

Qualitative principles for designing children's educational environments based on nurturing creativity approach

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Abstract

All children show a lot of creativity themselves, but gradually due to the influence of adults and the environments in which they are, their creative power is reduced and finally they become those who lack these superior characteristics. Therefore, centers should be established which make environmental element and materials and required tools to maintain and enhance the creativity of children available to them and enable them to the permanent use of this divine gift by the necessary training. Taking precautions in the design of such spaces which match their physical and mental characteristics, physical flexibility, as well as flexibility in the planning and organization of spaces and activities can dramatically provide an environment in which children's creativity is properly revealed and promoted. In order to achieve the desired goals, the method of library studies to review the literature and also case and field studies were used. According to the results of this study, it can be stated that rich environmental motivators and appropriate trainings, influence intelligence growth and primary learning and on the other hand ignoring environmental qualitative elements in various forms can have irreparable negative effects on various aspects of growth including motion growth, intelligence and creativity. The purpose of decorating the environment in children's educational space is to simplify the learning of children and teaching of instructors. Materials and tools which are used must be chosen

in such a way that they provide multiple opportunities for children to learn different skills. The method used to organize internal and external spaces is vital in creating opportunities for children to express their creativity.

Keywords: creativity approach, educational environments, children.

Introduction

By studying the biography of each successful human being, we find that all of them have been able to find such a proper place in society by recognizing talents and latent original interests in the fabric of their existence and creative use of them. Creativity is substantive which can bring a combination of unquestionable ability and a dynamic power in case of amalgamation with the interests and skills of the person. The fundamental difference between the two individuals who received the same sets of skills and training is the amount of creativity that they can show in their work.

Children are undiscovered quarries of talent and potentials and not flourished abilities. They are also seeking to have a future filled with success and happiness. Children have an abundance amount of creativity and with little support and guidance they can make it grow and flourish well. Today's kids, despite all the progress that has occurred in societies, face with many risks and disparities, especially in non-industrialized and third world countries.

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It is worthy that comprehensive and targeted efforts takes place toward achieving their human rights, particularly the rights stated in the “Treaty Rights of the Child”. Many of the children instead of being faced with smart training and education in accordance with their innate essence of being, through unawareness of adults are led to activities that are different with their “selves” and even sometimes antithetical. There are also parents who lack financial ability or necessary awareness for developing their potential even if they have goodwill towards their children. One of the issues that can be done in this area is to create centers to develop children’s creativity in areas which they show interest and talent.

With an overview of similar research in this area, what is important is the lack of adequate resources in terms of creativity, the child and the child’s space architecture. Although the extent of the study area is very high in all three categories, however, the accomplished research and studies are rare both quantitatively and qualitatively. For example, a “round” is observed on issues related to children and similar topics are discussed which more have been based on theories of “Piaget”. There are also very few sources in the field of an important issue such as creativity. Libraries are not also very rich in these terms. Children’s architecture is not an exception too.

What is worth noting about resources on “creativity” is the lack of a comprehensive and a definite definition of it and confusion of authors in providing a definition that makes all aspects of it clear. There are lots of definitions but few methods are suggested for fostering it. It seems that creativity is still very unknown and there are more subjective definitions of it and maybe this has caused the resources that are available to be very few.

Architectural space of children has been noticed more from two aspects of physical requirements and proportions and psychological impact on children. It seems that the empty space of deeper studies on the mutual effects of children and spaces to which they belong is still felt. In general, the “child” is very limited in resources related to children and it is good to have a review on theories concerning children which were generally set decades ago and even more with children involvement.

Creativity and children

By encouraging creativity and imagination, children can best gain new relationships and new

understanding of the phenomena. Young children are naturally curious about people and the world around them. They want to know their relationship with them. Imagination can help the children to go from the present to the past and future and to go beyond what will happen. They are released from their sensory world at the moment. Through their creative and imagination filled efforts, children transfer their emotions non-verbal and somehow verbal.

