REVIEW ARTICLE

IMPROVING VITALITY IN CHILD-FRIENDLY CITIES: CASE STUDY OF THE 22 BAHMAN DISTRICT, KERMANSHAH, IRAN

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ARTICLE INFO	ABSTRACT
	A healthy lifestyle requires having an adequate amount of allocated time and space for recreational activities. In today's complex and modern urban lifestyle, children must balance completing many different tasks at home or school into their day. In order to successfully achieve these goals while maintaining emotional and physical health, children require dedicated time and space free from chores and other responsibilities. It is crucial for children to channel excess energy into cultural and socially-acceptable activities providing them with pleasure and fulfillment. Therefore, spaces with elements of recreational activities are essential for the growth and livelihood of children in metropolitan areas, encouraging vitality as seen in child-friendly cities. Many urban living spaces in Kermanshah, Iran are smaller and more compact than those of other cities. This is due to many different factors, including geographical altitude, cultural preferences, recent population growths, clashes between new construction and old town layouts, and the high cost of living spaces in the city. Although Kermanshah possesses an old charm and many unique features, it seems to lack space for child-friendly leisure activities. The focus of this study is to assess the basic elements that could aid in the transformation of Kermanshah into a child-friendly city. The subjects of this study are children, aged 9 to 12 years old, who reside in the 22 Bahman district of Kermanshah. There were a total of 50 subjects; each was given a Yes/No questionnaire of statements regarding factors we believe will improve Kermanshah for its youth. These essential factors were determined based on various criteria that promote the creation of child-friendly cities. These include 1. Comfort and security, 2. Connection with nature, 3. Enjoyment of local history/culture/collective identity, 4. Attractiveness and originality, 5. Readability; 6. Accessibility, 7. Presence of intellectual and recreational activities for youth, and 8. Availability of outdoor programs for youth with disabilities were discussed. Subjects were asked to propose new ideal elements, such as buildings and open spaces for their city, to promote further physical and mental development of youths. It is believed that the ideal environment should include natural elements, complex spaces, safety, and tranquility. The design principles of the study are as follows: urban open spaces with stimulating surfaces, game makers through the use of natural elements such as plants, light, and shadows; a relaxing atmosphere of safe and secure urban spaces; complex and challenging spaces including flexible buildings and educational objects; areas for sports activities; and entertainment for children and their adult family members.

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INTRODUCTION

Built environment refers to any environment around us that is man-made. This includes buildings, facilities, and natural spaces where people work and live in. Schools, manufacturers, companies, shopping centers, houses, and park infrastructures are all parts of the built environment. Despite the continuous development and growth of cities, many urban areas are

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Currently lacking in the sense that they do not fulfill many of the needs of their users. The mixture of old and new spaces, which tend to be small and closed, often results in limitations for their residents, especially children. As one of the most vulnerable groups of society, children have inherently high needs that predispose them to a significant disadvantage in the typical city environment Structural shortcomings of cities often impose adverse effects on children. Most city children reside in small environments that were designed without much consideration to young residents. This is especially unfortunate, as children must spend a great amount of time indoors due to school and home life. In addition, many urban

outdoor environments do not provide enough healthy leisure activities for them. As children are a great investment to their community, new urban designs should dedicate a large amount of attention to their needs. Therefore, it is important to realize that much of human behavior is influenced in the early years of life. All aspects of one's childhood, particularly those affecting learning and environment, play a strong role in the growth of the individual and their society. Children who are active with their peers in public spaces have a greater tendency to pick up useful skills that can be carried into adulthood, such as proper social behavior and emotional competence.

