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Children Deserve A Space to Play: A Vision for a Better Urban Playing Spaces in Jeddah, KSA

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Abstract
Play is critical for the mental and physical development of children worldwide, and urban play spaces are critical to neighborhood sustainability. The paper draws attention to the neglect of children's needs in the urban vision of development and how they are affected by the growing dependence on cars in Jeddah City. Through the literature review of both children's perspectives on playful urban spaces and the major challenges to creating a child-friendly urban environment while prioritizing a quality transport system, this research will determine a design framework for child-friendly urban areas. The paper will argue that this framework in Jeddah could be further enriched and informed by considering children's perspectives in the design process. The study develops a design proposal for the selected location that reflects the results of the research carried out by the author. The interviews were performed and observations made during the summer of 2019 among children and inhabitants of the selected area affected by urban planning.

Keywords: Children; Playful Urban Spaces; Jeddah; Connectivity; Urban Childhood.

1. Introduction

According to a 2017 report by UNICEF, 60 percent of the world's population will be younger than 18 by the year 2025 (UNICEF 2017). This means that millions of children's daily lives will be shaped by their surrounding urban environment. Hence, urban design should create better spaces for children and families by understanding children's needs, which vary with age, in urban areas. Bringing children into the urban-design process requires knowledge of a combination of theories from different fields, such as the social sciences and city planning (Horelli 1997). Recently, the research awareness of children in implementing urban visions has been developed and expanded, avoiding designing isolated playgrounds and instead engaging them in the urban spaces network. (Halldén 2003; Nilsson 2007). The research will overview all the key principles and terms for children and the urban environment and examine Jeddah City in Saudi Arabia and how the planners consider a friendly environment for children in their vision for urban development. The paper is structured as shown in Figure 1.

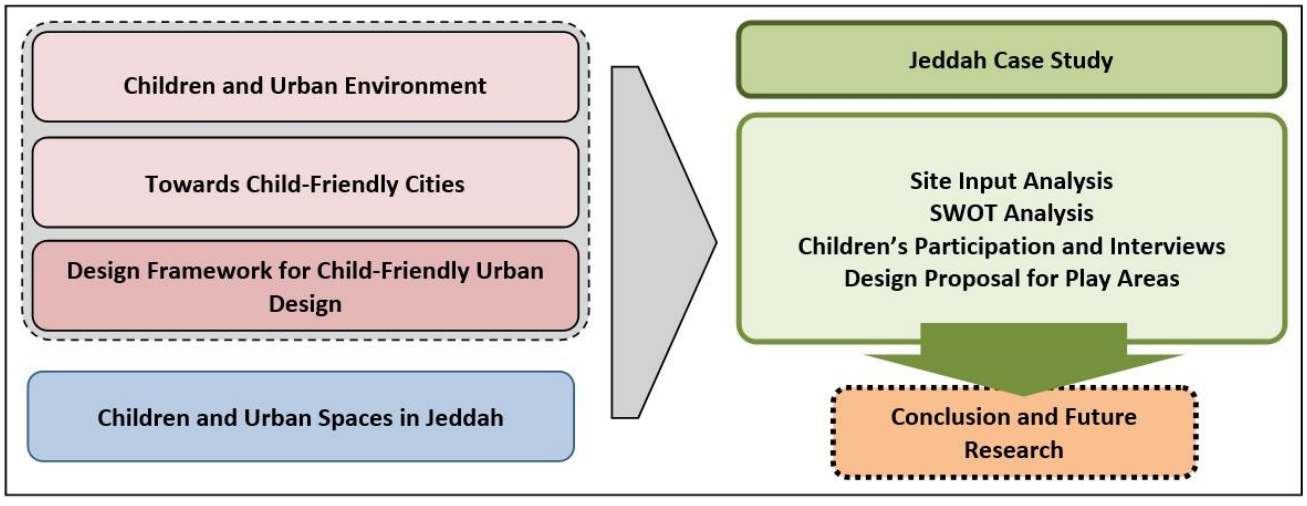

Figure 1. Structure of the Study.

2. Children and the Urban Environment

Urban design is generally defined as the combination of all the elements of the professional built environment that shapes a sustainable city. Fotel and Thomsen (2004) highlighted the idea that planners should protect children from city traffic and ensure their safety while fostering their independence and engagement with the surrounding community. The following definitions will be used throughout the study; they are based on previous research articles and a literature review and focus on the study's limitations:

a) Child: A person below 18 years of age.
b) Urban public space: Every area in the city used by citizens and visitors for public needs, such as parks, streets, and squares.

2.1 Why plan cities for children?

According to Lester and Russell, children have the fundamental right to have their play promoted in their cities, and every country that signed the UN Convention on the Rights of the Child (CRC) should respect that. Children's basic needs to play and be raised in a healthy open space are considered an essential component of any city's urban vision, not a luxury (Lester & Russell 2010). It is worth mentioning that it is not a matter of providing typical playgrounds when considering what will promote play for children. Play is stimulated when children feel safe in and engaged by the environment (Olsson 2010).

2.2 Children as initiators of change

Heurlin (1996) stated that creating urban spaces for children to engage them and involve them in daily life can provide them with the best chance to become active citizens in society (Heurlin 1996). Weller acknowledged that children are the main shapers of their environment and highlighted the active role they can play in enriching the city. He stated that children are the agents being influenced by their surrounding environment and ready to influence it if they have been engaged participants in the development process (Weller 2009).

3. Towards Child-Friendly cities

An inclusive city that functions best for everyone should be child-friendly. Designing for children is a complex urban-development process requiring time spent gathering information and identifying the problem in every local community to create places for public meetings and social engagement (Kingston et al. 2007). Natrasony and Alexander concluded that not every open space's network offers a positive value to the city; they used Surrey city center as a case study of an outdoor space that lacks comfort, security, and appeal for children and families (Natrasony & Alexander 2015). To understand the process of creating child-friendly cities, the research will summarize the major challenges faced by urban designers, along with their benefits the tools to achieve them.

3.1 Urban childhood challenges

The built environment poses many obstacles to creating a pleasant childhood experience, such as:

- Pollution and traffic: It is an international challenge affecting children's mental and physical development (Ben Show et al. 2012). Mixed-use communities and safe roads support pedestrians and cycling, encourage social interaction, and reduce pollution (Moghtaderi et al. 2013).
- Urban sprawl and high-rise buildings: Dense, high-rise buildings easily lead to isolation and hinder access to open-space networks (Freeman et al. 2011). Meanwhile, large, sprawling communities force people to depend on cars, reducing trust and safety (Montgomery 2013). On the other hand, connected street networks and density, accompanied by diverse land use, encourage physical activity (Predy et al. 2008).
- Social fears and crime: Children's direct access and independent connection to open spaces is always affected by their parents' perception of safety, strangers, and crime in the area (Moghtaderi et al. 2013). The safer the area and the lower the crime rate, the more families will encourage their children to explore and play (Gill 2014).
- Isolation and scattered spaces: A network of connected urban public spaces creates more social interaction and trust among users (Devlin 2006). On the other hand, scattered open spaces create isolated islands of smaller interactions that discourage children's discovery and restrict their movement (Ben Show et al. 2015).
- Unequal access to open space: Unequal distribution of green areas and public spaces can create social inequality all over the city and result in very few family activities in the spaces (CABE 2010). Any city's design process and urban vision should help to equalize social justice and stress the accessibility for all the people distributed throughout the city (Daniel et al. 2016).

