

Conceptual Design and Development of the Kid's Kingdom in Jeddah, Saudi Arabia

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Abstract Kids and children are the core of a community in terms of its future development. Thus, it is very significant to provide the best possible environment for the kids to develop their growth intellectually, physically and mentally. The government of Saudi Arabia intends to attain a well-developed nation status through its vision 2030, and it has placed the focus on kids development. Hence, this paper suggests the development of kid's kingdom in Jeddah, Saudi Arabia, in order to achieve the goal set by the vision 2030. A case study method is used to gather information to come up with development plans. This study examined 4 case studies related to the kid's center. From the case studies analyzed, it is found that the proposed children's kingdom will require only a few areas, such as education, entertainment, administration and open space. The total estimated area for the kid's kingdom is 8762m². The selected development site for the kid's kingdom is located at Alshatee district on the northern side of Jeddah. The design concept of children's kingdom is to provide children with a space to imagine a new world, attract their attention, and let them freely express their feelings, learn in new ways, and build their own kingdom. The kid's kingdom is expected to facilitate the development of the younger generation of Saudi Arabia and achieve its vision 2030 as a developed nation.

Keywords Kids, Children, Facility, Development, Education, Vision 2030, Saudi Arabia

1. Introduction

Children are one of the most important groups in building society and pushing the world forward [1]. Therefore, they should be given sufficient convenience to do so. Young people around the world are also important to promote world development in a positive way [2]. Unless their families and communities deliver them with the support and opportunities they need in the process, they will not be able to develop these skills [3]. In addition, in order to accompany this vital process, the community correspondingly needs to give them the space they need and yearn for [4].

Children should be given the maximum space to express their opinions. This will provide a new way of learning to make children interested in learning new things, be free and unrestrained in different events and understand the meaning of social solidarity [5]. Nowadays, kids and adults are using technology more than interacting with family or friends, being lazy and losing interest in traditional education [6]. It is therefore important to dedicate space to them, which will help them start a campaign and express their views with an open mind. [7].

The future advancement of Saudi Arabia lies in the hand of its younger generation. Thus, the government aims to enhance social development in order to build a powerful and rich society, based on the 2030 vision of a strong and well-founded society [8]. In addition, the government also intends to support people's families by providing them with learning and fruitful activities that will improve the personality of their children by developing an effective academic environment, including physical and social

learning [9]. Furthermore, there is a need to create a space for all children to interact and share their thoughts and opinions, and learn about each other [10]. Thus, to accommodate the requirement of vision 2030, this paper proposes the development of kid's kingdom in Jeddah, Saudi Arabia.

2. Literature Reviews

2.1. Perspective of Environmental Psychology

The architecture should focus on and be familiar with the psychological characteristics of specific users such as children. Anbari and Soltanzadeh [11] outlined several factors that need to be considered when designing a place for children, such as creating various spaces according to the children's age to release energy, and applying appropriate lighting and colors to the children's emotions in inner and outer decoration, as well as considering building standards for children.

It is very important to truly understand the psychophysiological characteristics of children and design an ideal environment for them, because without understanding children and their psychology, in terms of emotions, social interactions, children's growth stages, and their needs, then the designed environment may not be so effective [11].

For example, large windows give children the opportunity to look out, so they always maintain a visual or sensory connection with the external garden space [12]. Sensory experience becomes part of the learning experience, and designers must maintain an open attitude

to understand the complex structures that may be integrated into the space. In addition, the large windows also emphasize natural lighting and also create a sense of calm [12].

When designing buildings for children, designers are actually shaping the prospects of the future [13]. Therefore, it is very important to handle the process strictly and has more basic understanding of children's safety. Certain programs can promote certain characteristics, certain programs rely heavily on certain technologies, and the purpose of all these technologies is to obtain a successful child-friendly space that best suits their functions.

Figures 1 illustrates human beings including children live in natural space and internal space of social space at the same time [14, 15]. In this space, children's senses are stimulated through sensory and motor activities. Furthermore, the physiological space allows children to show their physical strength and flexibility to connect with the elements [15].

2.2. Learn and Experience through Games

Facility design affects children's beliefs, expectations, and perceptions of themselves. Learning should not be boring, nor should it be based on recitation. The outdoor experience allows children to interpret and infer the differences in characteristics and phenomena from the indoor experience. Also, a variety of activities help improve children's intelligence and skills. Enabling children to interact with or navigate the building in a unique environment is essential to the game concept [13]. Therefore, children can truly be independent and self-reliant through the essence of design.