This is because many emotional and behavioral traits are formed in the childhood and teenage years. In fact, a lack of opportunities to develop these traits in childhood life may lead to irreparable deficiencies in these areas throughout the later stages of life (Pakzad, 2014). Since a child's physical and mental development is so strongly related to their involvement with their surroundings, many factors of the urban environment can hinder a child's potential for growth. A satisfactory child-friendly metropolitan environment requires a variety of elements to promote safety and stability of children, and we suggest giving strong attention to these elements. By providing a greater environment for children to grow up in, we will also be ensuring a healthier society for the future. Jacobs has suggested that the key interests of children in urban spaces could be summarized with the following key points: street safety, diversity of users, and the city's freshness and vitality. Due to their highly impressionable nature, children require the utmost attention from planners and urban designers. Children should be exposed to a space that provides variety and a sense of security, which brings about certain standard for the design to include special attention to the abundant physical and psychological needs of children (GanjiMorad, 2017). A child-friendly design must also allocate open spaces to different recreational facilities and attract families with children of all ages. Such a design increases presence, activity, and creativity of children by promoting urban vitality. Therefore, it is especially important to consider the needs of children when planning and executing a project. Unfortunately, there is not enough attention being given to the design and creation of this type of urban environment in Kermanshah, Iran at this current time.

We recommend many ideas that could help with the creation of the ideal child-friendly city. First, planning of new facilities and their potential locations should be well thought out in advance. Open spaces in the city are already limited, and surrounding areas may be changed by other ongoing and future projects. We also suggest an integrated approach to be used for the planning, monitoring, allocation of spaces, sizings, and distribution of green spaces to maximize the effectiveness and use of both the new facilities and the pre-existing infrastructure of the city. It would also be beneficial to encourage residents, including children, to provide insight on their desires and needs in regards to the planning and development of recreational spaces for the community. Engaging members of the community in the design of their environment could not only contribute to the physical and mental development of children, but also improve the experience of the entire community. Such results would indubitably increase the overall vitality of the city.

Questions and hypotheses

This research attempts to provide explanations to common questions regarding cities and their ability to provide for the needs of their children residents. We aim to discuss how vitality of the urban environment could be promoted in a child-friendly city, which factors in the design of urban open environments increase presence and activity of children, and how to encourage urban space overall. Our main hypothesis is that the factors suggested to create a child-friendly city play major roles in the presence and activity of children in the urban environment. We suggest that there are correlations between environmental qualities in urban open spaces, the presence of children, and the generation of vitality in urban environments.

Theoretical framework

This study heavily focuses on three categories: architecture (urban areas), children (subject developmental psychology), and vitality. After selection of the study's location and methods of data collection, questions regarding common variables and factors used to promote child-friendly cities were asked to the subjects described previously. Our study investigates the perceptions of city children on factors believed to theoretically improve the lifestyle of city children.

Selection of subjects

In Iran, puberty generally occurs between the ages of 13 and 16 years in males and between 11 and 14 years in females. Therefore, the selection of 12 years as our maximum age for this study was appropriate; it has also been suggested in other research (Shiea, 2015). As our study focused on the 22 Bahman District, all of our subjects were sampled from this locatio.

Children and the environment

Each individual has experiences and skills that have been influenced by their environment. Activity is a key source of growth and learning, and is often affected by the surrounding space and environment. This is because space can create opportunities and encourage behavior, especially for children. Therefore, it is necessary that environments are designed to provide adequate protection in order to safely optimize growth in children (Mardomi, 2014). An environment where children are free to participate in gameplay, sports, exploration, and other social activities, is ideal. This will allow physical and psychological needs to be met while also providing enjoyment to the children. Children tend to be more present in exciting and vital environments where they can operate with fewer stressors.

Child-Friendly City

The child-friendly city is conceptually tied to the ideal where the government is aware of children's interests and takes such factors into account to form spaces where children can thrive like their older counterparts. This includes giving thought to basic rights of children, such as health, transport, support, education, and culture. Children should be recognized as citizens who have rights and are entitled to express their views. A child-friendly city is not only a city good for kids, but a city made by children (Riggio, 2002: 46). The wishes of children are prioritized, and rights are properly reflected in policies, laws, programs, and budgets. Children should feel safe and secure, with the ability to explore and learn about their surrounding spaces. Spaces should be full of vitality, raising children's desire for continual presence and activity. With

proper design of the environment and its facilities, educational and recreational talents of children can be discovered from the early years and thus properly invested in (GanjiMorad, 2017).

