Sensory Garden Design Solutions in Child Friendly Environments (Case Study: The Children of the City Of Isfahan, North West-District #12, in Pre-Elementary and Elementary Schools)

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Different stages of child development indicate that a large amount of children's learning process is gone through by perceptual skills related to the surrounding environment. Besides, children need to be active and stimulate their own senses in the environment more than others. The aim of the present study is to find out the importance of the existence of the environmental stimuli in child friendly spaces. Moreover, this study analyzes the characteristics and patterns of outdoor designs responsive to children's senses, and also deals with the way these outdoor designs affect children's growth. This research is a descriptive-analytic study, and the approach of the research is psychological. This study uses documentary resources to reveal the concepts and the importance of the issue. Finally, the research distributes questionnaires to obtain the characteristics of designing the sensory garden. The findings of the study revealed these design solutions: 1.Appealing and friendly environment, 2.Active participation and the integration of ideas, 3.Access to a variety of activities, 4.The possibility of free games, 5.Natural and green spaces, 6.Individual and group activities, 7.Social interaction, 8.Perception and understanding of values, 9. Different space colors. In this respect, the sensory garden leads to improving the healthy senses and the gradual growth of children's senses.

Keywords: Sensory Garden, Children, Child Friendly, Nature, Qualitative and Quantitative Methods.

1. INTRODUCTION

A child friendly space is an environment that not only provides the necessary conditions to perform a variety of social activities and interactions for children, but also creates opportunities for children to learn from the environment.

Psychologically speaking, these kinds of environments cause the sense of being useful and effective in children (Mansouri, 2010). Besides, a child friendly environment should be available to all children and should provide suitable grounds for playing, learning, social interaction, and mental and cultural growth (Unicef, 2001). Based on emotional, social and mental resources and feeling at home, appropriate opportunities are given to the children to explore the environment. As a consequence, "child friendly construction" can include a set of meaningful activities that provide the necessary conditions to create a sense of personal and collective belonging for children and adults (Nordstrom, 2010). Two method should be paid attention in order to create child friendly spaces: "creating and designing an environment for children" and "creating and designing the environment with children". Four major principles of security, green nature and space, access, and integrity should be focused in designing a child friendly space for them. On the other hand, participating children in the process of creating the environment can be regarded as the main principle in designing with children. Therefore, one of the major factors of a child friendly space includes the green nature, as the space which the present article deals with. Sensory garden is a kind of natural space which has a variety of aspects including color, texture, etc. and its aim is to be responsive and to stimulate the children's senses (Hussein, 2011). In fact, the idea of designing the sensory garden has been generated in urban environments, especially in child friendly projects due to the therapeutic effects of open and natural spaces on children. Multiple stimuli in a natural

environment are provided in these kinds of gardens, in order to create different experiments for children. Besides, sensory garden can be used for those with special needs, especially for blind children, and their educational spaces, in which security is a considerable principle (Shoemaker, 2002). Therefore, a sensory garden should be a place which invites the users. In this regard, environmental psychologists refer to the idea of "Biophilia", which means "the sense of liking the nature" by children. They believe that paying attention or not paying attention to this natural sense can have positive and negative psychological consequences in people especially in children (Fjortoft, 2004). Therefore, the therapeutic effects of the nature can affect three aspects of human beings' life, especially that of children's: "physical activities", "mental conditions" and "social skills", and all of these aspects have direct impacts on people's physical and mental health in their daily life (Cooper-Marcus, 1998). The aim of this study is to discover the role of the environmental stimuli on children development in child friendly spaces. Moreover, the present study analyzes the elements of outdoor designs, which are important in the viewpoints of children. This study also tries to offer designing solutions of sensory garden. Therefore both qualitative and quantitative methods are applied and the children's paintings and their teachers' viewpoints are analyzed by using a statistical software. Finally, the related diagram is provided and the related guideline is offered.

