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**DESIGN OF CHILD MUSEUM WITH APPROACH OF DEVELOPING A LIVELY  
CHILDISH SPACE FROM VIEWPOINT OF COMPARATIVE STUDIES**

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**ABSTRACT**

Human destiny is mixed since childhood with surrounding environment and spaces. Human learns to dominate to the space by a prolonged learning period throughout its childhood and thus children museum are prominent issue as a place with scientific, cultural, leisure aspects that exhibit lively and active space and brimful of scientific, artistic and historical themes. In order to enriching children and their family lives, one can train creativity and provoke curiosity of children concretely in an appropriate place. At current time the growth of population and expansion of tall building in Iran has turned into a factor for reducing playing space and provoking children and depriving them from their primary needs and from other side progress of science and communications and its impact of all aspects of life has engendered some changes in children needs and it has caused that watching TV, computer game and so on replace with direct experience of children from space and acquiring natural and social experiences in them. The objective of this research is creating a childish dynamic space; the childish space means an architectural space that is appropriate with communicational, physical and intellectual aspects of children and is a step toward recognizing a dynamic spatial space and sense of closeness together with intimacy and affection that can effect on addressing child needs. In such space the child finds out its unique and true existence. This place is an attempt for realizing children dream in real world.

**Keywords: Children, Child's Need, Child Architecture, Dynamic Space**

## INTRODUCTION

One of most important problems in industrial and developed society is change in lifestyle, increase of speed and public comfort that though has some positive effects in modern life, but it has some undesirable consequences too, that its most important is physical inactivity, weight gain and as a consequent earnestness, laziness and sometime occurrence a lot of disease from childhood age [1].

Today children life sustains many limitations. During second half of twentieth century, a fundamental change has taken place in rural population, in such manner that nowadays the majority of children are born human-made spaces of cities and they grow up there. Studies and anticipations of World Bank and other international organizations evidence that in recent millennium near two third of world population will live in urban centers and this suggests increase of city children population. It seems that arena of physical activity and self-assertion of children especially in metropolises of today is waning and getting limited more and more. Adults consciously or unconsciously developed and prepared urban spaces for meeting their own needs and the children, these little citizens do not find an appropriate arena for living in today cities [2].

In traditional cities of Iran children could easily find the space and special territory that they needed thus they enjoyed more safety and facilities for recovery, activity, learning, experience and growing up according to their time needs.

At current time growth of population and expansion of tall buildings in Iran turned into a factor for reducing playing spaces and physical activities for children and this underprivileged them from their very primary requirements and from other side progress of science and communication and its impacts on all aspects of life developed some changes in children's tendencies and needs and this leads in watching television, and computer games and such activities to be substituted with direct perception of children from space and acquiring natural and social experience and this leads in disturbance in natural procedure of children's growth [3].

Additionally adopting inefficient methods in education in official educational environments and lack of awareness of families from correct and proper methods of parenting not only lead in hindering growth of children talents, but also what is potentially inherent in children declines gradually. Today city evade from accepting and accommodating children and one expects that children be ready to confront

city circumstances. Certainly in such city the school is the first place that we find for children. The school that contain mathematic and geometry classrooms that passed by looking forward for break time [4].

Therefore we always come across with this question: what features should an environment that has been designed for children have so that in addition to be delightful and pleasant for the child, it can have capability of growth and training of child's talents and creativity. Current research is a process that it attempts to find an appropriate response for this question and all its steps is based on this belief that if we wants make environment and cities in which children grow up, in fact we has appropriate spaces and environments for human living [5].

Most of developing countries assigned significant capital and human resources to children and their comprehensive growth, but unfortunately in Iran there is no such attention to this issue therefore it seems to be necessary to plan and develop appropriate setting for education, training and recreation of children of home and official education space.