Nurturing creativity as others should be done in the early childhood. Through nurturing, creativity gradually takes shape and grows. The peak of creativity for children is at the ages of 6-7. How can we expect children to enter into society as innovative and creative people in the future if they do not get familiar with creative ways? However, creativity, initiative and innovation are stages of intellectual development that can lead to making and creating a situation for easier life (Arefnia, 2007).

Jean Piaget knows the main objective of education as creation and in particular the creation of people enable to do new tasks and creative and innovative people and explorers (Haghshenas, 2003). For “being creative”, it is not necessary to have high intelligence. In other words, a creative person is not necessarily someone with intelligence. But only with experience, experimentation, and of course curiosity about the environmental phenomenon manifests his powers of creativity and innovation. “Being creative” means making changes in the environment in order to detect unknown and new relationships.

Experiences which children gain from the environment in their early years of growth were considered as a saving for their creative thinking. The more diverse this knowledge and information, the better will be to save a background to foster creativity. If our goal is to foster creativity and initiatives of children and youth, we should provide it for them by extending their experiences (Salahshour, 2010).

We live in a world which changes rapidly and the speed of change has never been so rapid. We do not know what kind of problems our children will face as adults but we know to be able to deal with these issues, they have to be creative and imaginative people. Creative and imaginative experiences will provide the opportunity to:

- Grow the full extent of man’s ability
- Progress human ability in thinking, acting and communicating
- Grow physical and understanding skills

- Explore the values
- Be able to understand our own culture and others (Dafi, 2001, as cited in Salahshour, 2010)

Torrance shows that creativity is linked to the three elements of thoughts, words and actions and leads to their diversity. Child's behavior is diverse and colorful in childhood. He looks everywhere, he touches everything and with his childish brilliance, he manipulates the environment. Therefore, the interested child in environment and other places tries to make more and better connection with them. The connection lies in the creativity of the children. In the realm of thought, speech and behavior, "creativity" causes dynamics and reduces stops in communication. There is a direct relationship between the learning quality of individuals and situations by facilities and technological achievements. Current era is the era of technology and communication. That's why in most educational environments that give importance to creativity, appropriate equipment is available. Use of educational technology, educational videos and tapes, books and magazines, various photos of initiatives, nature and space and the universe, equipped science labs, modern workshops and vocational training, artistic, scientific meetings, question and answer sessions are items that are used to stimulate creativity.

Conversely, in areas where lack such facilities, the person will be deprived of experiencing the wide scope of science, arts, crafts and culture. For a creative person, finding information and daily knowledge and developmental trend of innovation, are basic requirements. The less creative people know and get, the more they will be away from creativity and initiative. Creativity bears based on the strong foundation of knowledge and experience.

Creativity also plays a role in the development of other skills. Our desired skills include:

- Problem solving skill
- Self-awareness skill
- Artistic, physical, scientific, and mechanical skills

Problem solving skill: One of the skills that can be affected by creativity is the ability to deal with difficulties or "problem solving". In these moments, the mind automatically works to find a solution for the problem. Problem solving can be seen as a mental ability through which individuals are able to find a remedy to fix the problem or issue. Sometimes the problem is simple and sometimes complex. Even when the mind is involved in the problem, it creatively produces an innovative solution. Then it will

test them and it continues until an effective solution is found.

Self-awareness skill: another ability which is affected by creativity is self-awareness. Current world is the world of modern cognitions of phenomena and events in which self-awareness can be considered as a comprehensive understanding of issues and events. Creativity plays a role in raising such a self-aware mind. Creativity makes the mind clear and it broadens its vision. Such a mind usually shows a skillful analysis of incidents and events. This analysis is the product of movement and generation which the mind finds through creativity in finding information and experiences, thinking about them and appropriate change in them. All these processes, i.e., finding, studying, thinking and changing information ultimately lead to the identification and a new awareness of the issue.

Artistic, physical, scientific, and mechanical skills: Creativity impacts the development of artistic, physical, scientific, and mechanical skills. The child shows different interest and talent during the stages of his development. Some children like painting, play dough and crafts. Some prefer to listen to stories, questions and answers with other people, have a collection of (plant and animal) or stamps and photos. Some like wrenches and wires and batteries and to some love biking.