Child-friendly city Features in terms of architecture and urbanism

In architecture and urban design, paying attention to the opinions of citizens is one of the most important factors. The designers must figure out what the space and the environment can offer to attract its citizens. Projects designed to enhance child-friendliness often establish partnerships to create opportunities for children by modifying the environment. The action that enhances interest and participation of children belonging to the city (Ismail-Zadeh, 2014). With the strengthened compliance and the mentioned factors of the child-friendly city, the presence and activity of children in urban environments is ensured; therefore enhancing urban vitality.

Vitality

The scope of research

In order to minimize randomness, the concepts discussed have been researched in one location—22 Bahman District of

Kermanshah, Iran. Based on the information available in 2015, we have collected various information regarding Kermanshah and the 22 Bahman District. The total population of Kermanshah is 854,652with an average age of Province average age 30 years. 21% of the are population are less than 14 years, 33% are between 15 and 29 years, 39% between 30 and 64 years, and 7% over 65 years (Iran Statistical Center, 2015). Kermanshah is growing rapidly, with more than a fifth of the population being children. This has influenced the increasing building development and urban construction. The 22Bahman District is located in the Central Plains City, where the value of land and property is relatively demanding and expensive. It is also a highly density area, as numerous apartments and residences have resulted in great increases in population. According to the recycling statistics office in Kermanshah, 26,000 families are living in this neighborhood with 3,000 active businesses, as of 2016. Population growth and increased need for residential properties have led to the creation of high-rise buildings and a deficiency of playgrounds and recreational facilities for children in these areas, although these facilities are expected and hoped to increase over time.

Security and safety of children in urban environments

A common factor that prevents children from reaching their growth potential is the increasing concern in parents for their

Table 1. Definition of the vitality of the scholars. Reference: (Source, writer)

| The definition of the vitality of the scholars	1	Lynch, 2012	Coordinating the environment with the human biological needs and the extent to which the form of the places, the ecological survival of humans and other living organisms provides economically to mankind will bring vitality.
	2	Gehl, 2005	The lively place is where people choose to pause, stay and meet. Instead of fast passing through it.
	3	Dadpour, 2011	We can define the generality of vitality, the ability to place a variety of activities and users (with different economic, social and cultural backgrounds) with the aim of diversifying social experiences and interactions in such a way that security, equality and convenience Provide for all users.
	4	Alison, 2005	One can refer to the general concept of the vitality of a place to have identity, dynamism, flexibility, and adaptability to new needs.
	5	Public places guide for people, 2007	For successful urban spaces, the quality of one's place of liveliness, dynamism, activity, security, comfort, diversity and entertainment are defined. Urban space alive is an urban space where the presence of a significant number of people and its diversity in terms of age and gender in the context of long range on their activities mostly in the form of selective social or occur there. The vivacity and dynamism of the urban space, and vice versa, is a dismal reflection of the number and, in particular, the types of activities and events that take place in space.
	6	Aminzadeh, 2012	Vitality is attributed to the urban system, which contributes to the physical, psychological, social and personal development of the inhabitants and relates to the favorable urban spheres that create and reflect the spiritual and cultural richness.
	7	Ross, 2012	Vitality defines the quality of life as perceived and experienced by people in space.
	8	AIA, 2005	Stated that one cannot be given a single definition for vitality, and the vitality of a place should be defined and restated according to the characteristics of that place and its inhabitants.
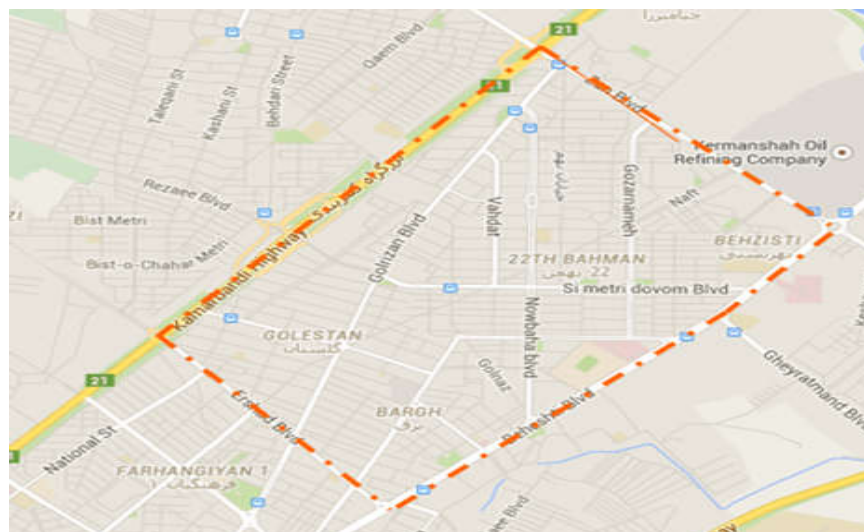
Figure 1. 22 Bahman Aerial Area Map (Source, Google Maps)

