

Design of Center for Cultural Education of Children

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ABSTRACT

The influence of architecture on education is undeniable. This means that educational architecture has an educational role but the fact that to what degree and in what age does architecture influence children and the fact that what a kind of relationship is there between creativity and place for children have not been scientifically investigated. In the present paper we try to clarify this relationship. Design of the center aims to create a childish space and architecture which is appropriate for general, physical, mental and intellectual features of children. It should be a space appropriate for children needs and satisfying leisure time and energy consumption in a useful manner along with education and game. It should be also a simple space as well as a space for motivating children sense of adventure and move them towards exploration. It should be a place for familiarization of children with their capabilities and potentials and acquisition of artistic experiences. This complex is a link between child and society. An environment which is created for children is based on 5 common senses. It should be a space which brings consciousness of all senses and the architect plays an important role in this case. Consequently, design of environments which allows children for controlling space can increase sense of belonging and interaction in such spaces. In the present research, data analysis was conducted using document and field methods. The results helped design a center for cultural education of children and design site of this center is situated in Western Town district.

KEYWORDS: child, culture, architecture, education, game, greenery

INTRODUCTION

According to sociological and legal definitions, childhood refers to age range 1.5 to 12. Within these years, a child experiences home environment first, then he or she experiences school and educational environment and finally experiences society along with his friends. A child's growth starts with learning and sentimental experiences from external events and forms his or her personality and mind gradually. The main subject of design for a child is paying attention to his or her feelings and then his or her thoughts. This is because almost every child learns counting and multiplication table but not every person (even in adulthood) is able to recognize and control his or her emotions and feelings and this has adverse impacts on the individual and society. For a child, architecture starts from his mind and it has roots in all memories, sentimental experiences and environmental impacts. If we are not allowed to understand feelings, thinking process will be disrupted. Every project has a specific trend and design trend for children needs attention to niceties, deep understanding of childish spirit, change in scales, guarantee of safety and hygiene and paying attention to childish imagination. Surely, architecture and internal design should have a role beyond an application design. In the present research, the main criterion for formation of research methodology was based on recognition of subjects like child psychology, perception and feeling, Gestalt's theory and finally the influence and relationship between this subject and architecture. Some theories have been proposed in this regard which are related to research subject.

Research questions

- * what are appropriate solutions for development of children thoughts? How can we design architecture space in this regard?
- * how can we attract children to such spaces?
- * what is the place of architecture design in creation of spaces which are quantitatively and qualitatively appropriate for children?

Psychological theories

In the present research, the main criterion for formation of research methodology was based on recognition of subjects like child psychology, perception and feeling, Gestalt's theory and finally the influence and relationship between this subject and architecture. Some theories have been proposed in this regard which are related to research subject.

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In the field of children growth, many different theories have been proposed because they are affected by cultural and religious systems of their ages (ibid, 21). A child learns in his or her growth stages and the environment will have impacts on him or her. Therefore, familiarity with theories which have been proposed in the field of children growth can be useful.

Jean Piaget cognitive growth theory

Jean Piaget (1896-1980) is a Swiss theorist which influenced children growth theories a lot. According to his cognitive-growth theory, a child manipulates and investigates his surroundings and actively gathers knowledge." (Berk, 2007, 32). For short, Piaget believes that knowledge is not imposed on a child but he or she learns by active participation in environment and his or her cognitive growth forms in a stepwise format. Piaget believed that children awareness in the early childhood is different from adults' awareness. In Piaget's theory, when brain grows and children experiences grow, they experience four stages, each stage is differentiated from others by a specific thinking method. It is necessary to know that by cognition we mean learning, knowing, remembering, understanding and thinking. Cognitive growth or evolution refers to regular changes which take place during time in these processes (Seif, 2008, 68).

stage	Growth period	explanation
Sensual-movement	Birth to age 2	Children in this age interval influence on environment using their eyes and ears and they use their hands and mouth and "think". Therefore, they invent methods for solving primary problems like drawing a pyramid for ????? and finding concealed toys.
Pre-operational	2-7 years old	Children use symbols for expression of their sensual and motor discoveries. Pretension takes place in this interval. However, thinking is along with logic.
Objective operation	7-11 years old	Children have logical reasoning in this period. They organize objects in stage and below stages. They are not abstract yet.
Subjective operation	11 and onwards	Ability to think regularly and abstractly enables teenagers to start from hypotheses when confront with a problem and verified by inferences.

