

USING CREATIVITY-PROMOTION AND ARCHITECTURAL IDEA APPROACH TO DESIGN A SPORTS AND RECREATIONAL COMPLEX FOR CHILDREN

Siavash Dadfar and Arsalan Tahmasebi

Department of Art and Architecture, Sanandaj Branch, Islamic Azad University, Sanandaj, Iran
Corresponding Author: (Arsalan_Thmsb@yahoo.com)

ABSTRACT

Playing is child's most important task. Children who do not play will never be great human being in the future. The necessity of this study lies in the importance of childhood as the most effective period of human life and attention to children as future capital. Today, an undeniable fact has been proven that children do not only need physical care but mental, emotional, cognitive, and moral care as well as personality and intelligence care. Children's dynamism and energy release are highly effective in their physical and mental health. Failure to release children's energy leads to aggression and tendency to indecent acts. Being accustomed to exercise in childhood is considered children's health insurance.

KEYWORDS: Children's Recreation and Sports Complex, Architectural Ideas, Promotion of Creativity

INTRODUCTION

In 1989, representatives of countries at the United Nations General Assembly approved and signed the Convention on the Rights of the Child and pledged to strive to approve and implement it in their countries. The treaty, known as the Convention on Human Rights, encourages all governments and people to build a better world for children. The Islamic Consultative Assembly approved the joining of Islamic Republic of Iran to this international treaty in February 20, 1994. Article 31, paragraph 1 of the Convention on the Rights of the Child (CRC), recognizes the right of every child to play and have recreational activities, then it is necessary to provide necessary facilities for their needs (the Society for Protecting the Rights of the Child, 1997). It is important to design spaces specific for children as children's imagination becomes practical at an early age. Over these years children are affected more by environments. But, these places have not been designed appropriately for children in Iran. Most kindergartens are in residential areas and even apartments that with drawing and coloring they have apparently become environments for children (Noghrehkar, 2009: 40). In general, children's creativity often flourishes in times when they have freedom of action and can use their imagination to create something (Nassajizadeh, 2005).

Scientists' opinions suggest that they somewhat agree on the following points: First, creativity is acquisitive to a great extent like other human talents and is not specific to certain people. Second, creativity growth depends on specific conditions and special education process. Third, there are various obstacles in front of creativity which are often related to social, cultural, and educational aspects and few of them depend on people's physical abilities (Mozafar, 2007: 65). The overall objectives are to design a complex with architecture suitable for the spirit of children with technological, symbolic, exciting, enlivening, and appealing dimensions which encourage creativity in children.

Complex suitable for children: It is a complex in which design standards for children are met, familiarity with sports and interaction of children with them are provided, a new vision is created about childhood that emphasizes the role of children's citizenship, children's rights and needs are investigated, and it is strived to improve the quality of living environment for new generation.

Technological (architectural technology, structural technology): New ideas are possible with modern technology.

Symbolic: Children's complex needs to be conspicuous among existing buildings

Exciting and enlivening: Considering perspective and landscape in the design of buffet, restaurant and other places.

Appealing: It is coordination of form and function and also coordination of designed landscape and diverse ceilings of the building and using membrane structure as it creates beautiful views and structure is observed in the volume that creates more visual attractiveness.

This study aims to provide practical solutions for designing a space for children and strives to achieve theoretical foundations, principles and necessary qualitative and quantitative considerations for designing a space compatible with children's characteristics and needs to provide the context of creativity for children.

Design methods for children

One of the main tasks of any architectural space is that it is responsive favorably to needs and interests of its users. Therefore, the users and their needs and desirability should be determined to achieve this important point. This can be understood easily about adults and spaces they need as they think about architectural spaces almost the same, apart from their environmental, cultural and educational differences, while this is not true about children as there are fundamental differences between children's and adults' mental structure and way of thinking and feeling. Therefore, it is necessary that the designer be familiar with these differences and considers them when working for children (author). Maxwell believes that society is effective in shaping children's development. The relationship between built environments, children's identity, self-esteem and academic performance are some factors contributing to children's development. Children will have fewer problems in the future if they start their development properly. He warns that the consequences of being constantly in high-density environments for children have always been recorded as a negative factor. These negative consequences include increased violence and aggressiveness, poor academic performance, poor family and social interaction and society's aversion (Maxwell, 2003). However, different aspects of children are not considered in many landscapes created for them and are not consistent with their perceptions, activities and needs. In fact, these landscapes are formed according to adults' characteristics and perceptions – not children's. These sights not only do not help various aspects of children's development, but in many cases lead children to be weary, cause abnormal behaviors in them and decrease their pure creativity (Sheibani, 2010).