2. SIGNIFICANT PRINCIPLES IN CREATING CHILD FRIENDLY ENVIRONMENTS

2.1 Creating and Designing an Environment for Children

According to the experts, security has a vital role in human being's mental health. In the classification of human beings' needs, Abraham Mazloo introduces comfort feelings (after physiologic needs; food and water, etc.) as the second fundamental needs of human beings, and relates that with social and physical abilities of the environments (Salehi, 2008). Jane Jacobs (1961) believes that one of the factors of creating a secure feeling in the environment is the possibility of monitoring the environment by the users and citizens, which would be a self-disciplinary environment. One of the main necessities of a child friendly city is to focus on security (Unicef, 2007). Children who feel secure are more likely to engage in outside activities, and are mentally and physically healthy (Carmona, 2003; Spencer & Woolley, 2000).

The green spaces of children's senses are of the important issues in child friendly spaces (Unicef, 2005). Children who have direct connections with the nature will have suitable levels of function and cognitive attention and will receive lower levels of stressful conditions and depression (Wells, 2000). Besides, if children repeatedly commune the nature, they are helped to understand the concept of responsibility and respectful interaction with natural environments (Wilson, 2008; Tai et al, 2006; Bott et al, 2003).

Psychologically speaking, factors like economic, social, and cultural status of a community can affect the level of accessibility of children to the public spaces (parks, children's places, etc.). Besides, there is no need for the adults to worry about the safety of the places, when children are using them, and should be free and similar for all the children (Pickett et al, 2001). Therefore, creating the necessary facilities for children to have an easy and desirable access to the public places provides conditions for children to actively participate in the society's activities (Mc Allister, 2008).

Allowing children to participate in decision making processes and to design children's centers is one option, which creates similar opportunities for children to interact socially, increase self-confidence and improve their mental and social health. In fact, considering ideas and beliefs of children and also attempting to integrate children's ideas with the ideas of the community is one of the fundamental requirements in designing child friendly spaces (Unicef, 2007).

2.2 Creating and designing the environment by children

Chawla (2002) believes that participating people in social activities cause an increase in people's self-esteem and to be effective in the society. Therefore, it can be inferred that in order for children to gain environmental experiences, they should participate in activities, and change the environment based on their perspectives and requirements (Cele, 2006; Bridjeman, 2004). Roger Hart (1997), one of the outstanding researchers in this domain, has drawn "a ladder of children's participation" which specifies the potential capacity of participation. Hart considers three lowest stairs of the ladder as "lack of participation" and believes that many projects have been performed without the presence of the children. These projects do not belong to the upper stairs

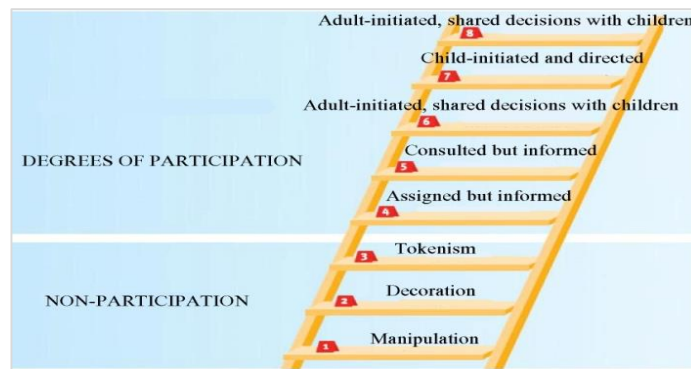of the ladder, which contain "the real participation of the children".