Developmental psychological findings show that these interests and desires have a special enthusiasm due to the child's freedom and are less affected by social and environmental constraints. Childhood outdoor space is the space for showing interests and talent. In this case, the role of creativity is both motivating and leading. If these interests and desires be identified from childhood, the child easily finds his track to growth and prosperity of his interests. Such a way builds "specialized skills" (skills) of adulthood. Scientific studies show that creativity has the same and identical nature in the different artistic, scientific, mechanical and motional skills. It means that the artist is as creative as the scientist.

Although Hut's work (as cited in Esmaili, 2001) focuses on creative process and its relationship to children's mastery of the instrument and Mc Cleary (as cited in Esmaili, *ibid*) focuses on exploring concepts, the processes they both explain have many similarities to each other. Cecil and others offer a model of creative process that a combination of their Hut and Mc Cleary ideas show how beliefs of each of these authors are associated with each other make a full process through their combination. Their mod-

el can be used to support creative process whether it may be associated with concepts or tools or a combination of both. However, it gives us a model on the basis of which we can work with children. There are four levels in this process including curiosity, exploring, game and Creativity (Esmaili, 2001).

One of the useful ways to foster creativity is to promote and develop creativity elements. If the components of creativity are strengthened by varied and attractive programs, they will have a crucial role in developing creativity. Among the basic components of creativity, cognitive elements can be taught more than any other features. That's why most conventional methods of teaching creativity deal with education and training of these elements. But, this claim does not mean that we neglect the development of these elements during life and especially in the family. It means that if neglecting them, they are better than other elements which can help to develop their dynamics and development. In this set, elements such as intelligence, fluid, flexibility, initiative and composition can be named. These sets of elements are more important in the cognitive components of creativity. So, their promotion and development can help the growth of creative thinking

Ways to enhance children's creativity

Generally, blessing of creativity can be withered by leaving it unused or it can be developed by engaging in activities that foster the greatest chance to bring the power of creative imagination and in particular by the continuous practice. Practice is necessary for both brain and physical development. Walt Disney describes that we look at our creative vision system as the brain muscles. The more the muscles of your body have to work, instead of getting weaker, the more they are grown. Just like muscles and organs of the body, intelligence, creativity, sagacity, and ability will be eroded without exercise.

However, the creative process model of children is indefinable in four-levels. (Esmaili, 2001).

1. Curiosity or "What is this?" Children are observant, interested and want to know more. Their attention has been attracted.

2. Exploring or "What the object is or what it can do?" Children actively explore the objects, events and concepts. They often apply all of their senses to gather information. Watching others is part of their search.

3. Games or "What can I do with this object?" Children are in the beginning of full era of attrac-

tion whose characteristic is fusion and often without a final goal. Since there is little focus on the predetermined product, they are free to examine all the details at this stage. This gives them an opportunity to test the skills and knowledge that they have gained at the basic level.

4. Creativity or "What can I create or invent?" Children study the unusual or new approaches to deal with the problems. They discover, take risk and find new connections. These levels overlap and grow from inside of each other. This process may take hours or days.

Effective methods which are generally useful for fostering creativity are as follows:

- Experience makes fuel for ideas
- Thinking games, puzzles and tables
- Entertainment and beautiful tips
- Continuous study
- Writing as a practice of creativity
- Practicing in creative problem solving

However, for the children in the era of enhancement of creativity components, one of the useful methods for fostering creativity is strengthening and developing the elements of creativity. The reason for this is that almost the goal of all the methods of fostering creativity is ultimately to strengthen the components. Thus, if components of creativity are strengthened by the varied and attractive programs, they will have a crucial role in development of creativity.

Among the basic components of creativity, cognitive elements can be taught more than any other features. That's why most conventional methods of teaching creativity deal with education and training of these elements. But this claim does not mean that we neglect the development of these elements during life and especially in the family; it means that if neglecting them, they are better than other elements which can help to develop their dynamics and development. In this set, elements such as intelligence, fluid, flexibility, initiative and composition can be named. These sets of elements are more important in the cognitive components of creativity. Therefore, their promotion and development can help the growth of creative thinking.