Children who lived in traditional Iranian cities perceived environments in a particular way. Milestones and indicators of cities and their dependence on the worldview in the background of city's physical structure made up their minds (Mansouri, 2010). Two hundred years ago most children spent their days among gardens, fields or woods near their homes. By the late twentieth century, many areas used by children were changed into urban areas, but even children had access to nature and the big world until 1970. They spent much of their leisure time outside in the streets, sidewalks, playgrounds, parks, vegetable routes, parking lots and other empty spaces remained during the process of urbanization and played together in the fields, woods, streams, and suburban areas (Morre, 2004). Children were free to play, discover and interact with nature without restrictions or with little limitations and care.

In pre-industrial societies, religious institutions and religious leaders were mainly responsible for children's education, and in this regard the importance of their emotional education had always been remained unknown; however, gradually new attitudes about their education and the need to learn some manners and skills were developed. In those years, the majority of population lived in rural areas and children played and experienced while they were in direct contact with nature and there was no need to design an environment for their play (Izadpanah, 2015). But, today, the culture of playing outside is diminishing and children are driven every day to play at home (Hart Relationship, 1999). In this regard, Brooks says that the period filled with laziness without monitoring, wandering around and discovery of environment has been replaced by a period fully supervised by adults and planned to progress (Brooks, 2004).

In recent years, children spend a large part of their leisure time on watching television which results in decreased physical activity, environmental awareness and their environmental imbalance. Lack of environments for playing and local semi-public –semi-private exacerbates this trend. Although, children and adolescents are not interested in the housing situation due to lack of quality and quantity, there is no place for them for going, searching, tumbling, finding, watching and indicating creativity outside the home and in public spaces (Mozafar, 2007).

The findings of children psychologists and environment suggest that human mental and intellectual development is not a coincidence, but is coordinated and aligned with other aspects of human development. As improvement of health and nutritional conditions can affect the individual's physical growth, improvement of environmental conditions in which children live also provides the possibility for their mental and intellectual growth. Unfortunately, in many cases it is observed that certain environments for children are designed without considering their real needs and only based on experiences, tastes and personal inference. This would result in designing a space in which the needs of children are not considered. On the other hand, today, most municipal and local parks, despite the special needs of children, are designed for adults (Mozafar, 2007). In the present decade we observe other alarming changes in the daily habits of children all over the world; they less participate in games and free activities in open areas or public places and spend most of their times at home, extra-curricular classes and are under the direct supervision of their parents. This change of Iranian children's lifestyle which is along with global developments has developed a new approach at the international

level which is called “modern childhood”. More than half of children in industrialized societies live in the cities that are not consistent with their physical and psychological conditions and the same is true about developing countries (such as Iran). The most important negative consequence for children who are developed in current cities is that they cannot be expected to be bold, creative and curious. Children who live in low quality areas in terms of mobility, flexibility and free activity, gradually will become “consumer” of thoughts not “generator” of ideas. It seems that we have made the same mistake of producing artificial intelligence for children: even though they are able to communicate, they do not have anything to say (Mansouri, and Gharehbeiglou, 2011).

Factors causing problems in children and the effects of physical problems on children are classified in the following table according to studies and also interviews with parents.

Table 1 Factors causing problems for children and their effects (source: Mozafar, 2007)

Factors causing problem	Effects on children
Lack of security	Creating a sense of fear
Lack of proper health and nutritional conditions	Disease and lack of proper mental growth
Not being all-inclusive entertainment places	Getting hurt due to the use of adults’ devices
Indoor development	Isolation and withdrawal Lack of ability to communicate
Development in environments with low educational quality	Becoming consumers not producers

Human being is a needy creature and need is his very nature. The range of human needs is very broad, including physical, mental, emotional, and spiritual needs. Children need much more than what some parents believe. Many parents think that children only need food, clothing, games and toys, while children have many needs, each of which is particularly critical for them, thus, parental neglect will provide many biological and psychological disorders leading to a lack of flourishing power of creativity in children (Ghaemi, 1991).