children's safety. In the past, the quality of urban development and demographic context provided a social policy for Kermanshah children. Where health and safety of children were not endangered. Today, with the changing social constructs of urban neighborhoods—such as those influenced by immigration, land allocation, traffic conditions, and changing preferences in transportation—the overall space dedicated to children is shrinking to the brink of disappearance (Hewes, 2006). Cities with congestion have ultimately become a type of threat to children. To improve the presence of children in cities, it is necessary that security in their neighborhoods, streets, and schools be adequate and monitored (Torres, 2009). In Kermanshah, most of the furniture and architecture are made with only the adult body in mind, thus often not being a good fit for children due to their size and physical standards. This, for example, is a great reason for injuries of children in parks and other free spaces. There are many risks that target children, including tall athletic equipment, lack of coverage of activity, lack of protective fencing, sharp edges, large cracks, improper installation of instruments, slippery floors, loose partitions, dangling ropes/wires/cables, and many others (Farsi, 2013). By examining the equipment and structures in the neighborhood, it is evident that the child resident is at a heavy disadvantage.

Link with nature and green spaces

Many studies have explored the effectiveness of green spaces on behavioral characteristics of children. Open spaces, including green spaces, play important roles in the perceptions and behaviors of children, enhancing their growth and creativity (Kamal Nia, 2010). According to studies by the Department of Housing and Urban Development of Kermanshah, conventional and acceptable per capita values for green spaces in cities are between 7-12m^2 per person. This is a large difference relative to the criteria set by the United Nations Environment Department of 20-25m^2 per person. The low requirements in the 22Bahman District are likely influenced by the abundance of construction due to high demand and value of residential properties. Thus typical green spaces, such as lawns, yards, and parks, are destroyed to be replaced by residential and commercial high-rise buildings. The head of Kermanshah municipal park, declared the under the supervision of the Municipality of Kermanshah, has a total green space area of about 7,600,000m^2. This translates to 2.9 m^2 per person, a value significantly lower than the national 7-12 m^2 per person. Children need areas such as parks, amusement parks, sports fields, and other locations for exercise and play. Environments with various equipment and facilities have a major influence in the development of the child's mind and body. In Iran, the standard for entertainment venues per capita is about 18 m^2 per person. In 22 Bahman District, 1 m^2 per person has been reported. It can be determined that there are fewer options for residents to seek enjoyment through cultural facilities, such as libraries, museums, and cultural centers which arecrucial for socio-cultural development. Furthermore, Iran's per capita standard facilities is 14 m^2 per person; whereas in 22 Bahman District it is only 3 m^2 per person.