3.2 Benefits of child-friendly cities

This section will spotlight the most important benefits of creating child-friendly spaces, exploring some successful examples internationally.

Local economy

International cities that aim to make their urban environments attractive to families and children can drive the local economy by being desirable destinations for many skilled workers and jobs. They build a strong network of child-friendly communities with safe routes and a variety of amenities (City of Rotterdam 2010).

Safety

When a child feels safe in his or her community, he or she is likely to become more active and interactive. When Sao Paulo transformed its public-space network and listened to its children's needs, the attitude of families and children changed dramatically; they felt more connected with home (Bernard Van Leer Foundation 2017).

Health and well-being:

Connected communities with a variety of attractions in residential areas can easily promote physical activity (Barton 2015). For children who can't travel far from their homes, the proximity of green areas with designed pedestrian paths are critical to their health (City of Toronto 2017).

Better community:

Bringing children, and therefore their families, to outdoor spaces can facilitate stronger communities and social interaction (Bomat 2017). The combination of designed open spaces with shops and local services leads children to engage with everyday urban experiences (Nieuwenhuijzen et al. 2017)

Resilience:

The effect of climate and its threats on children is notable; it affects their development process (Ahdoot 2015). Expanding children's daily freedom within the surrounding spaces will improve their urban resiliency, leading to future strong, resilient citizens who can better address all urban challenges (American Academy of Pediatrics 2015).

3.3 The Role of children's participation

Most recent research has stressed the importance of children's participation in the urban-planning process, although they remain excluded from the design process (Karsten & Vliet 2006; Chawla 2014). According to Hart, there are different stages of children and youth engagement in community development, as shown in Table 1 (Hart 1992).

Table 1. Stages of Children's Participation in Community Development

Non-Participation	Degrees of Participation
Manipulation	Assigned but informed
Decoration	Consulted and informed
Tokenism	Adult-initiated, shared decision with children
	Child-initiated and -directed
	Child-initiated, shared decision with adults

Source: Hart 1992

3.4 Urban design for play

Most cities provide limited opportunities to play. In fact, the word "play" in urban design typically indicates playgrounds or kids' areas in open spaces, while planners and urban designers should see play as more than a simple interaction between a user and equipment or area (Herrington 2011). The outdoor environment should be varied and encourage curiosity and challenge children's minds, Figure 2 shows the elements necessary to achieve that.

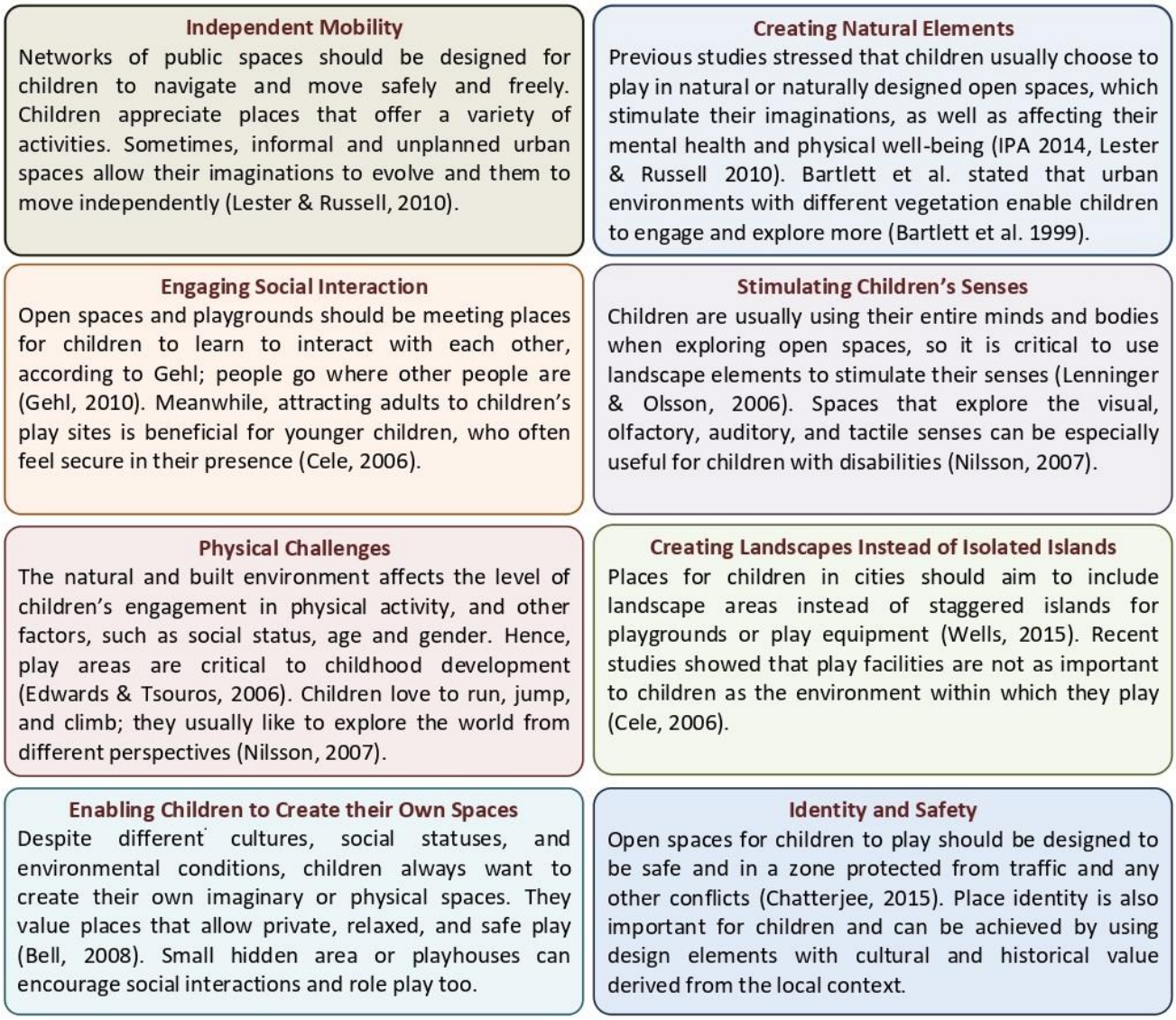

Figure 2. Aspects of designing urban playing spaces

3.5 Classification of play spaces for children

Every city has two main types of play areas: designated and undesignated play areas (Karsten et al. 2015). Table 2 describes each category. Designated play areas are usually studied on a larger scale. Undesignated play areas will be examined in this research in a selected district within Jeddah City.

