Evaluating the component of flexibility in the schoolyard

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Abstract: Since children spend much time of their life in the school, so the recognition of school environment especially its yard is essential. Physical environment and making the learning bed in all aspects flexible has attracted education experts' attention in recent years. Learning environments and schools are formed of spaces which together are meaningful. Specifications and qualities each of these components are effective in the formation of different behaviors. Unfortunately, in Iran schoolyard is considered apart from the school building. Schoolyard is not considered the natural continuation of classrooms and any independent curriculum provided for it. Schoolyard has variety specifications and potentials; considering to them children's physical, emotional and mental needs are met. Schoolyard is treated an area for students interaction and strong emotional and cognition relationships. In this article, schoolyard as a learner-friendly and flexible place in the school is emphasized for children relying on children's searching and experiencing nature and in order to answer the extensive educational developments. In order to advance this idea, some guidelines are recommended to increase dynamism and flexibility in term of growth and learning in the schoolyard as an active learning environment.
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1. Introduction

In contemporary times, educational spaces especially schools have an important role in challenges among indigenous values and global culture because they can be incentive and disincentive of social/individual creativities. So, investigation of school with flexibility has been considered in recent years. The role of learning environments in continuation of training not only for children but also for the community is undeniable and versatility based on changes and needs is the critical need for learning environments (Kamel Nia, 2007:71-72). Physical and mental activities and the growth of the social spirit are the most basic need for modern education. So, children's learning environment should be led to discover new scientific territories in the world. Creating an active environment and full of facilities to obtain human experience, observation and communication is necessary considering the process of children's perception and sensation during the learning and also regarding multiple intelligence opinions. In this regard, schoolyard also has these potentials and specifications that should be observed. Few attempts have been made to conceive the whole school building as a learning place (Dudek, 2000; Lackney, 1996; Pasalar, 2003).

A place for developing the possibility of children's interactions with each other results from better learning and curiosity arousal. Children's creativity and the possibility of training the citizenship principles, teaching, learning and control of emotional intelligence will be possible creating a schoolyard with the specifications of learner-friendly and flexible environments. Unfortunately, children's education in Iranian schools is mainly done in internal place so; the supposition of education is certainly along with a closed space as classroom. The pattern of traditional architecture in Iranian schools indicate the continuation of education in open area and a kind of active educational operation in the central schoolyard. So, it seems limiting the education in internal place and lack of attention to functional capabilities of open space which is governed in common schools of Iran, causes from one side the value of schoolyard is neglected in old schools and in other side receiving no new interest from creating the open and constructive space (Sami Azar,2000). This article aims to explain this factor as a new and effective approach in designing of open areas and schoolyards. So that from one side the base of physical and mental growth and stimulating children's creativity and curiosity is prepared and in other side the conditions are prepared to coordinate with the changes in training methods and changing needs of community.

2. Methods

In this research to investigate the functional quality, schoolyard has been studied due to the preference of influence on children in a flexible space. This research in result is applicable, in time prospective, in process qualitative and in objective is analytical. Data collection is based on documentation

studies, review of texts, and reliable references and analyzing them; logical reasoning is utilized to explain the subject.

3. Research questions

1- Does flexibility factor in schoolyard can be accepted as a new approach in education?
2- What is the role of schoolyard as an environment with learner-friendly and flexible specifications in children's education process?
3- If flexibility means actually having the possibility of executing different educational methods, does this subject related to macro policies and planning or the architecture of educational spaces?

4. The main concepts

4.1 Theories of learning

Various theories of learning have been provided by thinkers and theorists with emphasize on the culture of a society in a certain time. Currently, theories of learning are divided into three groups: theory of position on responding influenced by behavior, cognitive and empirical theories (Taniguchi, 2004, 32).

In first group opinion, learning is the process of individuals' formation based on whatever other people want by using the selected environmental stimuli which provide predictable responses. In second group opinion, learning is the development process of brain tissues by which person provide an insight to his/her environment. This insight results in understanding of especial tissues which one experiences during his/her life and increase the individual's capability when confronts them.