Piaget's cognitive growth stages (Berk, 2007, 33).

Vygotsky cognitive growth theory

Vygotsky cognitive growth theory is known as socio-cultural theory. He considered cultural, historical and social aspects of life as important in cognitive growth and his theory is based on mutual relationship between a learner and his or her social environment (ibid, 94). He believed that a child's cognitive growth is mainly dependent on people who live around him or her. A child's interactions with other people cause knowledge, thoughts and individual values.

Social learning theory

This theory was introduced by Albert Bandura. According to this theory, we can learn about the importance of the influence of collective environments on children growth and learning. Children become more selective with what they copy gradually. Children grow personal criteria for behavior and sense of effectiveness via collective relations and in social environments through watching others.

Ecological systems theory

Ecological systems theory was invented by Yuri Bronphen. It considers an individual in a way that he or she grows in a complex system of relations and several levels of surroundings influence him or her (Berk, 2007, 42). Therefore, in this theory, growth is not controlled by environmental conditions or internal preparation. In contrast, individuals are products of their surroundings.

Influences of environment and surroundings on human and his or her lifestyle and his or her growth and the environment which is recognized by human and theories which consider human as environment creator all refer to mutual interaction between human and environment. It is important not to ignore this relationship. If a manmade environment is also considered as a part of surrounding world we can learn about mutual relationship between human and this manmade environment.

Child and playing

playing is a means for expression. In Webster dictionary, play has been defined as:

- movement, activity and motion of muscles
- freedom or a limit for motion or movement
- an activity or exercise for entertainment, sport or recreation

a child's playing means attempt for touching and sensing the world and controlling it. Children have private lives called playing. Therefore, one of the main abstract and scientific motivations for children is expression via this small life (Hoseinpour, 2012, 66). A child's personality forms during play. Play can be considered as a child's way of interacting with the world because a child's recognition of surroundings forms during play. Children's play has internal causes. In fact, it is a way for responding to sense of adventure. Play not only reflects children's cognitive and social skills but also contributes to these skills. In early childhood, pretension play of children is the super sample of mental growth. Piaget believes that children exercise mental

representation schemas they have learned recently via pretension (Berk, 2009, 399). When children go from sentimental-motor stage to pre-operational stage which lasts from 2 to 7 years old, the most observable change is an increase in symbolic mental activity. As age increases, play becomes less self-oriented and more complex combinations of schemas are proposed.

Play and child age

Play in children depends highly on social growth. In the first stage, it starts with non-social activity. In the second stage, it is converted to play in which a child plays with his or her toys close to other children. Consequently, we must pay attention to design of behavioral spaces and positions so that a favorable environment is designed considering principle characteristics.

Play and personality

Personality is considered as the main subject in psychology and is the core of discussions about motivation, perception, thinking, emotions, feelings, learning and intelligence. Human requires play and its impacts on growth and development. Freud conducted most his studies on personality psychology. Therefore, considering Freud's theory (personality forms during childhood), we can learn about the role of play and other creative activities like drawing, story-telling and so on.

Play and social growth

Alfred Adler believes that all human behaviors take place in a social context. Human has to establish relationship with others. Play can be a good means for establishment of relationship for children because they are not prepared for strong relationships. It can be used as a means for recognition and growth. Play facilitates friendship among children and children learn about social life by selecting play type and its organizing. Appropriate games enable children to reach social maturity and find their roles in life and deal with them with self-confidence.

Play and gender

Sexual differences are observable in motor skills in early childhood. Boys are better at skills which require power than girls. This is while girls are better at elegant motor skills and some motor skills which require good combination of leg movement and good interaction (Berk, 2009, 396). Therefore, architectural spaces and internal layout of buildings can influence physical and intellectual growth of children.

Child, form and space

Children like to understand the environment they live in or propound questions to motivate their senses for adventures. Stairs are not used only for connecting one level to another level but they are used for play and experience of spaces from different viewpoints. Simple and primary forms are preferred to complex forms. This prevents from uniformity. Changes in the height of ceiling, visions, lobbies, patios and use of special features for important points and adding difference to special spaces helps a child with assuming the space as appropriate and then find about directions and paths well.