Figure 1: The Ladder of Participating Children (Source: Hart, 1997)

3. THE ROLE OF NATURE IN CHILDREN'S ENVIRONMENTS

Since children imagine their surrounding world like a kind of playground, nature is a suitable basis that can amuse them for several hours (Fjortoft, 2004). The reason for this is probably the children's environmental preferences and their inner tendency to the nature. Children can be amused several hours with water, sand, and so on. They can be entertained by running through the trees, and experience lively activities (running, rolling, climbing barriers, etc.) (Zamani, 2009). The type of children's experience in the nature is even totally different from that of adults. In fact, nature in children's view is an occasion for search in the natural environment and earning new experiences. On the contrary, adults consider nature a kind of "background"; they only focus on the aesthetic aspect of the nature (Izad Panah Jahromi, 2004). On the other hand, plant diversity and uneven surfaces of the nature has been appealing for children; also, open spaces activate children's intuitions and their creative power (Fjortoft & Sajeie, 2000). Moreover, the presence of children in natural environments and gardens, and their attendance in planting and growing plants encourages them to participate in group activities and helps children to improve their body and spirit's health (Sullivan et al, 2004).
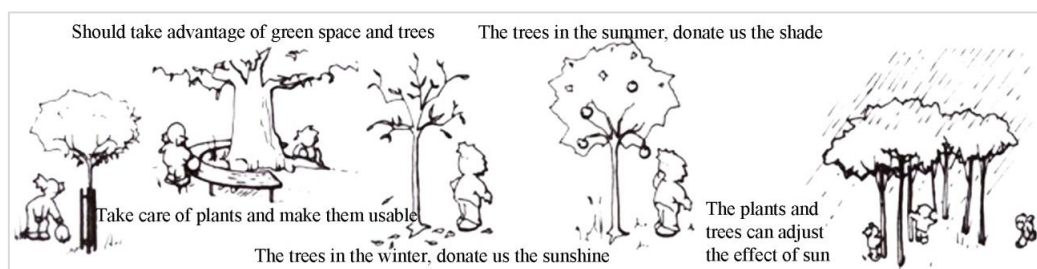

Figure 2: The Importance of nature in children's space (Source: Del Alamo, 2004)

4. EFFECTS OF CHILD'S SENSES IN UNDERSTANDING THE ENVIRONMENT

Human being's life experiences are controlled by his feelings. Moreover, all spaces have emotional effect. Based on this fact, the capacity of sensory processing of human being begins since his birth; this sensory processing nurtures during his childhood. In fact, by using their senses, children gain experience from their surrounding environment and before starting to see or speak, they try to differentiate between the inside and outside world (Isbell & Isbell, 2007). Based on this fact, architects should pay attention to different aspects of human being's senses and their relations with architecture (Table 1).

Table 1: The Effects of the child's senses on understanding the environment

Senses	Characteristics of the senses
Sight	• Visual awareness causes the most comprehensive information to be received from the surroundings. • It gives us information about the nature of objects. • It encourages the child to touch the environments' elements and prepare the condition to face other senses (Day, 2007). • It is regarded as a navigator factor in the environment. • It gives us some information about the way the environments' elements affect the child. • It is an instrument for inducing memories from the environment.
Smell	• Scents are used in order to improve the mood, change people's perspective regarding the environment and the way of their mental function. On the other hand, scents reduce the stress, improve the mood and power in children (Augustin, 2009). • It gives us information about the objects' nature.
Hearing	• Sounds help children to know more about the environment. In fact, hearing sounds is the same as experiencing in the environment. • Children enjoy hearing unusual sounds (tunnels, caves, walls that reflect the sound) because these sounds improve their imaginations. • Confusing acoustics in spaces decrease the level of the child understanding (Spencer & Blades, 2006). • It gives us information about the way the environments' elements affect the child
Taste	• Children taste the objects many times by their tongue; this is a natural response to understand the environment (Day, 2007).
Touch	• It has a significant relation with child's feelings and emotions, and the child's tendency is to touch objects. • Children use this sense to communicate with spaces and this sense cause them understand the environment better. • It gives us information about the way the environments' elements affect the child (Day, 2007).