In theory of learning based on recognition, understanding the information is a psychological event which formed by combining of tissue-related factors with the person and his/her psychological environment (Feizi et.al,2010). The third group offers a theory in which they believe that learning is scheduled, led and intensified through experiences, facilitators and participation in these experiences, respectively. When a child meets the environment, he/she wants to communicate with it but not succeed; he/she retries and fails but in a point of time he/she can present himself/herself and understands the other people. It is a painful, time consuming and full emotional experience but an effective solution in child's better learning (Coleman, 1979: 38).

4.2 Approach to environmental education

The approaches to education and the relationship between behavioral and evolutionary growths of children in the school before the 20th century were based on the approach to development in educational closed environment, classroom and school internal facilities. But in recent years, social psychology has emphasized on three methods of learning: Behavioraf Theory of Learning, Cognitive Learning Theory and Social Cognitive Learning Theory which emphasize on educational systems result from two Maria Montessori and Feoebel methods. Three elements of teacher, student and environment are emphasized in Montessori Method (Gordon, 2001:13). Teacher and student are equally trained in Montessori Method. But Montessori view to environment is an important element which he described it as « The Prepared environment».

Environmental education is a process of value recognition and clarifying of mental imaginations with the aim of developing the proficiencies and necessary approaches to understand the interrelationship between human, their culture and physical environments around them. Also, environmental education emphasized on decision-making practice and regulating the personal behavior law regarding to issues which are related to environmental quality. Environmental education theory can be summarized in three points: The aim of environmental education is the training of responsible citizenship in terms of environment, the relationship with nature is a basic element in the process of environmental education. This comprehensive approach to environmental education is necessary, so it is required to start the trainings from childhood and in the school (Feizi et.al, 2010).

4.3 Learning-friendly environment

Generally, learning-friendly environment is referred to the school, classroom, schoolyard and open area or other learning opportunities which have the specifications of:

1- Learner-friendly
2- Teacher-friendly

Children in a learning-friendly environment can anxiously get learning operation to the highest- level capability. In such environment, children have positive effect on learning together and cooperative learning is fun and effective for them. In other side, children are in the focus of teaching/learning process in this environment and actively participate in it. The main specifications for these environments are:

1- Friendly relationship of teacher with children
2- Informal sitting and arrangement of educational environment
3- Various learning references
4- Children's participation in the area of learning references
5- Continuous assessment of learning (Bazargan, 2007)

4.4 Schoolyard

In general definition, outside learning environment is an area in which a high level of children's activity is occurred. At best, this

environment is an area with high potential for growth in research, discovery and practice at different levels. Therefore, schoolyard is defined as outside space of building or external school environment and used actively whether it is big, small, beautiful or ugly and whether is completely forgotten (Weaver , 2000, 42). In fact, schoolyard has an intermediary role between school building and neighborhood located on the site of construction. Creating a dynamic, active and flexible space in the schoolyard also makes the environment outside the schoolyard active.

The purpose of today's schools is no longer simply to provide knowledge and skills, as well as promote understanding on how to learn about attitudes, behaviour, and communication (OECD, 2001: 103).

In all living organisms, there is a tendency to compromise with environment due to law's effectiveness and laws- of-influence on environment. Piaget believes that adaption with environment is one of two shapes of human intelligence. The child first attempts to adapt environment with his/her internal system and intelligence. But since it is not always possible, the child confronts with some problems that is not consistent with his/her previous experiences therefore he/she adapt him/her with new experience , as a result the child is not a pure operator and the adaption with environment can be known as a balance between Assimilation and Accommodation (Moghadam, 1987:29).