### **Research review**

After World War II one of social discussion that raised to great extent was child and its rights. This issue finds its place in UNESCO

and finally a resolution has been issued for holding rights of children. Conditions of living, education and leisure of children were pivotal core of this resolution. When we speak about child and child museum, from very beginning we have engaged in setting boundaries [6].

Thus we observe a feature in addressees of children museum that does not exist in addressees of other museums. This is the same feature that specifies the situation of a museum, speaking of developing a museum for children began after World War II regarding new educational system and cultural and social activities. Gradually by conducted researches by Jean Piaget the Swiss famous psychologist of the century, the archaic believes changed and all people found out that any addressee specially children has its own special need [7].

Brookline child museum was pioneer of this way. This museum was the first museum that almost with organizing similar to modern child museums began to work. Brookline Museum was established in 1899 in Brussels. Brookline museum was first child green museum that enjoyed the situation of adjacent park. Afterward due to smallness of space of museum a new building was constructed beside it. At current time this historical center for children is used for executing children about environment and nature. This area was the

first area that endowed the nature to the children [8].

Afterward by enhancing the level of public culture and expansion of urban life and more leisure time and impact of mass media more interesting arenas emerged. Founders of children museum are from 100 years ago in America, Canada, Mexico and after them England and France [9].

#### 4- Comparative studies

##### 4-1- Shonandai Culture Centre

Shonandai cultural center includes a vast area in the city have different cultural and recreational facilities for children and adults such as: planetarium building, three dimensional cinema, workshops, booths, festivals or sport matches.



This center is based on nature and with emphasis on cultural and cultural and historical background features, the land position is established in the city. The manifestation of nature and surrounding landscape surface as symbolic elements. such as spherical building of planetarium that symbolize the earth and geodesic volume, the three-dimensional cinema that is symbol of

stars, artificial fountain, water narrow paths, trees and metal elements that are substituted instead of components in the nature.

Also there are two towers of wind and sound in the complex that both of these elements manifests well principal components of nature (wind, water, plant, and sky), from other side booths and fairs for children that symbolize Japanese traditional homes introduce and symbolize japan culture.

Circulation paths, ups and downs, symbolic rivers and metal trees remind the nature. Inside of exhibition booths there are types of interesting spaces that are designed for attracting children. Near 70 % of utilities are located underground so as to preserve the open space and engendering a symbolic nature.

Of positive points in design of this complex are using native cultural and architectural symbol for familiarizing and expanding children's understanding as well as using natural symbols in design of area and building and bringing about a setting for familiarizing children as much as possible to nature elements such as : water, wind, trees and sky and stars, diversity of spaces and bringing about types of facilities in the complex that

provide sufficient attraction for children's cultural center.

#### **4-2- New York scientific-recreational park**

The adjoin section to the New York scientific complex include a land with area of 30000 square feet that is designed for children play and with the objective of indirect training. Facilities and equipment in the complex is so that meanwhile children play and run and jump, they become familiar with scientific events and physics law.

Comparing with scientific complexes in close space or classrooms such spaces have more effective performance in terms of learning and attraction for children. The important feature of this complex is that the children learn various scientific laws such as sound reflection, action and reaction and hydrodynamic laws and so on by the equipment and instruments for play in this park without being aware that they are learning something. Also this scientific-educative playground included addressees from all age groups and provides attractive equipment for two-three years old children to adult people for learning and establishing relation with environment.

Here children without being aware learn hydrodynamic laws.

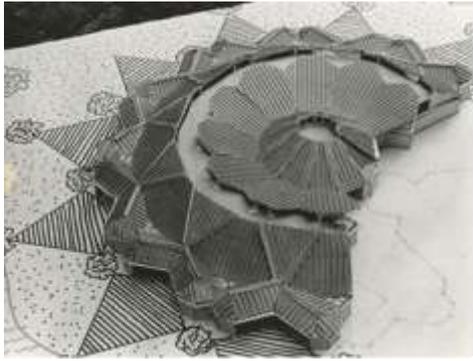
#### **4-3- Montessori school in Leo's den**

Jan Verhoeven, Hoevelaken

The belief of architecture in this design is constructing a building in which children feels that they are at their own home so that in this manner their creativity becomes provoked, when such environments are presented to children they feel like to play, music, song, dance, painting and building a so on.