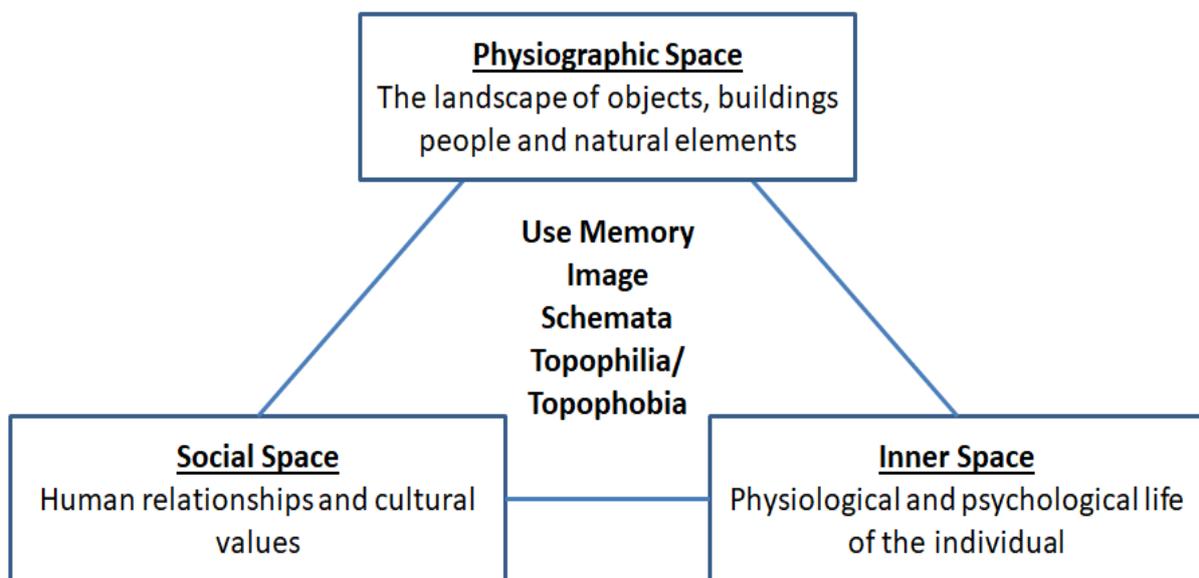


Figure 1. Environmental experience realms [14, 15]

Architects are responsible for designing and nurturing spaces that can realize basic natural creativity and freedom of play. These spaces allow children to have autonomy, to do as they wish, and to continue to grow during the learning process [13]. Architectural design must also be open and close to nature, because children do not mean to be limited to adults' preconceptions about space [13]. For example, Fuji Kindergarten has a huge roof that forms an endless playground for children to enjoy, also no boundaries between classrooms, so this open plan increases the frequency of children's social interaction [16]. This also helps to train children to think creatively and critically.

3. Methodology

The purpose of this study is to propose a development plan for the Kingdom of Children in Jeddah, Saudi Arabia, which aims to provide children with a sustainable environment for intellectual, physical and spiritual growth. The case study method was used to collect secondary data from online articles and research articles and develop the development plans.

Afterwards, program assumptions and spatial details are implemented based on the information from the case study. Several sites are suggested, and site assessment and analysis are required to determine the best location for the project. Finally, a project design is constructed according to the design concepts of this study, and the design model is illustrated with several 3D models.

4. Case Studies

In this work, for the proposed development of kid's kingdom, four case studies were reviewed. The selected cases are mainly from China and France, reflecting their unique design concepts as well as features and facilities. The details of the case study are as follows.

- a) Gehua Cultural Center, China
- b) Euralille Center, France
- c) Center Group France, France
- d) Between Square and Circle, China

4.1. Gehua Cultural Center

Gehua Cultural Center is located at Site: Qinhuangdao, Beidaihe, China (Figure 2). It was designed by architects Li Hu and Huang Wenjing. The area of the building is 2700m². The entire facility is enclosed by nature, insulated from the sound and confusion of the town. The center has numerous functional specifications, such as theatre, meeting rooms, lobby, cafe, classrooms, workshop and VIP space. The building is designed to optimize the quality of on-site nature and the variety of architectural qualities. The indoor spaces are absolutely bound to the environment. In addition,

a different function may be inferred in the same space. The open space is not only part of the scenery during the year, and is just an expansion of the venue to accommodate a much larger audience attending shows. The roof is paved with greenery and a range of appropriate outdoor sports, ensuring that 100% of the ground is efficiently used as an essential part of the activity of the resort. The materials used to construct the building are concrete, wood and glass. Furthermore, the space distribution of the building is covered of 26% for activities, 9% for offices, 21% for restaurants and cafés, 15% for galleries and 29% for theaters with open space.