Each person's experience in life and the proficiencies he/she obtains are related to environmental conditions and result from mutual impact between that person and the environment he/she lives in, the activity as the main factor of child's learning and growth is a process to make him/her grows completely in relation to the space and environment, and the environment affects on child's behavior with creating opportunities, stimulation and encouragement (Shariatmadari, 2006:80). The investigation of global conditions shows that most external environments in the school emphasize on the role of supplying spaces for physical exercise (Hodge, 2004: 218). It can be said about school children that higher creativity is seen in informal environments such as schoolyard in which there is the possibility of adventure thinking (Lytton, 1971, 38).

4.5 Flexibility

Flexibility is defined as a dynamic process that is responsible to positive compliance despite of existing the opposition and traumatic experiences in person (Mardomi, 2010). The places which can be used for different purposes are more flexible and give more right of choosing to audiences compare to the places that are designed for a limited and certain using.

Flexibility in an educational environment is that there is the possibility of using a space for different operations in different times. Following the same specification, schoolyard should have also this capability that with slight variation to be utilized at different times for: group games, painting and storytelling. Barker, the founder of «ecological psychology» believes that there is a special relationship between the dimensions of physical and behavioral architectures «Physical-behavioral stations» which is implied by the concept of homology (Mortazavi, 1997:20).

Psychologist Karl Ragerz states that if man should act creatively, he/she will require two specifications of psychological safety and freedom. It should be noted that the beauty of child's thinking is in his/her unbound thinking. In child's opinion, the world is flexible and can be changed according to his/her will. The child with his/her powerful imagination can overcome even feelings and changes the world in any shape he/she wants in his/her mind (Fisher ،2005).

Flexibility in environment makes it dynamic and despite of need to different experiences in different individuals is responsible of positive conformity. This means that environment should benefit from sufficient compatibility and have ability to change in its components against the inevitable changes so it can be survived. Physical space of educational environment is not considered not only as a forbidding environment with no soul, no impact in child's learning process but also as an alive factor can plays role in the quality of educational activities and in fact is a respondent foundation to flexible need in the child (Shaterian, 2008:73).

Generally it can be said that flexibility in yard environment is in three ways:

1- Flexible components in flexible space.
2- Allocation a suitable space to reveal multiple and different activities.
3- Whole integrated school environment.

Because of lack of attention to learning in traditional education systems, students' needs and real personality were not confirmed by educational experts. So, a number of experts in education focused on constructing the schools in which individual needs, talents and abilities & personality of children to be regarded. Given close relationship between child and environment and also individuals' flexible specifications, semantic symmetries should be found in a flexible space for responding to the global child's needs (mirror). So, a flexible environment should simply be changeable and provide different positions in order to accountability

and suitability for individuals and their changing needs.

In the decade 60 of the 20th century, the attitude of «school without wall» was introduced. In the position of this new look at designing, the schools due to ideals of modern education tried to provide some scientific and research fields to change traditional schools and move toward ideals of modern education and emphasize on more effective and favorable learning subject in school environment (Kamel Nia, 2007: 85). However, during the time, the concept of open and flexible school was rejected in many parts of the new space because of recognizing the required characters in their operation such as lack of sufficient facilities and fields of scientific research, lack of training the appropriate teacher and the use of old teaching methods. But in the middle of the decade 90, the studies oriented toward the idea of «school without wall» and went toward environmental and physical space suitable with this idea's demands due to previous experiences (Locker, 2003: 50).

The cause of existing open and flexible schools is: consideration and emphasize on individual capabilities, better learning, obtaining problem-solving skills rather than mnemonic learning, creating a sense of responsibility, educating the citizenship cooperation, promoting prosperity and creativity of students. Progressing trend toward curriculum causes daily increasing attention to flexibility problem in educational environment and schoolyard.

One of long-term goals of education is giving the possibility of growth and prosperity to talents and the responsibility to children with different capabilities and IQs. Only open and flexible space and a dynamic system can provide educational facilities for each learner and by giving responsibility and freedom to children, it is attempted that children to obtain self confidence and necessary courage for innovation and creativity which are called the most important conditions of development(Mortazavi, 1997: 13). But what is important, is to know dynamism of educational spaces and flexibility, changeability, transparency and openness will be the basic needs of school in future.

