEMIC THEORIES

Physical form and characteristics of the street	Cornish promenade	Palstine street
<b>Form</b>		
sidewalks	×	×
Quality in construction & design	×	×
<b>Diversity of buisness</b>		
High		×
medium		
low	×	
<b>Physical comfort</b>		
Shading element	<b>Rare</b>	<b>Rare</b>
seats	×	×
<b>Appearance</b>		
Textered side walks	×	×
Street trees	×	×
Benchels outdoor seatings	×	×
Landscaping /flowers	×	×
Signages		×
<b>Design</b>		
Identity		×

	Cornish promenade	Palstine street
Sitting place	x	x
Physical comfort protection from the elements	x	x
Trees	x	x
Water and food	x	
Sightlines	x	x
Place for people to walk with some leisure		x
Definition & meandering form		x
Qualities that engage the eyes	x	x
Transperancy with the buildings	NA	x
Mainteneance	x	x
Quality of construction & dsign	x	x
Implementing traffic claming measures	x	x

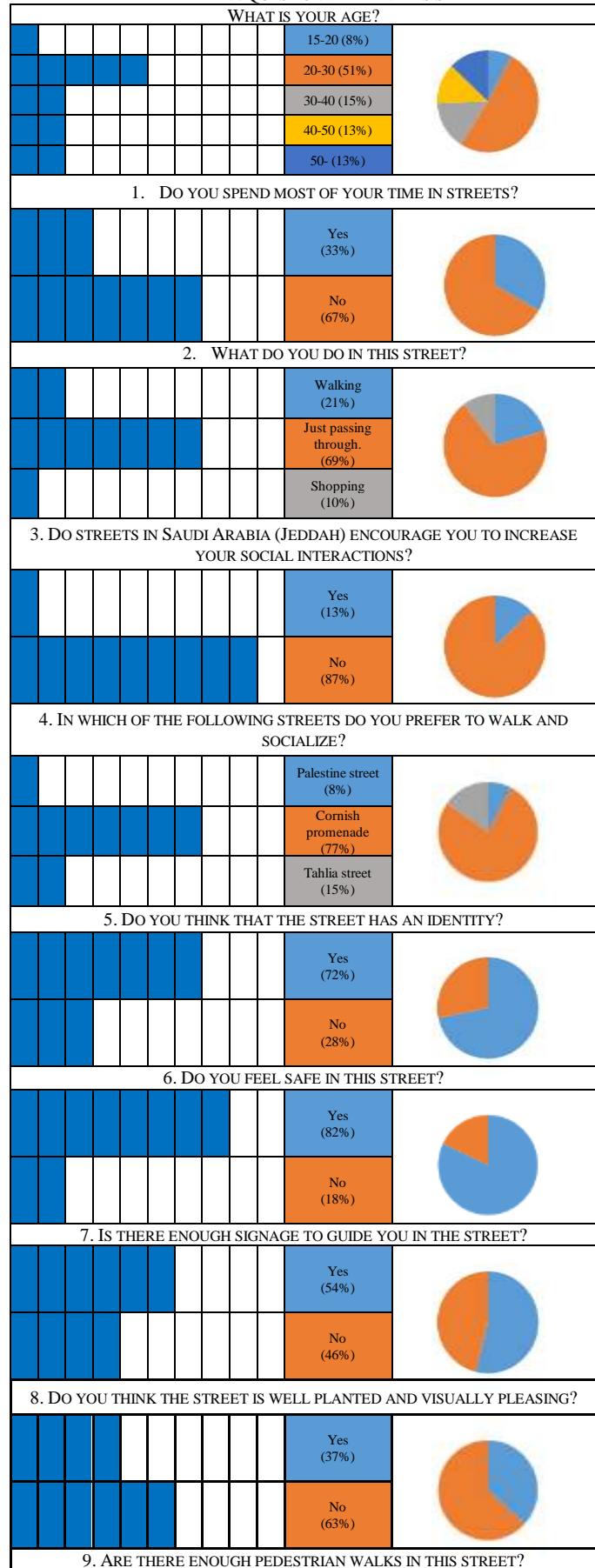
### B. Questionnaire feedback

The second data collection method was the questionnaire, in order understand the impact of the streetscape in socio-cultural behavior a pilot questioner was designed to investigate the understanding of public of the concept of a streetscape, the target group was residents of Jeddah City. This was important as it was the users' perspective that was required to shed light on the success and or failures of the academic streetscape design guidelines.

We received feedback from 50 participants most of them their age was between 20 to 30 years as shown in bellow analysis;

- The majority of the participants indicated that they don't stay most of their time on the streets.
- Most of the participants for them streets are only a road that they pass through without other activities.
- Most of the participants indicated the streets in Saudi Arabia (Jeddah) don't encourage increasing of social interactions
- More than 80% of the participants selected Cornish promenade as the most street they prefer to walk and socialize.
- More than 50% of the participants thought that streets in Jeddah have the identity.
- Most of the participants indicated that the felt safe in the streets.
- Most of the participants indicated that there is enough signage in the streets and pedestrian walkways as well.
- The majority agreed that the street furniture is not sufficient, and they are not well placed and comfortable.
- 50% found that there is the good separation between vehicles and pedestrian but in the same time majority found crosswalks are not well placed.

TABLE IV: QUESTIONNAIRE ANALYSIS





## V. CONCLUSION

Through history, streets were a means of livelihood and social support for its inhabitants. The dramatic appearance of the car made a paradigm shift in the planning practices from the pedestrian to automobiles, resulting in the segregation of communities. Current academic streetscape design guidelines focus on creating an aesthetically pleasing and functional street; using these guidelines separately do not appear to foster strong community ties and social networks. This research examined two streetscapes in two famous streets in Jeddah, through observation and questionnaires with the users as well.

Although, there is a continuous achievement in Jeddah regarding streetscape and empowering pedestrian walkways in Jeddah, still there are many points that need further development to ensure more social interactions and positive social behavior as well. From these elements; shading elements, as the temperature in Jeddah, doesn't enable anyone to stay in the daylight without shading elements, and the two streetscapes missed having efficient shading elements and thus impact on the social interaction as well. Also, street furniture needs further study, as people bring their seats and carpets to

set on them.

Also, the design of the seats should be comfortable and address the most social interaction between Saudi families. Although the two streets have plantation and trees still need more enhancements in term of some trees and types as well.

Further consideration should be oriented towards streets illuminations, as most of the users use it at the night, due to hot climate. Also based on the academics' guideline, it is essential to put some landmarks and streetscape that engage the eye of the users with the place. Additionally, designing for the users is the key success for more social interaction streets in Jeddah, for example, the users of Cornish are families with kids which indicate more children facilities and recreational activities. While Palestine Street is used more from adults and individuals which mean different design and services.

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