The psychological needs of children are more complicated than their biological and physical needs due to their different abilities, needs and maturation based on the stages of age development, living conditions and social context of the residence place. Although urban areas in addition to adults have very young and astute audiences who are more influenced by environmental variables than adults, the modern city not only does not know how to accept children, but prefers to keep them in protected places such as playgrounds until they reach the age of confrontation with the urban environment (Mansouri, and Gharehbeiglou, 2011).

The most important and basic initial lessons of life that children need to learn are that they should learn how to “learn” and how to “discover”. The joyous shout: “I myself can do this” indicates the child’s potential ability in the field of creativity. Therefore, in the process of education, meeting the essential needs of children will give the opportunity to them to start exploratory activities and become a creative and dynamic person in the future, but conversely, a child with unmet basic needs will be passive and imitator and deprived of creativity and dynamism (ML Kellmer Pringle, 2007). Children also tend to identify with special identities in spaces and playgrounds to manipulate freely (at least from their point of view) the environment and foster their inner creativity. Children spaces should be appropriate and desirable for their physical, mental, emotional and social development affecting the process of strengthening their creativity (Shaterian, 2008). Paying attention to children and their health will provide future health of community. Childhood provides the best condition for promoting character and education, greater desire for social life and human collaboration. Creating a suitable environment for the development of children and understanding their needs and innate nature, as something needed in childhood, provide a suitable context for their personal and educational development as future healthy generation. This contributes to providing social health for next generation and reducing multiple social issues and tensions of urban life (Mehdinezhad *et al.*, 2012). Employees will not experience social frustration if their rights are observed which will result in the development of a healthy society in the future. Ignoring children’s needs in creating urban space has deprived them from enjoying open areas as the place of their activities (author). Children experience different spaces during a day. These spaces can be classified as Table 2:

Table 2 Children’s areas of daily life (source: Mozafar, 2007)

Private	Home
Semi-private	Child care centers Kindergarten
Public	Neighborhood open spaces and neighborhood

Children cannot understand shapes in detail. They initially understand angular shapes better. Then they are able to understand objects with curved edges. Children understand objects with holes better than objects without holes. Failure to understand the details is obvious in children’s paintings. After the initial stage of drawing blurred lines, children are able to draw all dimensional closed shapes, but they draw them circular regardless of whether they are square, triangle or circle. More complex objects with details are perceived slowly. Children less than six years old generally perceive objects, thus, shapes drawn by children are more regular, simple and different from their original forms (Tjced, 2001).

Figure 1 Educational games for kids (www.barbalentezar.ir)



Children pay more attention to primary saturated colors. The experiment conducted on children of different ages showed that 15-day children distinguished between red, white and yellow by moving their heads. Three-month children started at colored paper more than gray paper and tried to grasp it. Older children liked red, yellow, blue and green, respectively. Blue was favored among 6-year old children. Children identify colors when they can name them. Children learn color names later than objects’. Red is the first color that children can properly name and sometimes they call blue as anti red and sometimes they recall colors with objects related to them (Tjced, 2001).

Children are almost never bothered by noise and generally they like noise sounds as sounds make them not feel lonely, and amuse them and they can easily play in noisy places (author). There is a fundamental need in children to possess spaces. Every child wants their own room. Children of all ages, indoors or at school, try to possess a part of the space. When the space game is diverse and full of symbols and signs, children can more easily determine their territory (Ticed, 2001). When children have behavioral disorders they cannot interact with their surrounding space. Healthy and energetic children can easily occupy space, and possess it, put necessary instruments on their desk and sit at their desk without any problem. They have no problem to understand complex parts. Children who are too introverted focus all of their attention on small details, they can barely occupy space and sit on the edge of the chair and draw in corner of paper.