(Source: Authors, 2015)

Therefore, it can be said that understanding has been a significant factor of human beings' senses; it creates a final continuous sense. Finally, paying attention to children's senses helps them to explore their surrounding environment. Accordingly, spaces can create feelings in people, make memories and increase their experiences.
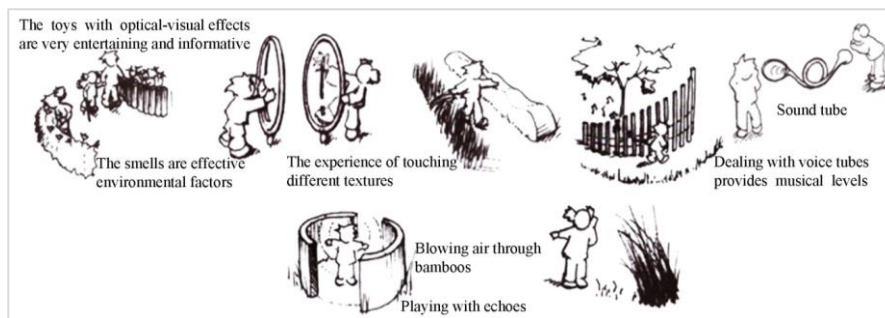

Figure 3: The Importance of motivating children's senses in the playground
(Source: Del Alamo, 2004)

5. THE ROLE OF PATTERNS AND TEXTURES IN THE SENSORY GARDEN

Using patterns and textures in children's environments not only stimulates sight and touch senses, but also affects them psychologically. On the other hand, these kinds of architectural details either stimulate children or bore them. Therefore, an environment with different and suitable patterns can increase child's mental activities and play a role in growing the child's imagination and creativity (Day, 2007). On the other hand, using too many visual patterns can prevent children to concentrate, leading them to confused feelings. However, psychologically speaking, the environments, which did not use any patterns or textures are not suitable for the users. Therefore, it can be said that the appropriate and correct use of patterns can be effective in increasing productivity of the environment (Mahnk, 1996). Thus, applying patterns and textures in children's environments is the main part of designing the buildings and decorations, which cause the environment to be surprising and attracting. Also, it is worthy to refer to some psychological effects of the patterns, as follows:

- Using messed up patterns in small environments leads to stress and anxiety.
- Direct horizontal lines makes one feel relaxed; however, using too many lines leads to tense feeling among children.
- Direct vertical lines show the state of stability; and diagonal lines indicate activity.
- Forms which are the same as V indicate danger and cause attention.
- Using rhythm in children's spaces, considering the way of repeating the elements with their gradual change is a sight guiding factor in the spaces.
- The created patterns by flagstones demonstrate the route and the sight distance; these patterns cause the feeling of movement.
- Using patterns in walls and ceilings cause a feeling of protrusions or retreat (Mahnk, 1996).

6. THE IMPORTANCE OF ENVIRONMENTAL GRAPHICS IN SENSORY GARDEN

Environmental graphic in children's spaces is the wise use of visual factors in the environment in order to create a desirable environment for the user and to demonstrate the appropriate behavior and reaction (Ilookhani, 2009). In fact, the main duty of environmental graphic is to be aware of the aesthetic growth of the child, to understand the methods of education and to transfer concepts to him through the environment. Generally speaking, children's educational methods are divided to two groups of direct education (education at school) and indirect education. Therefore, environmental graphic can play a significant role in growth of characteristics and mental growth of children by child indirect training, and can stimulate curiosity and creativity of the child, and enrich the environment (Aramfard, 2001). In fact, the appropriate use of environmental graphic helps the child's senses get involved, curiosity is reinforced, and the child be trained by playing in the environment. Some samples of environmental graphic in children's space are addressed, as follows:

- Designing graphic volumes in the forms of plants and flowers; with different flowers' scents, not only the smell sense is motivated, but also the children's curiosity is satisfied.
- Designing volumes which provide the possibility to hear pristine sounds of the nature for children.
- Applying wind power to swing different aquatic, animals and birds over a rod is significant to make the child feel that something is moving.
- The combination of alphabets related to the animal statue is effective in learning and training children.
- Lighting the environment and children's open spaces by luminous volumes of animals and insects improves the child's relationship with other entities and provides the environment's security in the darkness.
- Designing furniture of children's open spaces in the form of petals of the flowers aims at teaching shapes and counting the numbers. Moreover, children can change the form of mobile furniture to increase the sense of partnership and responsibility (Del Alamo, 2004).