Table 2. Types of play areas for children

Designated play spaces	Undesignated play spaces
Playgrounds	Streets
Sport Fields	Parking lots
School yards	Corridors
Parks	Court yards
	Green spaces

Source: Karsten et al. 2015

4. Design Framework for Child-Friendly Urban Design

To reach a comprehensive design framework for child-friendly urban spaces, the research begins by correlating the different aspects to design an urban space for play, along with the different types of play areas for children in the city, Table 3 shows this relationship.

			Aspects of design urban spaces for play							
			Independent mobility	*Natural elements*	*Engaging social interaction*	*Stimulation of children's senses*	*Physical challenges*	*Creating landscapes, not isolated islands*	*Enabling children to create their own space*	*Identity and safety*
Types of play areas for children	**Designated**	*Playgrounds*	●		●		●			
		Sport fields	●		●		●			
		School yards	●	●	●		●			
		Parks	●	●	●	●	●	●	●	●
	Undesignated	*Streets*	●	●				●		●
		Parking lots	●							
		Corridors	●		●			●		●
		Courtyards	●	●	●	●	●	●	●	●
		Green spaces	●	●	●	●	●	●	●	●

Table 3. Correlation among Play Areas for Children and Design Aspects of Playful Urban Spaces

Figure 3 shows the proposed design framework derived from the theoretical approach; this framework will be examined later on a selected case-study area in Jeddah.

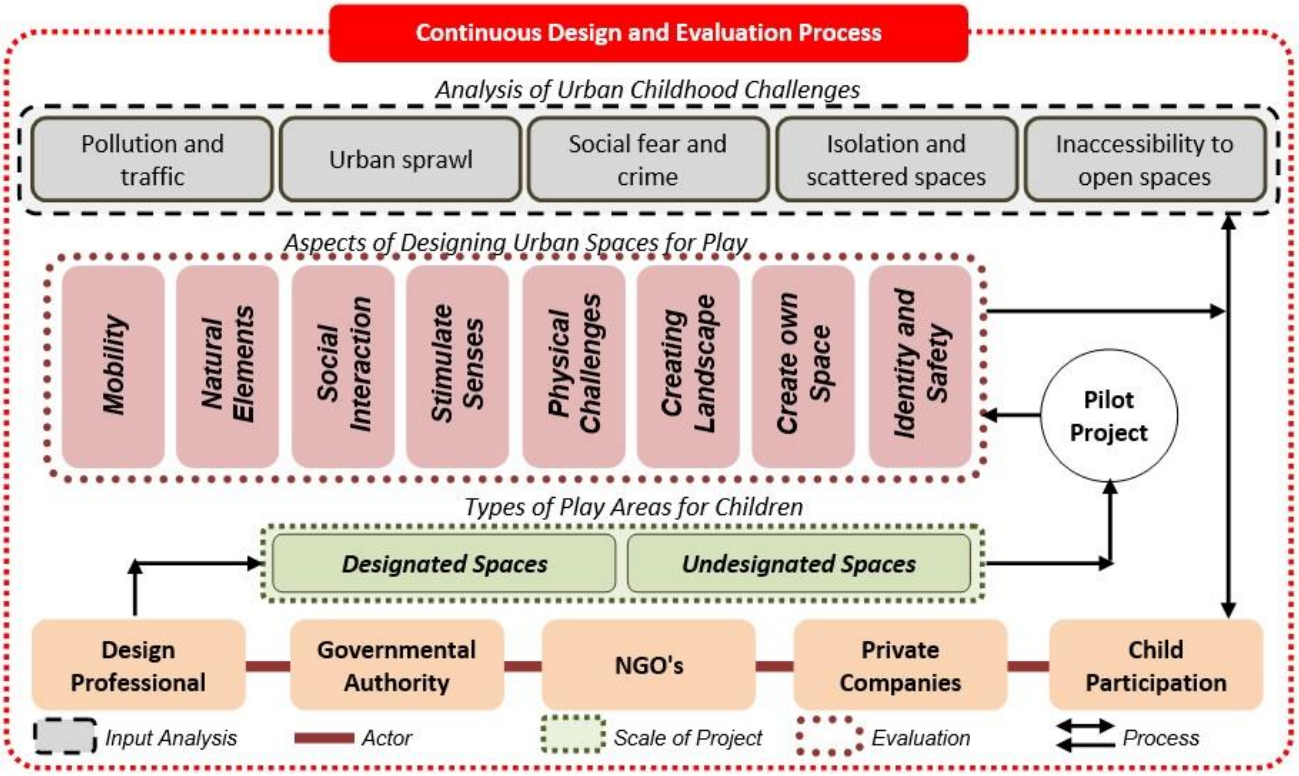

Figure 3. Design framework model for child-friendly urban spaces

5. The Study Area

5.1 Children and Urban Spaces in JEDDAH

The city of Jeddah is considered to have the most urban growth in the western region of Saudi Arabia and the second-largest population in KSA. It is expected to reach 4,782,080 in 2019 (General Authority for Statistics 2019). The city is sprawling; hence, the average population density is not high. Its urban sprawl started to grow with the oil boom of 1938, which dramatically changed the urban physical environment and lifestyle of Saudi people (Mubarak 2014). Figure 4 shows the expansion of the urban area and transport and the change in land use in Jeddah from 1964 to 2007 (Aljoufie et al. 2013).