Children who feel insecure cannot tolerate open doors and suffer from agoraphobia (fear of large spaces). Sometimes children cannot express themselves as independent individuals and hardly can get away from comfortable environment provided by the presence of their mothers. For this reason, they are looking to a secure enclosed space (author). For children who have problem to communicate, it is very important to be able to express themselves well. Moving from an environment to another and also going from inside to outside of the building can make children feel upset. Making the decision to stay or go is a hard choice that a good architecture can mitigate the uncomfortable effects and provide gradual changes from the inside to outside space (For example, using glass doors, corridors, etc.). Children who have difficulty in communication need for security and visual warmth. To meet these needs, the size of spaces and openings should be limited. Such children feel lost in big and crowded environments. These children are often scared of long distances and passing through empty spaces. For this reason, large dimensions should be avoided, especially long corridors with scary perspectives (Tjced, 2001).

Figure 2 Using various colors is essential in different spaces in areas related to children (www.assets.dornob.com)



RESULTS AND DISCUSSION

It is essential that in the industrialized and noisy world the ideals of civilized man and elements of his living space be considered. Trying to humanize space should be a top priority for everyone. But it is important for architects more than others, those who are responsible to organize the space in a more or less urbanized civilization. In this way, urbanists, planners, contractors, green spaces professionals and artists along with architects are more or less responsible in the experience of harmony between man and his environment (author). After parents, architect is the first trainer of the child as his training is transferred through the shapes made by him forming the environment around the child. For this reason, the relationship between the child and architect and space is at the heart of humanizing civilization. Training principles are constantly changing and architecture with new ideas and designs should be responsive to needs due to these changes; a focused program that takes a long time and in any way does not decrease the need for creative architect and design adaptable to different educational methods.

Children as completely different citizens need to grow in architectural spaces based on their properties and are worthy of participation in education. On the one hand, an architect should understand contemporary children's spaces, needs and problems, and find ways to meet them; on the other hand, he should make children familiar with their surroundings to learn other environments, especially in their countries. To accomplish this, architects should increase their speed to reach education experts, sociologists, physicians and psychologists who more or less have fully understood children's world (author). Considering the fact that the environment around children should be in accordance with their internal interactions and provoke their senses and curiosity, the best spaces for children should be consistent with their needs, and should be colorful, attractive, dynamic and orderly, lively yet calming and at the same time be safe (author). Space design for children should be consistent with their spirit, therefore understanding children becomes very important in the design of spaces for children and since children have their own imaginative world many of them under seven years imagine the world as they like not as it is, therefore if a space for children is designed by an architect without understanding their spirit it would not be a space consistent with children's needs. In the child-centered architecture, space structure and form, color, furniture, size, materials, type of activities and behaviors should be intimate, pleasant, familiar, childish, motivating, guiding and multi-purpose and continuous use of space and space development by children themselves are possible. Child-oriented architecture means the creation and development of space by children that in this regard there are important issues that should be considered, including children interaction with architecture for socializing, children's continuous emotional and social connection with community and also providing security of designed spaces (Quarterly Payame Ark, 2009).

Areas related to children's activities should have suitable conditions for their physical, mental, emotional and social development. This is achieved through using architectural design elements consistent with children's physical and mental conditions. Some recommendations necessary for designing child-centered spaces are as follows:

- (A) Children enjoy big spaces where they can freely run, jump etc. Children's spaces can be designed in such a way that they are suitable and large enough for children's dynamic activities which lead to their physical growth (Walter Kroner, 2009).
- (B) Small spaces are ideal for children's privacy. Spaces can be designed in a way to provide cozy and calm spaces for their privacy, i.e. small spaces for two to three children and larger spaces for more children (Walter Kroner, 2009).
- (C) Children also have a curious nature and they are active. They need not only to build but to destroy. Adventure playgrounds can be considered based on the process of building and destroying. Since accessible environment with game features and elements such as sand, water, soil with equipment which enrich the experience and also larger movable elements such as boards, barrels, boxes, rope, ladders, sawhorse, rubber, and steering wheels can be used more by children, these facilities can be widely used with more creative ways and for longer time (Walter Kroner, 2009).
- (D) Children love nature (sun, water, fire, plants and animals) very much as well. They are strongly influenced by natural experiences through the manipulation of environment elements and tend to discover natural laws. The child's home environment can be designed in such a way that there are opportunities for such activities leading to children's mental development (Walter Kroner, 2009).
- (E) Clarity and legibility of environment, i.e. an environment which can be understood easily by children, are another important point in maintaining children's communication with environment and creating a sense of psychological security in them. Therefore, another good environmental characteristic is compliance with children's cognitive and perceptual abilities which also helps the development and identification of mental plans and makes creativity possible (Walter Kroner, 2009).
- (F) Spaces for children should be effective on creating diversity and vitality in children in every respect that this is performed in the design and form of buildings with different spaces and suggested applications and specially access routes for excursion in the complex. Using a different volume combination, integration and formation of volumes and their convergence with each other in this complex can respond much of childish emotions. In addition, it is necessary in architecture for children violent lines are replaced by soft curved lines. It is very important to use cheerful colors in proper places (Walter Kroner, 2009).
- (G) There are incentives in accordance with each stage of children's development, thus environments for children should be consistent with their cognitive and perceptual abilities. Children understand some of the properties of objects, such as angles and angular objects and objects with holes earlier than flat objects and objects without holes. They also pay more attention to saturated primary colors. In some cases, children recall colors with objects related to them. They can slowly abstract colors from objects and recall them as independent properties. If space game is diverse and full of symbols and signs, children can more easily determine their territory. Healthy and energetic children understand the space around them with all of their emotions and intelligence (Walter Kroner, 2009).
- (H) Spaces with happy and bright colors and sometimes colors with unclear forms inspire dreamy and romantic issues and emotions such as emotional, caring, and dreamy friend provoking imagination in children. Outdoor stairs are favorable and pleasant space game for children and they can go up and down, sit on or slide down the stairs for hours or move all the time, but they are always looking for balance. Children also love imaginative plays. Spaces for children can be designed in such a way that facilities for these activities are provided, which promote children's social development (Walter Kroner, 2009).

Architecture is the art of creating space and has multiple functions.

- **Protection function:** Everyone needs security, protection, warmth and intimacy and privacy.

- **Communication function:** Man has a social life and needs to communicate with family, friends, and relatives and to attend social events.

- **Aesthetic function:** A citizen who feels he lives in a beautiful city can try better to improve it.

Here we provide quality standards in space design to achieve design foundations.

1. Organizing
2. Time and route
3. Component and whole

4. Form
5. Coordination and scale
6. Color
7. Light
8. Sign

These indicators (which are not absolute) are screened by children and what remains is considered as final standards for quality (Tjced, 2001).

Figure 3 Light and color are very important in design for children (www.namnak.com)



- Organizing

The design of locations, paths, areas, and finally organization lead to a number of centers, paths and areas in which legibility is very important for children.

- Time and route

Center can be anywhere for children, as a result they can understand direction less than adults, thus it can be expected that every route become a center for a child at some point of time. As a result, flexibility should be considered in how to organize routes and centers in an acceptable range for children (Tjced, 2001).

- Form

Primitive forms are preferred to complex and irregular forms because high complexity makes children bored.

- Component and whole

As children cannot focus on several attributes together, they are not able to understand the full complexity and consider the component or the whole of something simultaneously; they can only think about a component each time. As a result, it is not necessary to use complex elements dominantly and simple relationships can be used in the whole or component composition.

- Coordination

Visual error can be also used to create proportions and scales commensurate with children's dimensions, and while observing the proportion of children, the environment should be coordinated with their conditions.

- Color

Children up to 6 years of age compare objects based on their color. As a result, color is of one of the most significant attributes that should be considered. Opposite and extreme compositions should be avoided and colors should not be strong, but predominantly mild tonalities and cheerful colors should be used (Tjced, 2001).

Figure 4 Using mild and cheerful colors is recommended (www.kolbeh.mihanblog.com)



- Signs

Signs for direction, sense of belonging to space and clarity can be used to create legibility in space for children due to children's egocentrism and fail to distinguish between different perspectives. During this period, children show interest in familiar shapes and signs which can change them and using these elements is desirable for them (Tjced, 2001).

- Creating varied open spaces with different space characteristic

Creating free open spaces for running and sliding games, seesaw, tree houses, garden for planting flowers, plants and trees, spaces for resting and sitting, half-open spaces, sports spaces such as basketball, etc. trails and communication ways with various flooring, green space for grass, trees etc., small pools and streams with low water, a place for keeping animals, pots indoors, linking inside and outside by creating a half space, flower gardens and greenhouses (author).

Figure 5 Creating free play spaces (www.amoozak.org)



- Creating particularly effective signs and elements

Round stairs with dome or sloping roof, the use of unique proportions, creating stress points through proportions, emphasis on a particular element, such as placement in an important location (Mirahmadi, 2007).