The role of educational environment to foster children's creativity

Environment is an element which causes differences in human behavior. This factor can generally be divided into the following three categories:

- Internal environment, which includes the endocrine glands, circulatory, digestive, natural growth, prematurity and early access, etc.
- External environment, including nutrition, peers, educational environment, culture, religion, media, family, and so on.
- Natural environment, including weather, heat and cold, housing, etc.

According to the goal of the article which deals with some of the qualitative features of architectural space, in this study, the influence of the external environment on children and in particular, the educational environment will be examined and elaborated. In the expression of effective environmental structures on children's creativity, we should have two aspects in mind:

1. To provide emotional and intellectual environment
2. To provide a physical environment

Children are often sent to various educational centers from an early age and these are often under adults' guidance. The children are not given the space to explore and create with their own method. We need to create an environment that can provide opportunities for children (Dafi, 2001, as cited in Salahshour, 2010).

Educational environments are considered as social institutions which transfer the worldviews, habits and customs, and many of the skills and knowledge to the child. In each period of training with specific goals and methods in addition to the course materials some steps are taken to improve the intellectual, emotional, social, and moral, religious, health development of the child. One of the major educational efforts is to prepare kids to be useful to society and to make individual's willingness to accept social norms. Most children are socialized by family. But as the child grows up, other socioeconomic factors such as educational environments are of particular importance. Knowledge about various aspects of a person's needs have the learning environments to meet the needs of children in different aspects. Today, the full development of children and providing their social, physical, emotional, moral and intelligence needs are considered by many educational practitioners of children in this area and following them will be done in higher instructional levels (Madidi, 2002, as cited in Duffy, 2009).

Children are always learning; therefore, education occurs constantly. Any part of the educational environment is adorned to simplify the active access of children to proper educational environment. The

purpose is having children to explore new skills, in this way, the environment makes the child ready. With the growth and change of the children, the environment forms in a way that this interest and efforts be accompanied with the learning of children. Since learning is possible only through experience, instructors make deep, good and variety of experiences available to children.

The goal of decoration of educational environments and design of the program, is to simplify the teaching of instructor and learning of children. What is equally relevant to both are the visibility of the tools and those who interact with these devices because these two factors cause the initial learning and training opportunities. If access to equipment and how to use them are easy and the activities are specified, the more comfortable interaction takes place. By removing obstacles from the path and clarifying the use of devices, safety will be likely established. Easy movement, visibility of equipment and personnel, safety, discipline and order of activities are standards that provide a background for both the combination of the learning environment and planning the responsibilities of instructors in all aspects. The goal of provision of environmental and educational materials is providing the maximum number and amount of training required for children in the program. The goal should be designed in a way that every environment gives services to children in a way that entertain them with the behavior suitable to that environment.

The method used to organize the internal and external spaces is vital in creating opportunities for children to express their creativity. Children need enough space and available resources to work to make the most out of the experience they will be presented. Space may be very different, and each situation has its own facilities. For example, the child may feel safer in the space of home because of his acquaintance with the environment than kindergarten. On the other hand, those who are in kindergarten may be faced with the facilities that are provided for them and they have access to resources and space which enable them to widely take part in creative and imaginative experiences. Based on any situation, we need to increase its potential for creativity and imagination.

How we organize space and resources widely determines the extent to which children are capable to make it. The visual stimulus, setting of tables and chairs and dedicating enough space for children's activities are among the issues that must be consid-

ered and should be organized based on the different training programs. These tasks can be performed with minimal equipment and low cost. For example, setting the table and benches can be changed according to the subject and they may be set in a circular shape for group discussions or in a form for pair works. While the necessary space and resources vary in different situations, it is important that we organize things in the appropriate manner. In this regard, Mc Claire explains that setting the physical environment helps concentration, creating a state of creativity and enhancing motivation (Esmaili, 2001).

Based on the above discussion, the physical structure and educational environment play an important role in facilitating the creative learning processes and these spaces should be arranged so that they can motivate the child's creativity.