Smallest units (places) are developed to groups (classes) and this development forms again a part of society (central space). Central space is designed in the form of a multifunctional place and there is balcony and three staircases around the central space where children have more space for their independent activities, without leading to lose the contact with each other. The staircases are used as complementary of theater space.

Children classrooms are in east side where they go often there in the mornings. Classrooms of adults are at south and west side. The light radiate from any side even from above as a result the outcome is at best form similar to some place in the woods and forest that light pass through branches of trees and includes a flooring similar to moss of jungle ground.



The architect has inspired from the main source of the nature for design and construction and color selection.

The children choose a cozy place on the balcony where they can study there calmly. The balcony that one can sit down there very calm and watch the people in the central space. The space under staircase is cozy as well because nobody can see children there and the round shape of school is beautiful.

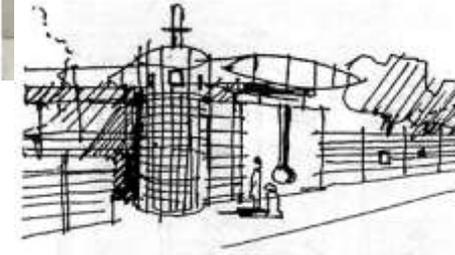
#### 4-4- Frankfurt – Sachsenhausen kindergarten

Uwe Laske, Darstadt

The overall shape of building is a combination of individual, prominent and stimulant elements. Geometric pure shapes address children' perceptual behaviors and do not allow that different concepts to be buried in childish visionary details.

The circular staircase tower and arched shape suspended ceiling point out remotely to unique and special performance of the building. In addition the steep bridge the front terrace that is like a stronghold and the open area of playground and the finial-like

rod indicate that how variability capability can surface in structural large shapes and experience the space in childish and primary manner and show it: the tower, bridge, cave, tent.



In groundfloor separated rooms are given to three kindergarten rooms that are located in one row and a multifunctional room is attached to it. The protruded windows of these spaces emphasis on importance of south façade. Tower room, external corridor, terrace and balcony at upstairs provided different facilities for users.



In interview with children a series of images with individual elements of building are shown and they are asked that how these

image seem to them and what they remind to them?

The response of children finalized the assumption of designers. The assumption was basis of design stating that architectural prominent shapes stimulate childish imagination, even though when architects eliminate any important elements (such as ship, palace and so on).

Architectural elements+ child dependence (children's opinion):

- 1- It's like a fish- like boat but without paddle
- 2- Like palace tower in the tales with a spiral staircase
- 3- Like a rocket
- 4- The window is like a spoon. It's like pendulum of grandfather's clock- it's like thermometer
- 5- The building is similar to a villa- it's like a snail
- 6- It is a foot of a duck or swan

#### **4-5- the little prince preschool- Hlsnyky**

Pentti myllymaki

The design group provided a list of tasks that children should be able to do and thereby a good image of kindergarten performance is obtained, but how environment itself can educate children? Among children books the most important book is "little prince" that stimulate children's action and reaction between " the inner world" and "outer world' in child's

subconscious mind and it opens a new world to the child.



The intentional actions place the environment again in an important level. It should be new thing to find and there should be all necessary important and types of instruments at appropriate place for this issue so as they try them. The nature here is in multiversity and continues movement. Then it has been attempted diverse rooms to be designed with independent identity according to need and usage of children.