Changeability and flexibility of schoolyard may occur by help of natural elements such as combination of open and close spaces. It is obvious that changeability specification of spaces required its exquisite attribute because if diversity and changes to be repeated in the space, it will be monotone to children and cannot have necessary attraction, therefore flexible spaces can be designed so that there are not duplicate changes in them (Dudek, 2000:25). Flexible schoolyard is respondent to present and future educational needs and it is a major change in type of thought and modern educational philosophy, teacher-center is transmitted to student-center (Lippman , 2002: 41).

In modern view, active role is undertaken by student and teacher helps as a guide in educational experience. Learning is a mutual process and the student is responsible to his/her learning. The emphasis is on researches, real motivation and cooperation in this method. What is certain is how to advance. Therefore in this method, flexible space in education is required. Flexible and proper designing creates an optimum environment for students' learning.

Table No.1: Educational systems

Educational systems	Determinant role	Training method	Formed character
Traditional	Teacher	Teacher method	Being imitator and obedient
Current	Teaching subject	Data transmission	Information and obedience
Modern	Learning skill and technology	Research and inquiry	Creativity, individual's autonomy, curiosity

The importance of flexibility in the schoolyard can be examined in several major categories:

1- Abilities in formal trainings in the schools.

2- Abilities in informal trainings in the schools (social growth, physical growth).

3- The use of aesthetic and emotional aspects.

4.6 Dynamism (the ability to change and adapt) in the schoolyard

Sometimes, this ability is supplied in constitutive elements such as short and long roof, wall (displacement or change of place) or furniture. Attention to multi-purpose spaces has begun from the decade 50th. Children must deal with forms and buildings and also with connection and live inside them with feeling of comfort, no fear and relax. Spaces with spirited and light colors and often colors with unclear forms (like cases generated in watercolor painting) inspire imaginary topics and feelings like kindness, sense of emotion.(Moore and Cosco, 2007:34). After formation of new needs, multi-functional spaces were complied with existing conditions and their dimensions changed. Construction cost and the emphasis on flexibility and willingness to schools with fewer space constraints created a tendency toward multi-purpose spaces (Kamel Nia , 2007:65). Among architects Hans Scharoun in designing of his schools affected by

Heidegger Martin thoughts about the concept of residence in place (Kamel Nia, 2007:22).

School performance or achievement rates have been studied in relation to many factors including the socioeconomic background of students, school starting age, teaching methods, curriculum and infrastructure. Furthermore, the studies of school buildings have shown that environmental comfort factors can greatly affect the learning process (Gifford,1997)(Moore & Warner,2004). If educational environment is wanted to be productive for future generation, the environment and the buildings should be innovative not simulated, a motive environment for free expression of idea, and creative expression is as important as teaching method (Joodat, 2004). So, there is a direct relationship between curriculum systems and architectural design.

In school building design, many efforts are being made to assure the construction of quality-learning environments. In many countries, especially those technologically and economically advanced, collaborative efforts seek to achieve high performance schools. These schools put occupant comfort and student and teacher performance as a first priority, coupled with concerns for the environment and a clear commitment to cost effectiveness (Graca et al., 2007).

In architecture and designing of schoolyard what is related to the child, at first the establishment of the last appropriate environmental characteristics are investigated for strengthening child's growth in four physical, mental, social and psychological areas. School architectures and designers should always pay attention to this point which how they can create a flexible learning environment so that to respond to growth and mental need of children. Schoolyard which in Iran old schools was a part of residential aspect, in present schools can also be the stimulus and dynamic factor of education and is turned from just an institution to a center of collective life (Sami Azar, 2000). Therefore, in schoolyard where there is dynamism in educational space, three important topics are visible:

1- Developing creativity
2- Sense of place and being memorable
3- Ability of change and adapt

5. Results and discussions

The studies show that type and specifications of architecture design of school can promote the learning. School is one of the most important public buildings inside the city. School is a place in which consecutive generations are formed and grown. School as an architectural framework contains thoughts. As a forgotten component, dynamism in school and schoolyard is the quality in educational space. Dynamism includes the qualities such as creativity, curiosity, mobility, good location and being memorable, and flexibility results from attention to mental nonphysical needs and behavior.