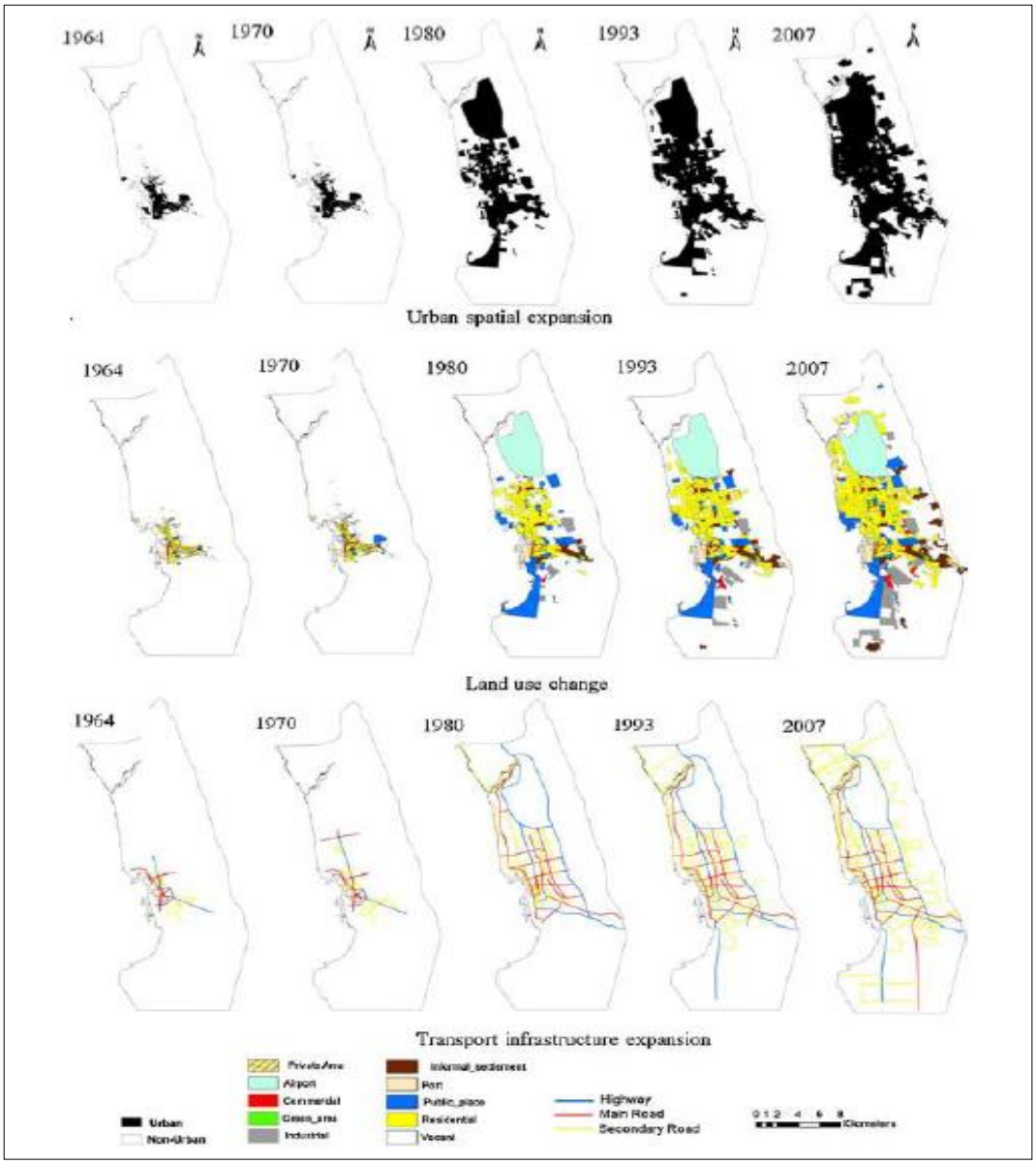

Figure 4. Urban, land use, and transport changes in Jeddah, 1964–2007
Source: Dhieb et al. 2019.

Rapid urban growth in the city has created different urban patterns due to the increasing population, evolving from the traditional layout of old Jeddah to the contemporary grid pattern (Adnan et al. 2018), as shown in Figure 5.

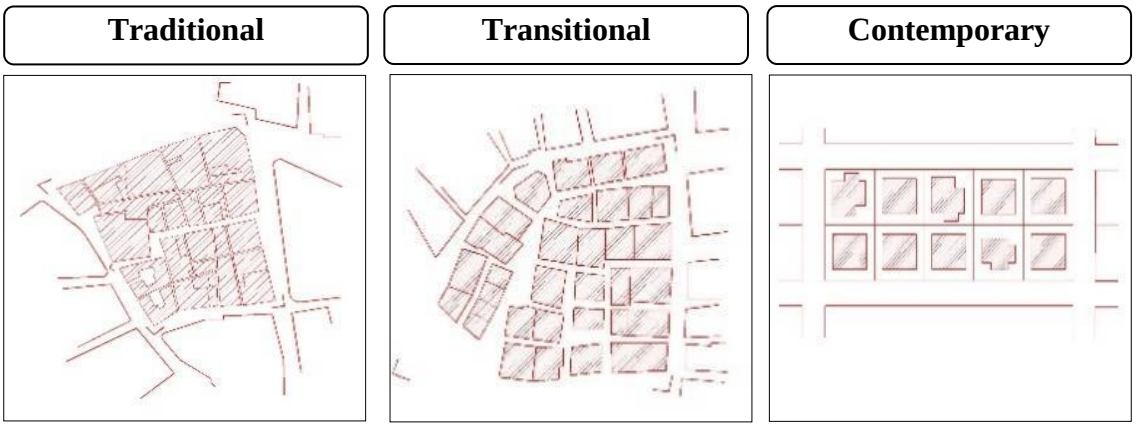

Figure 5. Different urban patterns in Jeddah, 1964–2007
Source: Adnan et al. 2018

5.2 Green Open Spaces in Jeddah

Khalil stated that Jeddah fails to meet any of the standards for green and open spaces per square meter. Figure 6 shows that percentage to be 0.9, while international standards range from 9 to 30 (Khalil 2014).

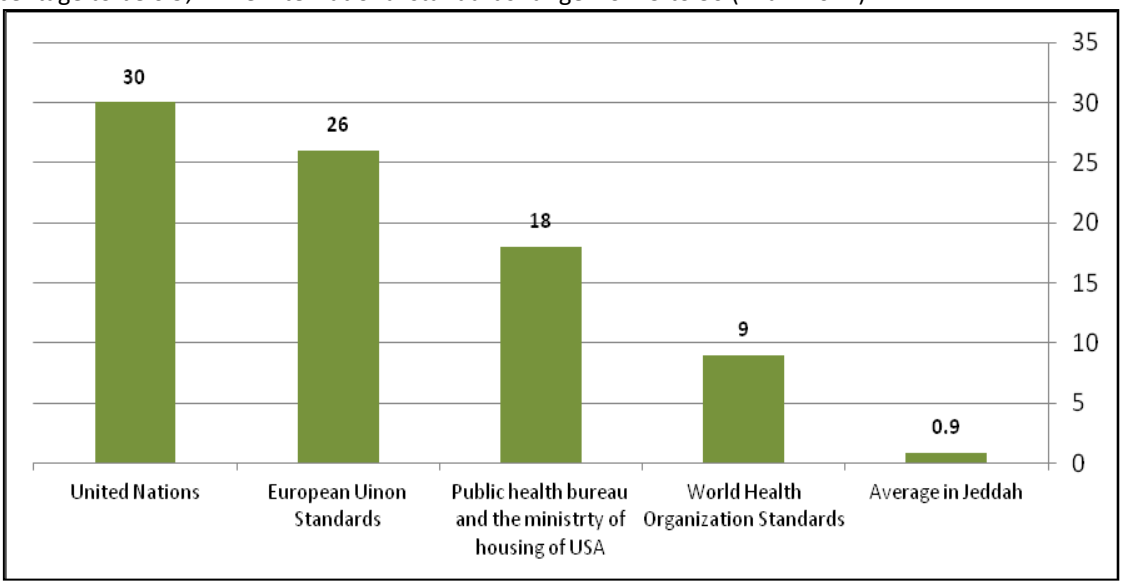

Figure 6. Jeddah's green spaces per m2 compared to international standards
Source: Khalil 2014

5.3 Current Situation

The traditional urban pattern was the most suitable and safest environment for children to explore, due to its scale and narrow streets. The more the city grew and expanded, the more it ignored the human scale and excluded the participation of children and young people from the design process. Figure 7 shows the current urban boundaries of Jeddah City along the sea.