In general the rooms have carious circulations, shapes and heights and windows with different shapes and perspectives, and classified lighting and different materials. The designer does not even intervene in children's plays. One should allow them to feel free in their activities. Even such games need their own place and space. There and here in the walls there are some racks that encompass the building. the walls, gate have chairs and place of sitting in all parts for playing different games. There are some sand pools with chairs at corners and there are a lot of calm and cozy places among trees branches

and leaves and some game place at inner space and under staircases and in the hall.

The traditional shapes acts through human memory and can have useful effect.

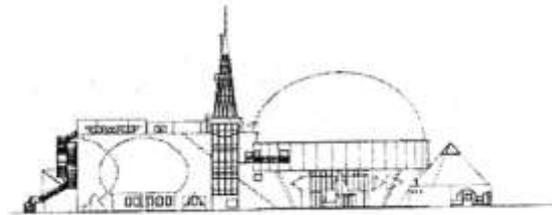
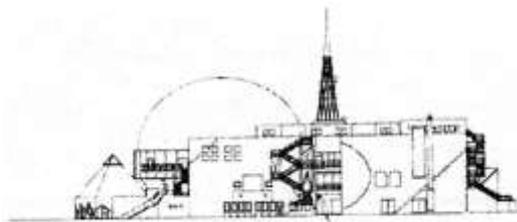
#### 4-6-My children's Palace- Matsuzaka

The architectural association of Sakakura and engineers, Osaka

Of objectives of this project is bringing about a place for children game and promoting friendly relationships and stimulating children through empirical studies and developing activities and exercises appropriate for them.



The opinion of project architectures is that children should acquire positive experiences through equipment and facilities of complex. The building should be exiting and interesting for them. The first impression of children at time of entering the complex is very important. The moment they figure out the building is not a park.



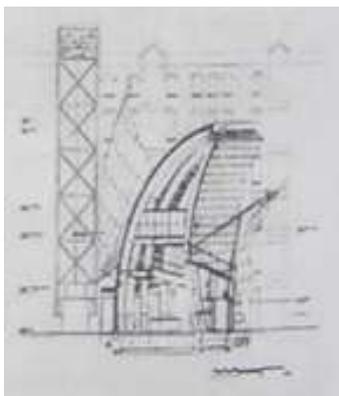
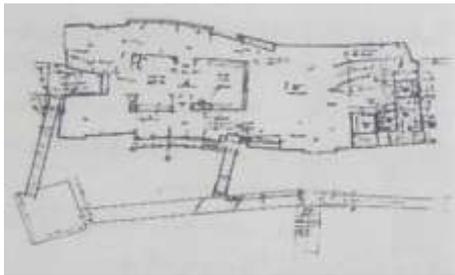
Based on previous experiences of architectures that is obtained from a accomplishable design is not usually eye-catching for children. And sometimes they are more interested in the issues that adults pay less attention.

At any rate positive points in design of this complex is creating a place that leads in new experiences for children. Using geometric net forms and spatial diversity whether inside the building or the external façade prompt children's attendance and they are in accordance with their aesthetic criteria.

Children enjoy to join an artistic or scientific space in a playground. In the fair hall there are airplane scale model and cartoon personalities with which children are familiar. After they visited the tower, a brochure of tower news has been published and the children wrote in that: they enjoyed the planetarium too much because it was very excellent. As if they have seen themselves as pilot of airplane. The theater space is interesting too. They love green areas and grassland and they like to play soccer there.

#### 4-7- Boston Children's Museum

Boston children's museum has attempted to help children to understand better and enjoy the worlds in which they live by holding some exhibition. This museum has architectural components and elements such as lobby, exhibition space, water plays, balcony, and floating platform for observing the event that take place alongside of channel.



#### 4-9- Houston Children's Museum

Houston children's museum is inaugurated with design of Robert Venturi at 1992 November for educating children through active exhibition and diverse programs at Houston city. This building though does not

seem attractive and alluring for adults but is delusively attractive for children.