Figure 2. Gehua Cultural Center

4.2. Euralille Center

Euralille Center is located in Euralille, France (Figure 3). It was designed by JDS architects. The building has an area of 6000m². This building includes youth hostel, offices and a kindergarten. The building is designed in a triangular shape. By setting up a programme at each point of the triangle, the architects provide full anonymity while at the same time allowing everyone to have intimate connection and consistency of space, arranged around a courtyard, like a fortress of peace in the center of the area.



Figure 3. Euralille Center

4.3. Center Group France

Center Group France is located at France (Figure 4). It was designed by architect Atelier Didier Dalmas. The

building has an area of 3533m². The house takes the full breadth of the land and provides an entry front that incorporates the patio and the concourse. Restaurant, lodging and courtyard are the other features of the construction infrastructure, with consistency established on the lane. Furthermore, the design of the building gives a large number of classrooms. A functional floor enclosed by a roof of photovoltaic tiles is a part of the building structure. The scale is in accordance with the priorities of its function and facilities. Furthermore, natural lighting is incorporated in every space.



Figure 4. Center Group France

4.4. Between Square and Circle

Between Square and Circle is located at China (Figure 5). It was designed by architect Jin Niu. The building has an area of 3900m². Between a square and circle is project built in a residential area for children in the village, and it has educational and entertainment facilities. The concept was to integrate the building into the surrounding area, so it is economic and simple design with brickworks.

The ground floors include classes, courtyard and services. The building is incorporated with the use of natural lighting and vertical circulation.



Figure 5. Between Square and Circle

5. Program Assumption and Space Details

The proposed Kids Kingdom consists of a few regions, which are education, entertainment, administration and open space. The space details of all zones are presented in Table 1. Based on Table 1, the overall space required is 8762m².

Table 1. Space details

Zone	Total Area (m ²)
Education	1994
Entertainment	1490
Administration	278
Open Space	5000
Total	8762

6. Proposed Site

There are four project sites in Jeddah Saudi Arabia which were considered for this study. The 4 sites have land sizes ranging from 8,000 m² to 9,700m².

6.1. Proposed Site: Site 1

For Site 1 (Figure 6), this site is situated at the north Jeddah, along the Al-Cornich road, near to Alshallal Park. The secondary road to the site is Abdeljabar road. This site has an area of 8.064.42m².



Figure 6. Site 1

6.2. Proposed Site: Site 2

For Site 2 (Figure 7), this site is situated at Alshatee district in northern side of Jeddah, surrounded by important landmarks of the city. The site is accessible from Almalik main road and Sari Street. The secondary streets are Bin Oroah and Bin Hothafa streets. This site has an area of

9.637.07m².



Figure 7. Site 2

6.3. Proposed Site: Site 3

For Site 3 (Figure 8), this site is situated at Alzahraa district northern side of Jeddah. The site is accessible from Almalik road and secondary street Prince Na f. This site has an area of 8.132.32 m².



Figure 8. Site 3

6.4. Proposed Site: Site 4

For Site 4 (Figure 9), this site is situated at Heraa district of Jeddah. The site is accessible from 4 streets. This site has an area of 9.235.35m².



Figure 9. Site 4

7. Site Evaluation and Analysis

In this work, it is recommended to develop 4 sites. Therefore, site evaluation is conducted to select the most suitable site. Table 2 presented the details of the site assessment analysis. According to Table 2, Site 2 was carefully chosen as the development site because it meets all required standards.

Site 2 is located in Alshatee district on the northern side of Jeddah surrounded by important landmarks of the city. Accessibility to the site is through Almalik main road and Sari Street; secondary streets are bin Oroah and bin Hothafa streets. The site has a rectangular form. Furthermore, the site is a mixed-use site, which includes commercial and residential building.