Figure 4: Samples of design patterns and textures on the children's spaces
(Source: Tabaeian et al., 2015)

Figure 5: Samples of environmental graphic in children's space
(Source: Satari & Eghbali, 2014)

Figure 6: A Sample of the sensory garden's details of Owinska's Park (Source: Hussein, 2011) characteristics: (1) contains different textures, sounds and smells, (2) contains spaces for playing which have different barriers for children to facilitate navigating their way, (3) preparing some routes with different levels which leads to the lake and bridge, (4) sings which are written with Braille to provide some explanations about the plants, (5) containing sports facilities, (6) containing animals' farm

7. METHODOLOGY

In this research, qualitative and quantitative methods are both applied; and collecting data is through library resources. It should be mentioned that considering its method of collecting quantitative data, the present study is placed among the cross-sectional studies. Moreover, since qualitative data, especially children's paintings, are representative of children's thoughts, behaviors and feelings, the author attempts to interpret and code the desirable behaviors of children; therefore, the qualitative-phenomenology aspect of the study is also significant. The study population contains Isfahan city's educational centers (pre-elementary and elementary schools) and the sample of the study (purposive sampling procedures) is chosen as the children of Isfahan city's Education organization/ northwest district #12, and their teachers and trainers are also chosen. Therefore, the field studies were performed in pre-elementary and elementary schools that exist in this district. Parande Koochak pre-elementary school, Ghobe elementary school (girls' school) and Shahid Golshirazi elementary school (boys' school) were selected to carry out the study. The sample population (purposive sampling procedures) contains 115 children and 25 teachers and trainers. Moreover, choosing teachers and trainers of this group has also been a purposive sampling since the purpose is to have the same environmental conditions for the child and the teacher (as an expert). Furthermore, it is aimed for the child and the teacher to have interaction with each other. In the present study, the questionnaires are analyzed by using the statistical software (SPSS, X2) and (T-student) test. Also, the software (Atlas.Ti6.2) is applied in order to analyze the children's paintings. Finally, the obtained frequencies are transmitted to Excel software and the related diagram is thus provided.

8. DATA ANALYSIS AND FINDINGS

In the present study, first two effective components on child friendly spaces are analyzed by using the trainers' ideas. These two components are: "appealing and friendly environment" and "participation of active children". Then, the research analyzes the children's ideas in relation to their level of interest, regarding their presence in natural spaces and sensory garden, and then the effects when children are present in natural spaces.

Question 1. The school's environment (or the nursery school) is friendly and inviting. How friendly and inviting is your school or nursery school? School (or nursery school) is considered as an appealing place for the students (or children) and the employees. How appealing is your school (or nursery school)? How appealing and friendly is the sample?
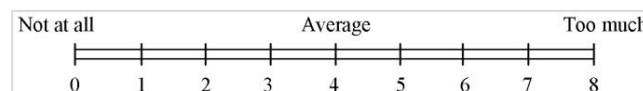

Table 2: The average of the appealing and the friendly environment's variable

	The sample	The average	Standard Deviation
Appealing and Friendly Environment	25	5.08	1.63

(Source: Authors, 2015)

Table 3: The results of T-test regarding the comparison between the appealing and friendly environment and the average

The variable	t	Degree of Freedom	The Meaningful Amount
Appealing and Friendly Environment	3.25	23	0.004

(Source: Authors, 2015)

The amount of *t-test* for the friendly and appealing environment average is 3.25 and the amount of the possibility related to the analysis of its being meaningful is 0.004 that is less than 0.05. Therefore, 95% certainty of the statistical zero based on the equality of the appealing and friendly average with the average amount is dismissed. Therefore, the average rate of the friendly and appealing environment with the average is "4" and higher amount than 4 of the

average amount of the appealing and friendly environment is meaningful, therefore, it can be said that the friendly and appealing environment's average is high.