- Creating a visual connection between two adjacent spaces

Creating void, combining corridor with communication space, using outdoor stairs, windows at a good height between indoor and outdoor spaces

Figure 6 Creating a visual connection between two adjacent spaces (www.salammoallem.ir)



- Maximum use of semi-open and open spaces on different floors of the building

Breaking up the building volume and creating mezzanine floors as the terrace, designing the building in the form of one and two-storey floor plans (Kroner, 2006)

- Creating good enclosure in the yard and outdoor

Enhancing the feeling of enclosure through continuity of walls and synchronized symbols, using high vegetation, using the level difference for constructing the yard at a lower level

- Maximum use of flexible furniture for equipping spaces

The capability to separate and combine furniture, the use of multi-purpose furniture, the use of spaces volume, the capability for accumulation

Figure 7 Maximum use of flexible furniture for equipping spaces (www.memaritarrahi.com)



- Completion of building architecture using decoration and emphasis on details

Mural, stair railing, wall mirror, offering a variety of flooring, using statues, vases of flowers

- Using natural light with landscape to open space

Creating an opening at a good height, using terrace in front of the windows, using a good level for windows, using a variety of skylight (author)

- Using good ventilation

Using natural ventilator, good orientation to wind direction, using trees and bushes, using artificial ventilator

- Controlling noise and creating good acoustics

Creating corner, dents and bumps, unparallel walls and inclined ceilings, not using domed roof, using acoustic blades, grouping spaces in terms of noise, using vegetation, appropriate materials in spaces (Kroner, 2006)

- Using color for optimal utilization of space

Using warm and bright colors at the gym, using cool and light colors in the corridors and stairways, using bright and cheerful colors in educational spaces, using warm colors in dining room, using strong and bright colors such as red and blue for decorating class, using different colors to amplify the sense of direction, using harmonious colors in façade design, using mild and cold colors in office space, using warm and bright colors in multi-purpose hall and library (author).

- Using proper form in different spaces and conformity of space form with the space character

Using dynamic forms for communication space and directions, static forms for educational and pause spaces, choosing square shape or a form close to that for the classroom, using a concave form that invites to enter, using irregular forms for library, using one specific form for the multi-purpose hall, using curved forms for corners, using vertical forms at stress points, using cylindrical form for plan, using regular and elegant forms for prayer room of office department and impressive spaces and generally using familiar forms for children to have the feeling of home in this environment (Kroner, 2006).

Figure 8 Using dynamic forms for communication spaces and paths (www.etood.com)



- Using appropriate context in all elements of space, including floors, walls and ceilings

Using soft texture for walls, using resistant texture for floors, using wood texture that children love very much and using carpeting texture and grass in open spaces

- Entrance as separate, legible and inviting space

Creating a flexible space that can be combined with other spaces, creating a pause space and accumulation in communication spaces, putting spaces around a central hall that reduces the length of the corridor, using a dynamic form in the path and static form at the intersection of paths (author)

Figure 9 Entrance should be legible and inviting (www.thehoneycombers.com)



CONCLUSION

Today the effects of environmental factors and architectural space on the incidence of children's creativity cannot be ignored. In the current society, children should not be pure listeners, but should be able to experience and understand environment with all of their senses. It is not possible for children to grow socially in a desirable way in rigid and enclosed spaces, and their creativity will not flourish. Children need an environment that can communicate with it to flourish their talents, know themselves and achieve their demands. Environmental conditions in which children grow can become one of the barriers to creative learning if they lack suitable properties. Children with their curious and inquiring spirit need different environments, such spaces act dynamically and have capability to change and expand. In such circumstances many different opportunities are provided for children to change potential capabilities of space into actual capabilities and obtain new experiences.

Understanding methods for fostering creativity and translating these concepts as elements in architectural space can affect better the design of these capabilities. Using these methods will make possible the creation of curious and fantastic spaces. Paying attention to children's needs in various physical, emotional, behavioral, and social areas and what they foster in their minds as a dreamy, fantasy and lovely environment can be a major step in shaping spaces suitable for them. Children's mental development is based on specific stages. It is important to pay attention to these stages, their time and design suitable environments according to them.

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