Proper conditions of access and readability

There are many factors that have important effects in improving the security of children, such as LED lighting, signs, and readability of the environment. Factors like these make it possible for people to safely walk around the city, reduce street crime, and encourage children. Readability refers to the ease that an environment can be familiarized and navigated. Thus, it is a useful way to instill a sense of security and orientation for most people. It is also particularly helpful for children, aiding them in understanding their town and allowing them to perceive and enjoy their surrounding environment. Both visual and physical access attracts people to spaces, as they are seen as less confusing and more lively (Jalaleddini, 2011). In planning for the development of residential and commercial sites, major and minor grid streets must be properly understood. Children-friendly and disabled-person friendly modifications should present in the city as well, such as ramps and traffic signals for pedestrians.
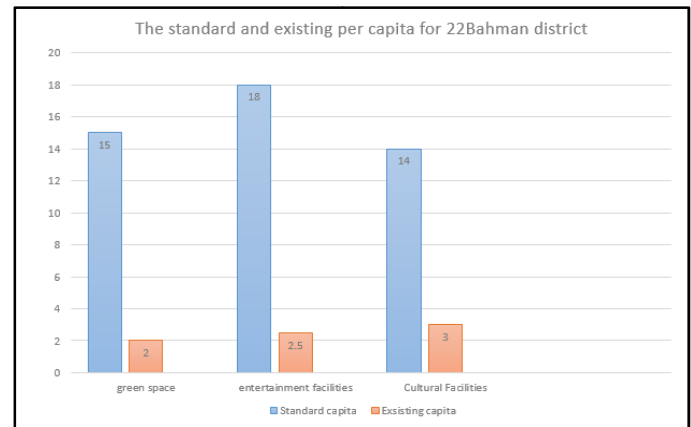

Figure 2. The standard and existing per capita for 22Bahman District. (Source, writer)

Link with history, culture and collective identity

A sense of place is essentially the relationship between the individual and their environment. Humans make a developed a relative interaction with the environment. Having an identity is a criteria needed for an environment to achieve the vitality. Architects Association of the United States has published a series under the title of vitality in 2005, stating that identity should be considered a criteria of vitality (Dadpour, 2011). For successful planning and design, one must consider location, topography, climate, environmental issues, and culture. This is crucial for all projects, whether they are of small design and urban furniture or commercial buildings and large-scale urban designs. These concepts should also be considered for projects involved in creating child-friendly cities.

Attraction

Every neighborhood open space should have factors that are appealing to children. A stable amount of complexity, novelty, excitement, and diversity in the environment is essential. Examples where these factors can be found include secondary roads, pedestrian passages, parks, commercial complexes, and residential modifications. These can positively influence children to have a good relationship with their surroundings. Existence of some ambiguity, as well as the ability to search and discover hidden aspects of an environment, can also be effective for children.

Institutions and spaces for children

While children do require a presence in public places alongside with their parents, they also need areas that are highly

specialized just for them. Parks, playgrounds, sport grounds, and libraries are highly useful spaces of this kind. Our study found that the majority of used spaces in the 22 Bahman District are residential, commercial, and administrative. The recreational, sport, and cultural facilities were very few and of low quality. Much of these facilities are not properly maintained and are becoming remnants of the past. Such lack of attraction and security of these places has caused the continual decline in children presence. Not only should these spaces be rebuilt and renovated, but also we must have new spaces created to meet with the children population demands.

for to work and play increase. (Interfering the green space with indoors and outdoors). With design of the movable elements and the use of lightweight walls between spaces and the ability to handle them (the ability to change the child's environment), and with using the materials and surfaces (on the floor and body) and use the suitable and color variety, motivation in children is increase. Finally, by assigning entertainment venues, sports, business, specifically designed for children improving the satisfaction of children from their neighborhood can be helped. And a step in order to establish the child-friendly city.

Table 3. Guidelines and questions. (Source, writer)

Row	Guidelines and questions	The total number of participants	Number of agreements with options	Percentage agreement with options
1	Use and cultivation of plant species near the streets and open spaces	50	45	90
2	Creating terraces and green roofs and the use of plants in the outer facades of buildings	50	41	82
3	Create pond and fountain in urban areas	50	42	84
4	Design of urban furniture without sharp edges	50	24	48
5	The use of flexible and suitable flooring in children's playgrounds	50	41	82
6	The use of colored lights and lighting in passages and buildings	50	38	76
7	Using appropriate colors and designs on the walls and views of the city	50	44	88
8	Use of equipment that can be modified by children	50	41	82
9	Design different levels or use ramps to move and pass	50	40	80
10	Playing with light and shadow and the use of colored glass in the streets and the city	50	42	84
11	Creating paths and spiral surfaces that feel the complexity of the movement.	50	32	64
12	Design of furniture with size and scale and color and materials suitable for children	50	48	96
13	Assigned city walls for painting and coloring by children	50	50	100
14	Use more signs and guidance boards at the city	50	45	90
15	Creating spaces for temporary exhibitions for children	50	38	76
16	Establishing urban spaces for the interaction of children with animals	50	45	90
17	Traffic control and pedestrian streets	50	42	84
18	Create sports spaces in the neighborhood	50	30	60
19	Create recreation areas in the neighborhood	50	48	96
20	Create commercial spaces in the neighborhood	50	33	66