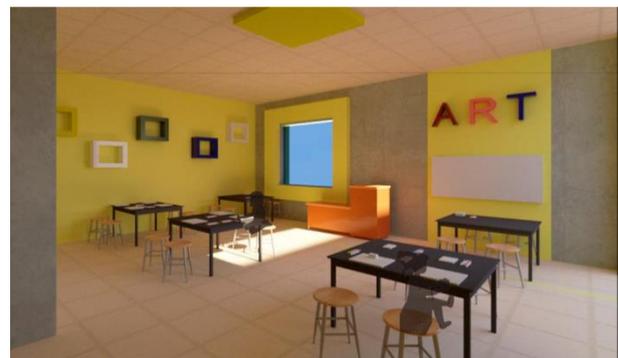
The site has a good sun path, with direct wind path and it does have any shaded area. The maximum temperature at the site is temperature 40 °C with relative humidity levels. The site has no noise or less related to the functions around. In addition, there is a mosque near to the site and street traffic from King Abdul-Aziz road, which has a very minimal level of noise. The site has natural elements around it, whereby it has native trees planted around the site.

Table 2. Site evaluation

Criteria	Site 1	Site 2	Site 3	Site 4
District	Corniche	Alshatee	Alzahraa	Heraa
Close to neighborhoods or other community services	Yes	Yes	Yes	Yes
Favorable orientation to wind and natural lighting	Yes	Yes	Yes	Yes
Located in 4 access streets	Yes	Yes	No	Yes
Close to less noise sources	No	Yes	Yes	No
Safe walking areas	Yes	Yes	Yes	Yes
Easily accessible	Yes	Yes	Yes	Yes
Future extension	No	Yes	Yes	No
Site Observation	<ul style="list-style-type: none"> Direct noise from Alcornich and traffic. Not visible from all sides 	<ul style="list-style-type: none"> Located near to landmarks area. Clear visibility. Quiet area. 	<ul style="list-style-type: none"> Have a lot of native shrubs. Direct noise from mosque. 	<ul style="list-style-type: none"> Not visible from all sides. Direct noise from Aljamaa traffic.
Area (m ²)	8.064.42	9.637.07	8.132.32	9.235.35

8. Project Design

For this work, the design concept of the kids' kingdom is to provide a space for children to imagine a new world, attract their attention and make them free to express their feelings, learn in new ways and build their own kingdom. The design principle is based on safety, health, adventure and communication. The main zones of this kingdom are administration, education and entertainment. Basic zoning of functions: the education zone has all classrooms, art studios and workshops. The entertainment zone is designed for public use as well as for students, the performing theatre zone where children can show their talent or any activity, the public area and the multipurpose unit (MPU). Finally, for administration zone, it includes the management office, the staff office and other services. The materials used for construction are steel, concrete and glass. Furthermore, the general design features of the kingdom are square building blocks. In addition, the building is designed with environmental and sustainable design solution, whereby natural lighting and ventilation are applied to the building design. The 3D representation of the proposed kid's kingdom is shown in Figure 9 to Figure 12.

**Figure 9.** Main Entrance to Kids Kingdom**Figure 10.** Library and playground**Figure 11.** Interior of the classroom

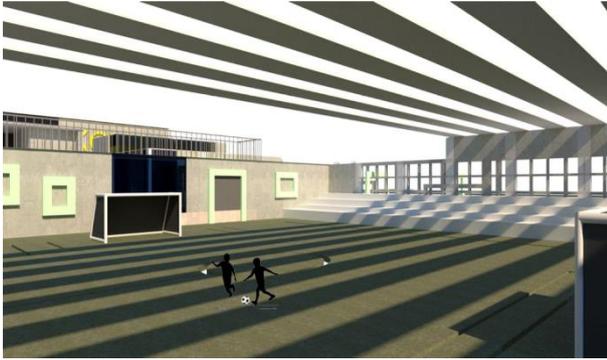


Figure 12. Kids play field

9. Conclusion

Overall, kid's kingdom provides a solid foundation for a child's educational journey, while also providing children with life skills and opportunities to succeed in all areas of development through play and interaction. This study has presented the proposed development of kid's kingdom in Jeddah, Saudi Arabia. The proposed building included a few zones, which are education, entertainment, administration and open space. The site assessment for this study has determined that the location of Alshatee is the most suitable compared to other areas, i.e. Corniche, Alzahraa and Heraa. The project design is constructed according to the design philosophy to create an environment that promotes children's imaginary worlds and guides them to express their feelings and creativity. Additionally, the design principles are related to safety, health, adventure and communication. The proposed kid's kingdom is expected to attract the urban kids and provide them with the required environment to develop and prosper according to the vision 2030 set by the government of Saudi Arabia.

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