Figure 7. Urban limits for Jeddah City
Source: Dhieb et al. 2019

5.4 Selection of Case Study Area

According to the municipality's new divisions, Jeddah consists of 119 districts. For the purposes of our research, all districts will be filtered according to certain criteria to select the best neighborhood for testing the derived design guidelines in the literature review. Table 4 lists these filters, explaining the criteria for selection. The research chose a newly designed neighborhood because the old city is already built on a human scale and is a mostly child-friendly environment, and a nearly completed district has an average population ideal for testing interactions with the open-space network. Figure 8 illustrates the process of location selection after applying the filters in Table 4.

Table 4. Criteria for Selecting the Case Study

Criteria	Description
Population	Average population within Jeddah neighbourhood
Green areas	Highest percentage of green area
Accessibility to green	High access to green spaces
Contemporary pattern	Newly designed, not the old city
Mixed-use	Different uses for social interaction
Average height	No high-rise buildings

Source: The author

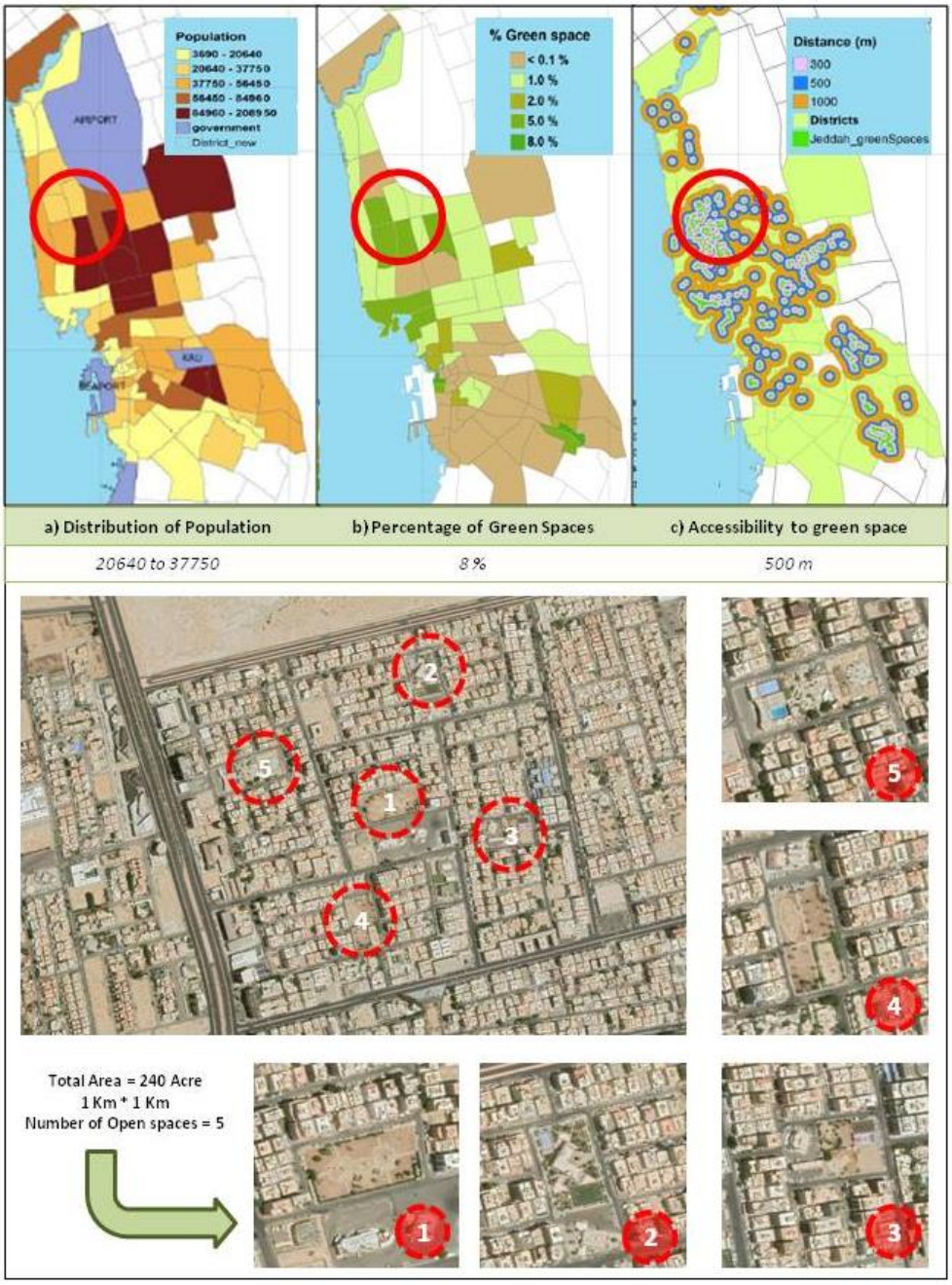

Figure 8. Study area selection in Jeddah City
Source: Khalil 2014, Data Adapted by the author

6. Jeddah Case Study

The site selected as a case study is named Alnahda District. It is surrounded by four wide streets separating it from adjacent areas. The location has experienced development and open-space reduction over the years. Figure 9 shows the urban pattern of development from 2001 to 2019.