Inside of building contains numerous fairs about sciences, culture and art, the building itself is in general an interesting prototype in architecture and in particular about works of its designers. There are Elements such as exaggerative architectural ornamentations, wonderful and weird extension of simple, modern or classic object in this building in a delicate and lovely manner. The warmth of childhood encompasses this building and some misconceptions that envelop such buildings and seem to be harsh are reduced.

The first thing that a visitor encounters is an intensified classism: a cement porch consisted of four thick columns supporting a triangle-shaped arch, this set is a bit foreshadowing from the building and act as a symbol and sign rather than a component of structure. In its analysis one should a symbolic and colorful entrance with classical creek implications inside the entrance with very appropriate lighting turns into a children shop center in two stories that has colorful arches alongside with length of building. These arches illuminate first story

decorative and act as complex organized framework.



This building is very complicated in terms of its functions. its components and elements includes: temporary and permanent fairs, children gallery, classrooms, workshop and warehouse, theater, artistic workshops, gift tools shops, an open space with roaring river, a greenhouse, a planter box, playground and administrative wars. Internal division of spaces is specified by façade or miniaturizing of volumes, difference in materials such as glass, brick and metal and or color selection.

Another interesting part of this complex is a covered corridor that its columns supporting the ceiling are designed in shape of 13 children. In fact the play of Venturi is by sculptures that supports ceiling of classic buildings, the children are sculptures from fiberglass fibers (like entrance porch (acts to some extent as architectural elements and to some extant as sign and thus manifests the museum identity more.

Venturi has created an unusually large space for children's museum inside of the building

and a symbolic hall as children's gallery throughout of the building. In one side of the hall there are shops and classroom and in other side permanent fairs.

Fairs are different. Some are similar to reproduced scenes of Mexico or Taiwan villages or an unusually miniaturized supermarket according to traditions and ritual, while some other are similar to internal component of a car model 1974.

The Houston children's museum is the main honor of the city, this building show delicately that how all main tools of architectural design such as space, scale, color, proportion, light and material are adopted in service to children. This building with its real and powerful architecture is in fact as a candy for children!

#### 4-10- Eurika children's museum

This complex that tis construction finished in 1992 is located in "Yorkshire" in England with area of 4500 square meters and Richard Ferler has taken the idea for its design from local weaving workshops in 19<sup>th</sup> century. The site of complex is a narrow and oblong land patch in historical part of city center beside old railway station and it separates the museum fair space from its administrative and shop section.





The scheme of museum buildings is similar to a factory of various games that invites children to talking, touching, hearing and looking. Museum entrance is defined with a triangle-shaped wall. And the main sparkling façade of museum is lie to a shop display for showing its inside, just as if a building itself is an exhibition container.

The building structure can be seen from everywhere and main and primary colors has filled the internal spaces. Different components and details of the complex that is designed by more than thirty international designer, painter, sculpture and so on has turned the Eureka to a space for discovery.

#### **4-11- Zafferanieh Institute for the Intellectual Development**

The building of this institute is located at Tehran city park and it is enveloped from four sided by park space. The building is designed in three stories (underground, ground floor, first story) and its roof is used and the institute observatory is placed there.

At the basement of the building the powerhouse is located. The ground floor includes the astronomy classroom and administrative part related to astronomy. The library is placed at first story that all

cultural, and artistic courses are held in the library. Access to observatory takes place through library balcony and by metal staircase located at free space.

Of positive points of this institute is an appropriate site and prominence of observatory activity throughout Tehran city as well as appropriate lighting of spaces and suitable design and consistent arrangement of library space with users' mood.

Of deficiently of this complex, inappropriate access to observatory and smallness of space for holding artistic courses.

#### **4-12- Art creations center of Laleh park**

In addition to local centers of any city there should be some larger centers that can be responsive to city needs that can hold on formal and official celebrations as well as courses and workshops with necessary equipment. This type of places is called as art creation center. Generally art creations center of any city includes preparatory and educational organizations of that city. The art creations center of Laleh Park is one of these artistic and educative institutes that is known as the largest center of Tehran city and even across the country.