Environment

Children responses to environment can be described based on his or her tendencies to approaching to or getting away from that environment. the fact that searches for environment or gets away from it or establishes friendly relations with children in that environment or gets away from them is also important. Unconscious emotional evaluations of a child from environment direct this avoidant-tendency behavior. these evaluations may be based upon memory, memories or parents' and teachers' authority. Finally, it can be said that a child's emotional evaluations of environment can influence children's temperament states and their performances. Relationship with environment reminds us of three-factor theory of emotion, which will be discussed in the subsequent sentences.

Three-factor theory of emotion

This theory was propounded by environmental theorists like Albert Mehrabiyan and James Russel. People show different responses to environment. according to this theory, it seems that pleasant-unpleasant dimension, stimulation, relaxation and environmental domination can be predicted (Mac Landor, 2008, 77). Each of these dimensions is independent and a combination of them can inspire different feelings in children. This theory is not only used in prediction of children performance in larger environments but also indicates their preference of use of environment.

Environmental loading

Every environment motivates vision, hearing and touch. These sensual data might be severe, average or repetitive. An environment can be classified based on information which is provided for individual and it can be used as environmental loading. This is one of the results of the three-factor theory.

Motivation

There are many definitions for motivation. Motivation refers to the power which inspires and directs behavior. One of the motivational approaches is socio-cultural approach. Being with others and having friendly relationship with other people is an important motivational resource. If children are members of groups or do collective activities, their motivations for learning will increase.

Environmental psychology

Environmental psychology is a relatively new approach to psychology which investigates mutual behavior of environmental behavior. There are two environmental psychology theories. The first theoretical approach to psychology of perception was formed by ecological viewpoint which is the very mutual action school and ecological approach of Gibson. This approach pays special attention to environmental sensual-perceptual features and its responses. The second approach is based upon social psychology which is mainly a generalist and integrated approach which is mainly concentrated on relationship between human and environment.

Perception refers to acquisition of information from surroundings. It is a process which is located in the core of any environmental behavior because it is the source of all environmental information. Environments stimulate all senses and confront children with information more than their processing powers.

Designing based on behavioral position

The term "behavioral position" was first used by Roger Parker who was an ecologic psychologist. Parker describes behavioral models in relation to structural place of the behavior and used behavioral position instead of activity space. Cultural complex of a child is a behavioral place which can be divided into several micro-level behavioral positions. Liveliness of such an environment depends highly on the fact that each micro-level behavioral place satisfies which behaviors and what are the children's tendencies to them. For instance, an appropriate educational space for a child is one which has good space for sitting, good lighting, possibility for children's relationships with each other, places for activity, appropriate materials and so on. A place which lacks such facilities is a dead place. Children have different behavioral models in different spaces. In a workshop designed for familiarity with the nature, common behavioral model involves recognition of nature, planting plants, familiarity with small animals and so on. Therefore, the children have been placed in a behavioral position which has provided some conditions for special actions like: open space for doing activity, work cloths, teacher, work instruments. A more complex concept is when relationship between environment and behavioral model is not predicted well. For instance, a wide and open space persuades a child to run. If the aforementioned environment does not have enough conditions for doing activities, behavioral system and activity and the environment are interfered.

Privacy in designing children environments

In many cases, a building or even an area of greenery has been designed physically well but it seems inconvenient for users. Need for privacy, personal space and domain is essential and is related to satisfaction of other needs like security, self-actualization, self-esteem, and belonging. When designing a complex which is aimed at children, it is necessary to pay attention to this personal space. Such a feeling can be lovely for a child. Of course, creation of such private spaces is conducted with more exactness when designing collective spaces like a cultural space. Difference in need for privacy and definition of personal limit area depends on attitudes of social groups of users. A child's attitude towards privacy is a part of socialization process. When children grow up, they need more privacy. Children in lower ages observe smaller physical distances.

Education and architecture space

Education: education is defined as creation of learning environments in which activities needed for learners maximize their knowledge and thinking (Seif, 2008, 33). Piaget introduced three principles in teaching children:

- exploratory learning: according to this principle, children are convinced to discover them via self-motivated interaction with environment. teachers provide different types of rich contents in order to investigate instead of presenting existing knowledge.
- Sensitivity to preparation of children for learning: teachers introduce activities which are based upon children's existing thinking, challenge their inappropriate methods about the world and enable them to exercise schemas which have discovered recently.
- Acceptance of individual differences: according to Piaget's theory, all children experience similar behavioral successions but with different speeds. Consequently, they must be provided appropriately for very individual or small groups (Berk, 2008, 409).