Features of architectural space for children

Architecture plays a role in training people by the spaces it brings. This responsibility is much more in the design of spaces relevant to children due to their sensitivity and influence. Children as different citizens need to grow (evolved) in an architectural space according to their specifications and they are deserved to participate in education. Designing these spaces requires special attention. In fact, factors such as understanding the characteristics of child's perception and imagination about spaces involving them, understanding the importance of the existence of space and creating spaces that can provoke children's sensitivity during training, understanding that their scale is different from adults and learning how to understand and communicate with space are among the issues that require special attention.

Another important issue that is effective in maintaining the child's connection with the environment and creating a sense of psychological security for him is the clarity and readability of the environment for children. The environment that is easy to understand and interpret. So, one of the features of the perfect environment is considering children's cognitive and perceptual ability. However, the contribution to expand intellectual plans and know them can make creativity possible. The child likes to have space changeable, where to put his footprint and thus create his own special cue points. Relocating, demolishing, constructing, and others are activities which allow him to create a world of his (Seyed Hosseini, 2003).

Spaces created by various means of a child's home or school are attractive to him in a way that he tries to take a possession of them. The need for space possession is a fundamental requirement and can be seen in all ages. In apartments, children hardly bear their neighbors who are considered as competitors for the family living space. Children of all ages, at home or school persist on trying to get possession of the portion of space. Most of them send their brother or sister out of the room or they suffer not having their own space at school. They are usually willing to have small and more intimate classes and sometimes they like to carry things from home to school. Open spaces are important in their paintings. When the game is varied and full of signs and symptoms, determining the territory is easier for children. Considering the fact that the leisure – education life in this center is like home life, children consider it as their home. Building should be predicted according to children's morale both spiritually and based on the point of the material and children can show their independence in it (Seyed Hosseini, 2003).

According to the above-mentioned issues, architectural spaces of children should be considered based on small criteria and their needs such as shorter roofs, toilets, chairs, tables and stairs and narrower corridors. Considering the child's life, the building should be in an open environment with diverse and comfortable communication which meets the needs of playful and free children as much as possible. To prevent accidents and mishaps, ramps should be used instead of the stairs or the number of steps and the sharp corners of the walls should be reduced. The doors should be made of soft plastic with light weight which can be moved with the minimum force and an unfortunate incident does not occur by the clash of children. Windows should be designed with a proper height and with a typical height of a child considering good conditions of light and color. But, before considering these types of spatial facilities we should know the child and his understanding of space and get familiar with his mental and spiritual in this area. Therefore, we deal with cognitive psychological characteristics of children and children's relationship with space.

In urban areas, raising children are conditioned by compulsion without thinking about it. Thus, exploring the territory is no longer a natural stage of his development but it is a distance which they pass in this way. In contrast, rural living gives the child the possession of the space and exposes him to various ways and places without serious threat to children.

The number of prohibited areas are increasing daily in cities and therefore the discovery space for children, and as a result, his world becomes smaller and smaller. While the game needs private space and this territory is often the limited space of children's rooms which has not been predicted for group playing, this is the reason for the necessity of more general spaces to respond children's need as well as to neutralize the constraints. Today, urbanization is more felt. Visiting children on a playing field shows their multiple collisions and complete dominance over space and imposing a limited space to them is difficult (Aref Nazari, 2003).

Without adequate knowledge of the characteristics of children in critical stages defined by psychologists, designing consistent and compatible spaces with the features of the children and preparing them to accept the changes in the community may bring devastating consequences. Studying children's perception of the environment shows that although they have a less active view than adults, the basis of their view lies on the overall feeling.

Children have great imagination power but to visualize the motion is less hard for them. Children are unable to understand the forms with details. At first, a child better understands the forms with angles, shapes and corners. Then, he is able to grasp objects with curved edges. Children understand items with holes better than objects with no holes. The failure to understand the details is obvious in children's drawings. After the initial stage of drawing vague lines, the children are able to draw the shapes with closed angles although they try to draw them circular without noticing whether they are squares, triangles or circles.

These indicators are not absolute and they pass perceive screening. What is remained will be considered as the final measures of the quality such as organization, time and route, part and the whole, form, scale and coordination, light, colors, and symbols.