In a child-friendly city, security coming by reducing children's stress, effects on children's mental peace. In urban space associated with the children, the use of natural elements (water, plants and light) with a brace on the motivation of children about the natural environment effects on the children activities. In the child-friendly city, Flexibility, increase the sense of space manipulate with the child's curiosity. This is one of the elements of promoting the child's creativity. In the child-friendly city, the space complexity with making the challenges, has an important effect on children's initiative. Ranking architectural solutions (using the test tables) in order to show that the priorities are:

With the creation of waterfront on the terrace or outdoor, water games for children, motivating children to work and play increases (space designed especially playing with water. With the use of light and the children's favorite colors in the design, child mental relaxation increases. With the design of the movable elements and moving walls, child's curiosity increases. With urban furniture design with suitable materials and scales for children and changeable and flexible, children can create different arrangements. And using natural materials, lighting or unique and bright colors, and suitable to the environment, and also by using natural and artificial light in sufficient quantities, can provide a good platform for children's activities. And children's mental peace increases. With green spaces and small garden on the terrace or on the roofs of buildings (green roof or green terrace), children's motivation

Conclusion

The ideal urban space should provide a sense of relaxation to its users while also raising the child user's motivation to be present and active within the environment. Child-friendly cities need to plan and develop their growth with the child in mind, paying particular attention to the fields of urban planning, architecture, society, culture, law, and medicine. Regardless of the country, the creation of child-friendly cities would promote proper physical and mental growth of children residents and serve as a great investment to society. In addition to current protocol, the input of children on design can be a useful tool when planning projects in their environment. This strategy can aid in creating facilities that promote an environment useful to and enjoyed by people of all ages, enhancing vitality of the city. It is possible to incorporate natural elements, a focus on child security and safety, and a design with spatial complexity and flexibility to progress the urban environment. Architecture and design principles to enhance the vitality of the information obtained in this study indicate that, in the Kermanshah 22 Bahman District, shortage of urban facilities for culture, recreation, green space, and urban furniture are factors that reduce vitality in relation to children activity. Considering culture and the specific needs of the children, the area's development is progressing in a manner that is detrimental for the growth of children by decreasing their activity and presence in the area. We suggest encouraging creation of areas that can be used for recreation, sports, intellectual study, and

social interaction in attempt to persuade children to be more involved within their neighborhood, thus stimulating vitality in their region.

- Design and create urban spaces with stimulating and game maker body.
- Providing the presence of nature and natural elements (in green space and urban design and natural landscape within and outside the buildings), taking into account the principle of supervision.
- Architectural use of water by utilizing its various features (transparency and fluidity, motion, movement, sound) in the space inside, outside and gardening and children's access to it without danger.
- Provide the solace and psychological security by designing and creating urban space.
- Maximum use of natural colors and light and shade in urban areas using architectural methods and facilities that natural light can be put in the hands of the designer.
- The use of materials naturally occurring compound in the body of internal and external urban environment using metrics and designer's options.

The use of forms of relaxing property and avoid using sharp and long and inappropriate bodies for children environment. Creating space presenting visual and environmental data in the interiors and exteriors bodies of buildings. Using a combination of light and form in Design and the creation of complex and challenging spaces in urban space with a variety of physical internal and external body. Design and creating urban furniture and signs with variability and flexibility (flexibility of space and form), and stretches of open and closed space and joint space for children. Allocating more space to sports, recreation and education for children. In regards to further research in this area, we look forward to working with municipalities to locate the area of public lands. We should consider the problems and shortcomings identified in this study in this area. With a better understanding of city-children's requirements, we can become closer to planning and implementing proper designs for centers in order to establish and create the ideal child-friendly city.

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