In Tehran, centers for children education are kindergartens and pre-school centers which do activities to help children aged 3-5 grow. Preschool and kindergarten programs range from teacher-oriented to child-oriented programs. Child-oriented programs are those which are selected by children and learning takes place mainly via play. In contrast, in teacher-oriented programs, teachers direct children's learning and teach digits, letters, colors,

figures and other educational skills via formal lessons and using exercise and rehearsal. Most educational systems in Iran are like this. In spite of serious worry about appropriateness of this method, preschool and kindergarten teachers are under pressure for emphasizing on formal academic education.

However, this may weaken children's motivation and emotional health. In such centers, children spend a lot of time on sitting inactively and doing assignments. They have more stress in these places in comparison with those places in which they are actively playing (like moving and jumping). Moreover, they have fewer progresses in motor, educational, language and social skills. This is stronger for the case of children with weaker social and economic positions (Berk, 2009, 429). The first stage for changing this educational style is to design an appropriate place for this. The place should be based on needs, targets and the spaces should be designed considering these elements. Piaget believes that children are self-oriented in pre-operational stage. They cannot imagine others' viewpoints and contribute to concentration on perceptual appearances and irreversibility. These problems do not allow children to do mental maintenance and do hierarchical classification assignments (Berk, 2008, 436).

Behavioral positions for child educational space

In general, an environment which we design for children should include the following spaces:

1. Natural space: examples for this space are trees water, animals which are every important for children. Today, children have lost relationship with natural spaces due to urban lifestyles. This is more observable in large cities like Tehran. Even open spaces like parks are artificial and there are fewer relationships between children and nature.
2. Open space: these are wide spaces in which children can walk and use their energies.
3. Spaces for education: these include spaces which are full of complexity in which children can improve their imagination power.
4. Play structure space: these include spaces for playing in buildings which play is important. These spaces are recognized as play fields.

The main features for learning environments include environmental variables like light, color and beauty of facades. Studies showed that consideration of environmental factors could result in more appropriate learning environments.

RESEARCH METHODOLOGY

In this section, we deal with theoretical methodology-which investigates general points on research methodology- and practical methodology-which involves collection of data regarding selected methodology and hypothesis progress.

Data are real points which provide us with special conditions or information and perceptions for us. Every research requires collection of data (subsidiary and principle). The collected data are passed through standards and restrictions filters and are controlled, measured and evaluated. Finally, these data are acceptable and specify research methodology. The present research has a phenomenological and Hermeneutic approaches and deductive reasoning. It is both an applied and a fundamental study. It evaluates qualitative and quantitative variables using correlation analysis in a time period and in an unempirical method (theory test). The theory of the research is based on Popper theory and research methodology was a survey and case study. Scientific methodology and data gathering and case study involved Montessori primary school and De-Eilanden in Amsterdam, Holland in 2002. The architect of this building was Herman Hertzberger. This building is located in a residential block and is a important place for scientific community. Furthermore, the following complexes were used.



San Felice Kindergarten and preschool center
Place: San Felice, Reggio Emilia, Italy, 2000

This building was architected by ZPZ Partners. In this school, an open and advanced curriculum was used and environment is considered as "the third teacher".



Shahid Mahdavi educational center, Shahid Mahdavi Preschool center
Place: Zafaraniyeh Street, Tehran

This complex was architected by Seyyed Majid Mofidi Shemirani. Shahid Mahdavi girls educational center is a bilingual school (English-Persian) in Tehran. It admits preschool children to pre-university students and provides comprehensive education. It is managed by means of Montessori methodology.



Conclusion

Every architectural space creates an environment which responds to addressees' needs and architecture has an important influence on education. Spatial architecture using an educational or cultural approach can have educational roles. An environment designed for children is based upon the five senses. When investigating trend of children's growth and statement of existing theories, we found that children perception in the target interval takes place using topologic geometry rather than Euclidian concepts. That is to say, a child understands space when doing mutual action with environment. Consequently, design of environments which allow children to control space enables children to interact with the spaces and feel a sense of belonging. Finally, the results of studies yielded design of center for children cultural educations. This center is located in Shahrak Ghods district close to Organization of engineering System. It is close to Mahestan Street from eastern side and close to Organization of Engineering System from northern side and close to Hormozan Street from northern part and close to Khordin street from western side.



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