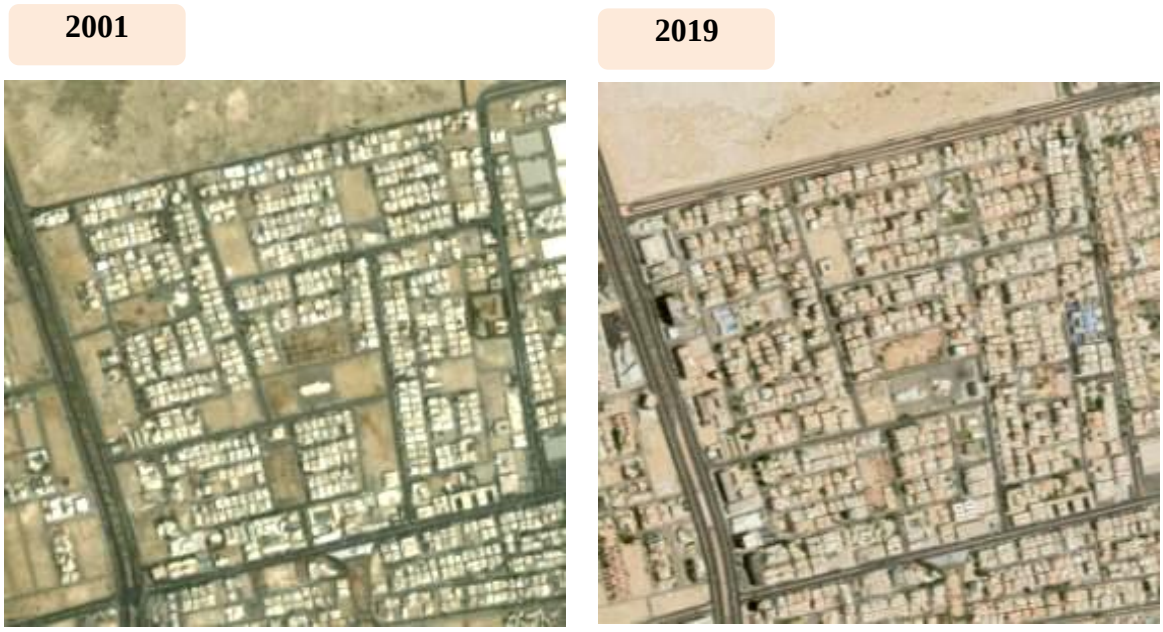

Figure 9. Urban development of Alnahda District over time
Source: Google Earth 2020

The research will analyze the location according to the steps mentioned in Figure 3, starting from site-input analysis and culminating in a development proposal for the creation of a better environment for children.

6.1 Site Input Analysis

The selected district has five open green spaces: one is central and the other four are distributed equally throughout the area. It is worth mentioning that through the years some of these spaces have decreased, with buildings added either to serve the open space or as a public investment. Figure 10 shows some of the changes in these spaces, which are numbered according to Figure 8.

Figure 10. Decrease in green spaces in the site location
Source: Google Earth 2020

This district has not traffic or pollution problems, except for a certain time during the day close to the center and schools and public uses area. Figure 11 shows a collection of pictures of the site explaining the main problems in open spaces network and its current condition.

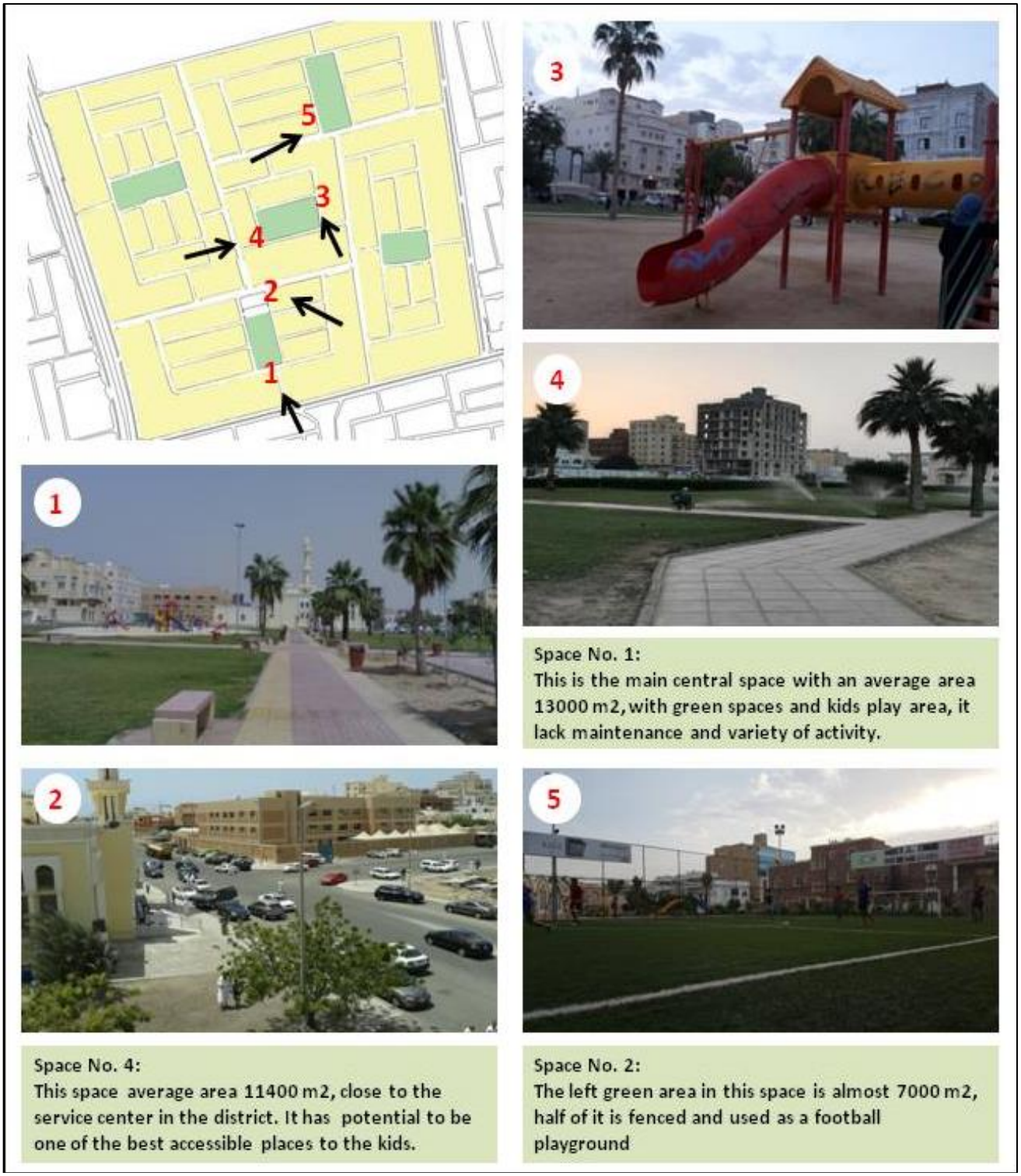

Figure 11. Current open-spaces network and site problems

6.2 Swot Analysis Of The Site

Figure 12 shows a SWOT analysis of the site, based on site visits during summer of 2019, in addition to walking interviews with the inhabitants. It summarizes the findings of site-input problems and potential.