Research results show that schoolyard has the ability of change and flexibility and is effective on creating sense of curiosity and creativity in children. Flexibility can be created in schoolyard with techniques such as disturbing habit and notions, changing constant forms and features, creating tension and excitement meanwhile balance preservation, combination of full and empty, light and heavy. When the child is not able to understand his/her place and environment, sense of control and creating motivation and mutual understanding on environment will be strengthened in him/her. Because of creating some opportunities for participation in making environmental conditions, flexibility in schoolyard is respondent to child's needs. In designing of schoolyard what is related to the child is the establishment of appropriate and safe environmental characteristics for strengthening child's growth in four physical, mental, social and psychological areas.

Flexible model in the schoolyard which to be viewed in psychological science as a context-discharge and obtaining skills can be effective in education process, form of teaching space and definition of a live space from school. This model can be created as event space in the schoolyard and it is possible in each scale. Flexible schoolyard is more like the acting stage in which teacher and students in the form of new methods of educational system and student-center are like actors and stage employees. Hence, better and more active learning happens in this acting. Having a flexible learning environment is very attractive for learners. But what can be concluded from design process of learning environments and schoolyard as an educational space with creating open school is that they are designed and programmed specially for the present and future of educational spaces. Economical, social and cultural necessities require that new schools with modern approach in education move toward flexible and changeable schools. The schoolyard which by providing educational opportunities for meeting the needs and their diversities focuses on individual condition of learner will be a flexible environment. Considering effective interactions in designing of schoolyard, it can be said that these interactions not only impact on educational process but also on social relations formed by children's social personality. The quality of these interactions will be improved by providing flexibility component in the schoolyard.

6. Conclusion

It is necessary to specify the strategies which provide an effective environment. In good utilization of flexibility strategies and creating learning opportunities by using schoolyard, learners' needs should be regarded. Yard flexibility in the school has an important role on children's emotions and aesthetic understanding. Optimum design of schoolyard increases positive emotions toward school environment, developing the skills, comfort sense, educational promotion and their attachment to the school environment. According to what mentioned in this article, some solutions will be proposed to increase dynamism and flexibility in the schoolyard that include:

1- proportion with children size
2- Creating some places as free educational space or work open-space area.
3- Creating relationship between schoolyard and neighborhood nature (school without walls).
4- Use of movable ability furniture.
5- Use of suitable and mobile flooring with regard to how to use the space.
6- Designing portable canopy roofs to use in times of rainfall and intense sunrise.
7- Creating suitable prospects inside closed spaces and schoolyard.
8- Creating the possibility of plant planting by children.
9- Proper use of appropriate colors.
10- Designing spaces for children to sit in group.
11- Ability to install a small intellectual game and group game.
12- Taking advantage of environmental education technology considering educational needs.
13- Taking advantage of children's fantasy in designing.
14- Spaces to display children's works in various occasions.
15- Installing sport equipments.
16- Installing multi-purpose elements.
17- Use of curved forms in spacing of schoolyard.
18- Promotion of fantasy, play and curiosity with reasonable level of diversity.
19- Designing green spaces and relaxing waterfront.
20- Providing physical and mental security.
21- openness and aesthetics
22- Environmental amenity.
23- Spaces for subtle attendance of parents with children.
24- Children's possibility to practice, writing and listening.
25- Creating an environment for spiritual, emotional and aesthetic growth in children.

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