The art creations center is located at an area of 29000 square meter at eastern edge of Laleh Park. The overall design consisted of

square and rectangular patches. In its design one has attempted to place the building as much as possible in the land. Where façade of building is continue of park space and stories volume has no such display at the surface and users can enter the park from any side.

Several main entrance is supplied at building western part (Hejab Street) as well as some ramps are designed at east, south and west parts of the center. So that the traffic can take place from park space and street to the complex and using roof as the rest of the park.

In the space on the roof gardens and fountains and even grass area is provided. So that it does not seem to be separated from the park area. For achieving to this aim the building lacks natural light and all its light is provided artificially.

Some parts such as galleries, have some sunroofs that are mere for ornament. It is attempted in the internal design of complex to take idea form Iranian traditional architectural. In such manner that commercial center is designed as street bazars and galleries space is similar to Iranian arcades (timcheh).

This complex has been constructed in three stories that include following parts:

Basement: parking, educational classrooms, powerhouse, actors rehearsal room and decoration change for classic theater,

kitchen and reference library, exhibition hall (children museum)

Ground floor: Bazar Street, four-bazars, galleries, restaurant, exhibition salon, classic theater salon, workshop

First story: bazar street, four –bazars, galleries, restaurant, the balcony spectacle salon, classic theater salon as balcony, workshop and administrative part and of positive points of art creations center is establishments in an appropriate site in terms of city access. Of deficiencies of complex, lack of appropriate design for children taste in most of complex space, in addition most spaces are assigned to administrative activities that this leads to lack of freedom and activity of children across the building. The spaces are not observing a scale in proportion with children and as a result it brings about an alien environment for them. The lighting is insufficient and most activities that are taking place in this place are formal and presence of children is less felt. Contrary to objectives of design it is not possible to have access onto roof and close to sundial of the complex.

Also lack of use from open space for activities of this center is consisted as deficiency. Ambiguity of access paths for children to art classrooms and library in basement and in general the library space comparing with art creations center

objectives is very small. The presence of building is not prominent and standing out for public view in the street and even in the city this leads in fading people familiarity to this place and its activities.

## **CONCLUSION**

After accomplishing comparative studies following results are obtained that can be a good capital for project design.

- Use of proportional scale regarding children features in spaces design and children's equipment.
- Use of unexpected forms in some points of project can lead in attraction of attention and excitement of children.
- Use of geometrical pure shapes addresses child's perceptual behavior and it does not allow that different concepts be hidden in children imaginary details. Architectural prominent shapes provoke children imagination.
- Variability capability in structural big shapes can show the space in a childish and primitive manner.
- Architectural space for children should be so that help children to create their own environment and one of solution for this problem is to design the structure like a quarter in the city. A quarter with small scale that teaches to children how to live together with all facilities and difficulties.
- Predicting exciting and desirable elements for children in any space that provokes sense of discovery among children, such as: playground slides, towers and etc.
- Attention to light and shadow design and controlling them leads in a sense of internal spontaneity. For instance using roof lights and light distribution through a coarse wall by which it functions without producing excessive heat.
- Developing cozy and separate corners for work.
- Creating opening and cavities inside walls that make it possible to children can see other space.
- Locating the building among grassland and beside mass of trees is a complementary for popularity of the space for children and it leads in cheerfulness and delight of children.
- One of essential and attractive ideas of design for children is designing the building in the shape of a huge toy where the children discover some new spaces in each time of visits.
- Using architectural elements for desired encountering with water, forest and sky.

- Attention to play together with education in the complex.
- Using vast glass surfaces for developing perspective and relation of children's plays with external environment.
- Design space for enriching children's' life in the city and their family through learning direct experience with a quite childish environment.
- Designing a dynamic place for play, promoting friendship and help to children physical development between educational experience and creative activity.

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