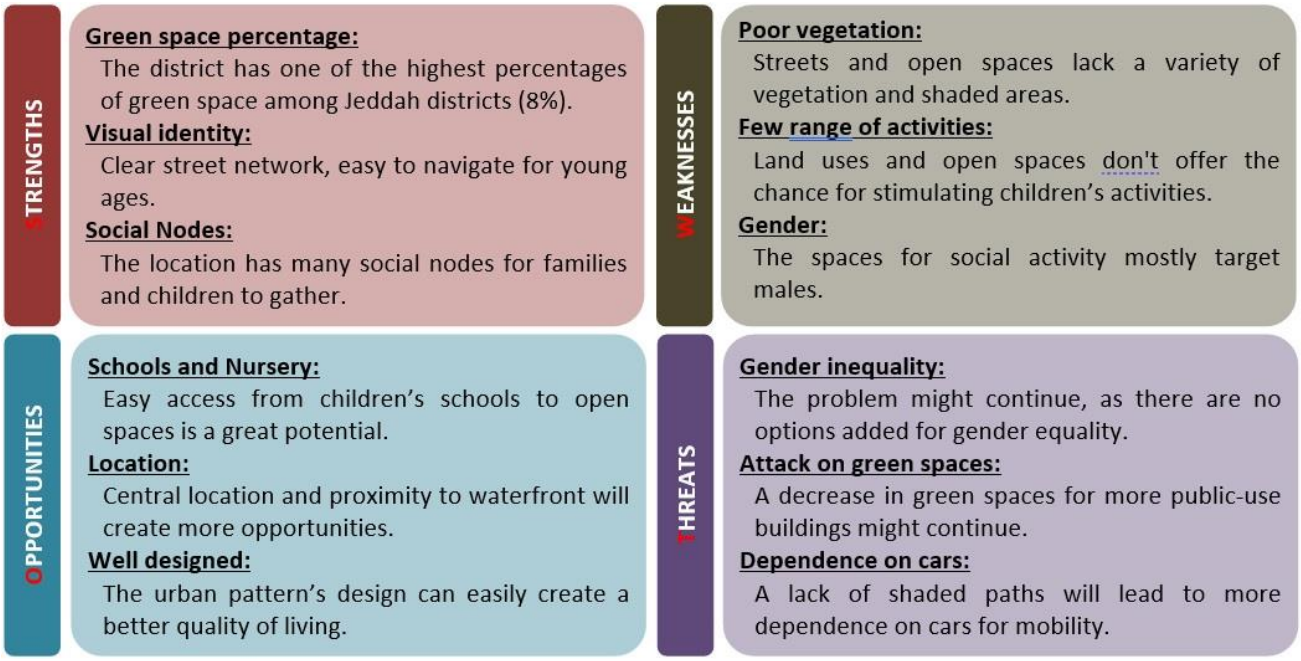

Figure 12. SWOT analysis of Al-Nahda District in Jeddah
Source: The author

6.3 Children's Participation and Interviews

In this section, the data will be derived from both observations and documented monitoring of activity in the district, along with walking interviews with local inhabitants, especially families with children in the area. Figure 13 shows the major quantitative analysis findings of this survey.

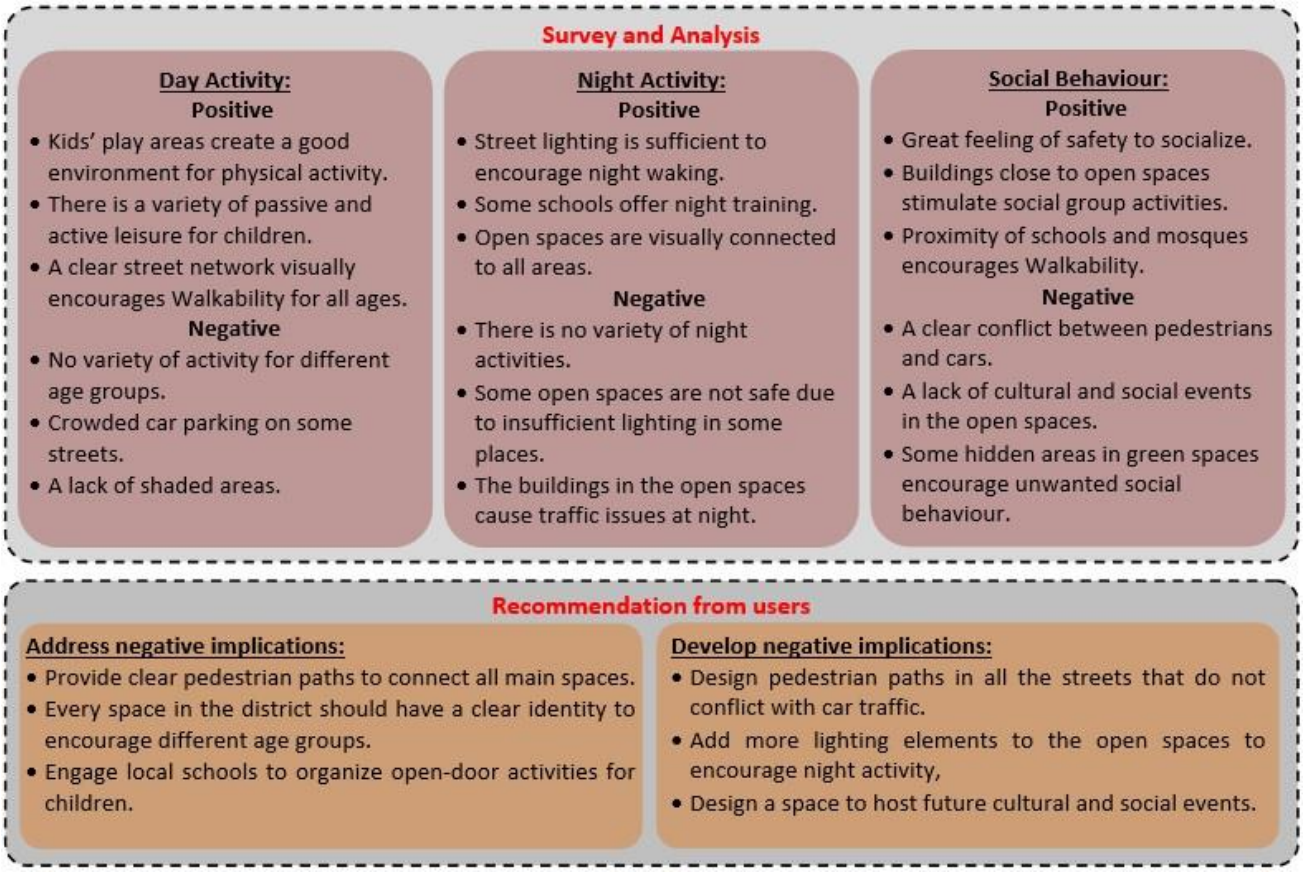

Figure 13. Quantitative analysis findings on children and inhabitants' participation
Source: The author

6.4 A Design Proposal for Children's Play Areas

Figure 14 shows proposed design decisions for undesignated play areas in the location, based on the earlier analysis of problem input and children's and other inhabitants' participation.