Space perception is very difficult. The child should also distinguish himself from the world around him, and also to analyze and experience the world. Children usually begin to communicate with images and figures when they are one year old. This is a direct and simple communication because a child is looking for the picture and volume which is similar to the pointed subject, whether the object or its image. We have to read the volume or picture as a single word and do not attack the child with sentence because he loses the image and pays attention to the task done in it and his image will practically be eliminated. A few months later, the child is out of the

single word. In this stage, he likes colorful pictures and figures as he likes multi-color books more than books with only one color.

The main point is that the designed space and building should have a relationship of color, line, form and space with the spirits of children and youth. The used colors in building give the space a specific temperature as the color makes a space hot or cold. An architect should not think strongly because of his strong mind and a strong. A collection of clear and vivid colors as well as free forms without a specific identity should not be set together for the child because it will strengthen the child's fantasy.

Architectural space should have additional qualitative value and helps the child's imagination to reach new highs (fantasy). Perspective of the spaces should be simple and understandable. Lighting of space and environment should not cause confusing and illusion. Part of the space should not be in the dark or black shades or be attacked from different directions, especially without a clear and visible rays of light. Architecture for the child should not be worried, anxious, depressed, or even drawn in itself. It should not have a negative charge and should be profitable and promising and justify a sense of freedom and justice. He should not be interested in acquiring a powerful and violent, bullying and cruel domination (Ebrahimi, 1984, as cited in Duffy, 2009).

Built space or architectural spaces are the combination of spaces that covers us. Architectural space is quite a tangible reality and includes the daily environment of residents of cities and rural areas. Child's psychologists deal with even the most minor movements of a child and his development. But it seems as if all these events occur in a neutral space with unclear boundaries. The color is rarely discussed and even less about the form of walls, doors and windows, and structures that cover him and make his living environment. With the few studies on the impact of architecture on the child, it is clear that the child is sensitive to the built environment. Educational performed tests on children suggest that architectural forms have much impact on a child's spirit and imagination.

Designing principles of educational spaces to promote a child's creativity

Children are the most sensitive age group of the society. Space that surrounds us, takes part in the formation of our character and protects our privacy. This space may be big and small depending on the person or different periods of life. Architectural features suit-

able for children to enhance their creativity can be expressed in these forms:

- Observing the child's scale in designing all spaces.
- Observing spatial hierarchies in spaces designed for children
 - Assigning the realm of space and privacy with respect to division of children's age
 - Creating a visual relationship between the two neighboring space
 - The maximum use of semi-open and open space on various floors of the building
 - Completing the decoration and architecture with emphasis on details
 - Using natural light to see the landscape and open space
 - Using color for optimum efficiency of space
 - Using proper form in different spaces and correspondence of the form with space character
 - Using appropriate tissue components such as floor space, walls and ceilings
 - Multiple using of communicational space and to define this space as an avenue of education
 - Designing facade exponentially with the identity and character for the children

Conclusions

Creativity is the largest and most influential part of every human and the development of any society throughout history is the brainchild of creative human endeavor. Motivation for curiosity and imagination power is very strong in children. The richer the child's environment in sources of information is, the greater the potential motivation comes to act.

Based on the issues outlined in this paper, the physical structure and educational environment plays an important role in facilitating the creative learning process. These spaces should be arranged so that they can motivate the child's creativity. In other words, creativity in children requires plac-

ing them in environments that are physically, emotionally, intellectually and socially enriched and with creating opportunities to benefit from appropriate training and incentives, provide the possibilities for creativity and develop their creative talents. Accordingly, the learning environment should be full of potential learning experiences which give children the tools, activities and skills that they need to have a creative life. Basically, children will show better performance in spaces in which experience, living happily, playing, freedom, respect to one's privacy and flexibility are respected, and also plants, water, light and scale, have a strong presence. Undoubtedly, the products of such environments are creative and capable people who are not only the source of many of the developments and blessings in their personal life but also they are considered as a valuable and pure essence for their land and their community who circulate the development cycle with the power laying in their existence.

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