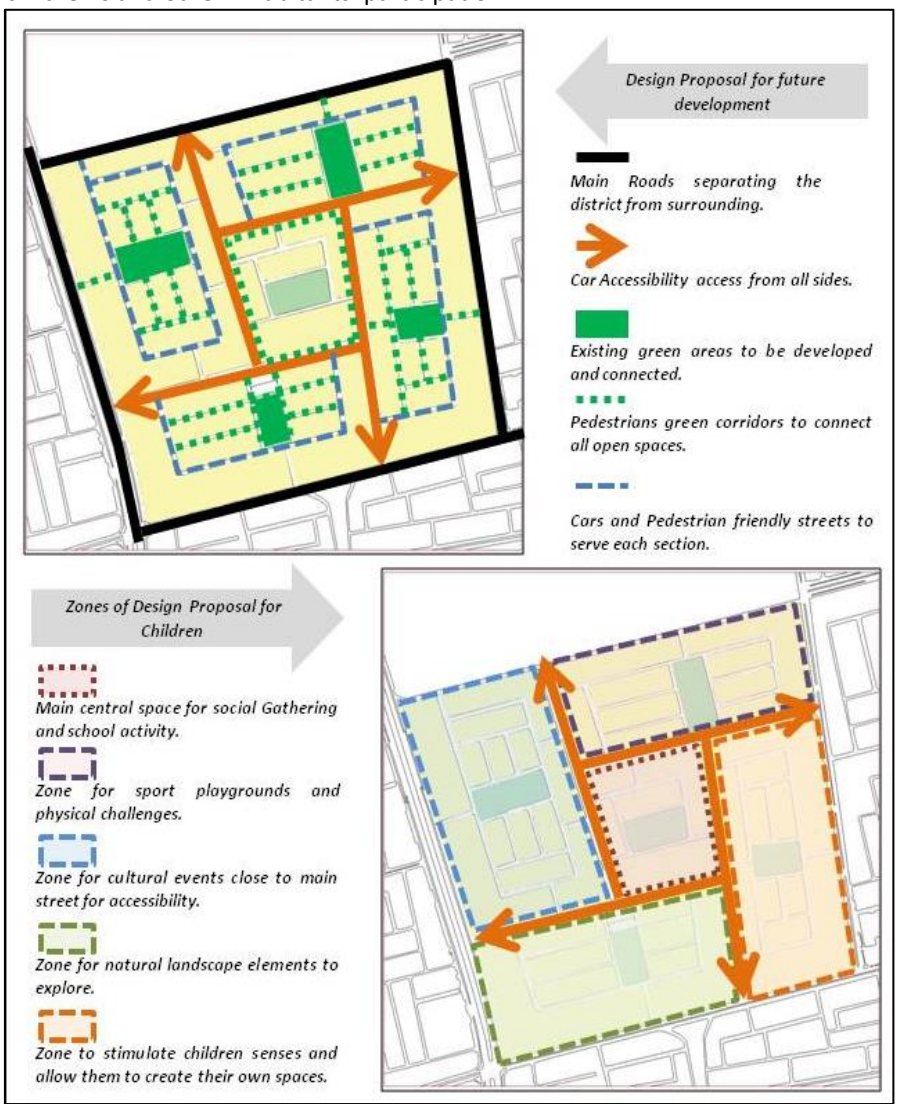

Figure 14. Proposed design decisions in Al-Nahda District in Jeddah

Source: The author

Table 5 briefly describes each zone in the design proposal for developing the district into a more child-friendly environment.

Table 5: Criteria for Selecting Zones in Design Proposal

Zone	Description
Central space for social gathering and school activity	This zone was selected for its central location and proximity to all areas. It also contains all schools and public building services.
Sport playgrounds and physical challenges	Open spaces in this zone already have existing playgrounds, so it will be convenient to use this as a catalyst to promote physical challenges.
Cultural events close to the main street for accessibility	This zone has maximum accessibility to the main road, and also contains few cultural private services.
Natural landscape elements and different vegetation to explore	Open space and streets in this zone already contain a variety of vegetation and landscape elements.
Stimulate children's senses and allow them to create own space	This is the most low-density zone in the district and will support conversion to a pedestrian-friendly area with different purposes.

Source: The author

7. Conclusions

The research was concerned with studying the main challenges and principles of a child-friendly urban environment. From the literature review, the paper derived all the main principles and reached a design framework model to achieve the best environment for children. Later, this model was applied to the selected district in Jeddah City in Saudi Arabia. Finally, the research proposed a design and reached major key findings, which can be summarized as follows:

- The results of the case-study analysis done within the research have been very limited in site selection, time, qualitative interviews, and the selection of children and other inhabitants. To reach more credible quantitative results, it is recommended to apply the model to different urban pattern districts and to interview more people from different social and cultural backgrounds.
- The way children see and live their daily lives is dramatically changing in Saudi Arabia. Hence, it is essential to apply a broader study over time to provide a whole picture of Saudi Arabia's environment impact on children. Although people's values and minds don't change as rapidly as their economic and social status, it will remain very interesting to perform a similar study after a few years and compare it to current conditions.
- Neighbourhoods in Jeddah have a high need for green open spaces and suffer from low accessibility; this creates a critical zone to raise children in a healthy environment, and public decision makers should focus on it.
- To improve open spaces from children's perspective can be done in many ways. The research adapts the general focus, but it would be recommended for future research to focus on a certain age group. For example, how can the design of public open spaces benefit and engage teenagers?
- It would be beneficial to study changes in children's perception and gender inequality before the cultural heritage in Saudi cities and how it develops after all the recent dramatic social and cultural changes in Saudi society.
- The paper is limited by the fact that the research studied undesignated children's play areas. For a larger development vision, it is recommended to apply the proposed design model to all types of play areas to examine the role of children's participation in both types.
- It will be interesting to see the effect of children's participation on the long-term transformation of a space, how it affects how children interactions with open space, and whether their participation prevents vandalism.
- It is worth mentioning that it is very time-consuming to work with children and youth in an urban development. It makes the process more complex but potentially creates an engaging community that offers the best environment for children to grow.
- To create a suitable environment for children, the role of cars must be decreased and dependence on public transport increased to create more space for green corridors and walkable streets.
- The correlation matrix in Table 3 derived from the literature review should be examined through children's participation to test its validity and applicability to different urban pattern areas with social and cultural differences.

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