Question 2. There is a written program at school (or nursery school) in order for the children to participate in educational programs. How similar is your school (or nursery school)?

There is a possibility for student (or children) to freely and openly express their feelings and thoughts regarding the activities and environment of the school (or the nursery school). How much is your school (or your nursery school) similar to the above conditions? How much is the children's active participation in the sample?
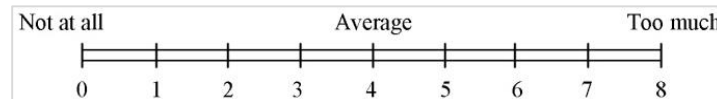

Table 4: The Average of the active participation variable and the integrated opinions

	The sample	The Average	The Standard Deviation
Active Participation and the Integration of ideas	25	4.81	1.78

(Source: Authors, 2015)

Table 5: The Results of t-test regarding the comparison between the active participation & the ideas' integration with the average amount

The Variable	t	Freedom Degree	The Meaningful Amount
Active participation & the integration of ideas	2.23	23	0.036

(Source: Authors, 2015)

The amount of t-test of the active participation average and the integration of ideas is 2.23 and the amount of the possibility related to its meaningful analysis is 0.036 which is less than 0.05. Therefore, 95% certainty of the statistical zero based on the equality of the active participation average with the integration of the ideas is dismissed. Therefore, because the average of the active participation and the integrity of ideas with the average and higher amount of 4 of the average amount of the active participation and the integration of ideas are meaningful, therefore, it can be said that the average of the active participation and the integration of ideas are in a high level.

Table 6: The final results of teachers' opinions regarding the sample in question

Components	The amount of Analyzed Data by T-student Test
The Level of the Child Friendly Environment	in a High Level
Active participation and Paying Attention to the Children's Ideas	in a High Level

(Source: Authors, 2015)

According to the results of various researches, paying attention to the purposeful design of the open and green spaces of the children's center is one of the priorities of the design. Based on this, it is assumed that the children by prioritize green and natural spaces. This theory is proved to be based on the following findings:
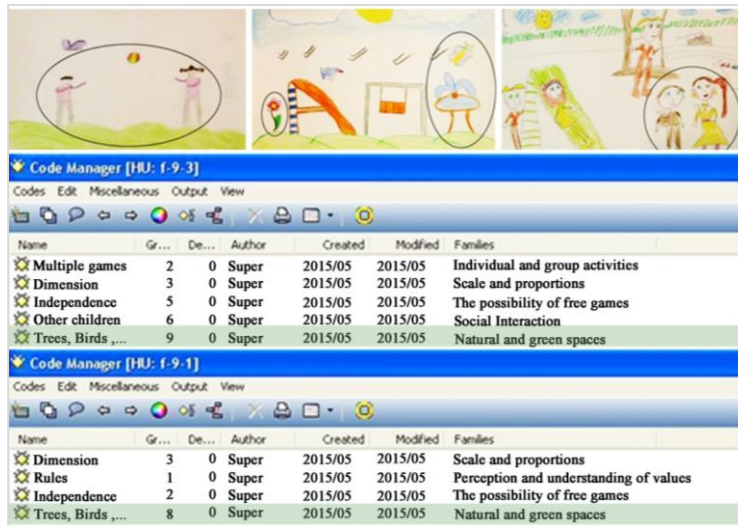
Figure 7: A Sample of children's paintings & the process of its analysis by the software" Atlas.Ti 6.2"
(Source: Authors, 2015) Point: The obtained frequencies in each table is the results of analyzing 10 paintings.
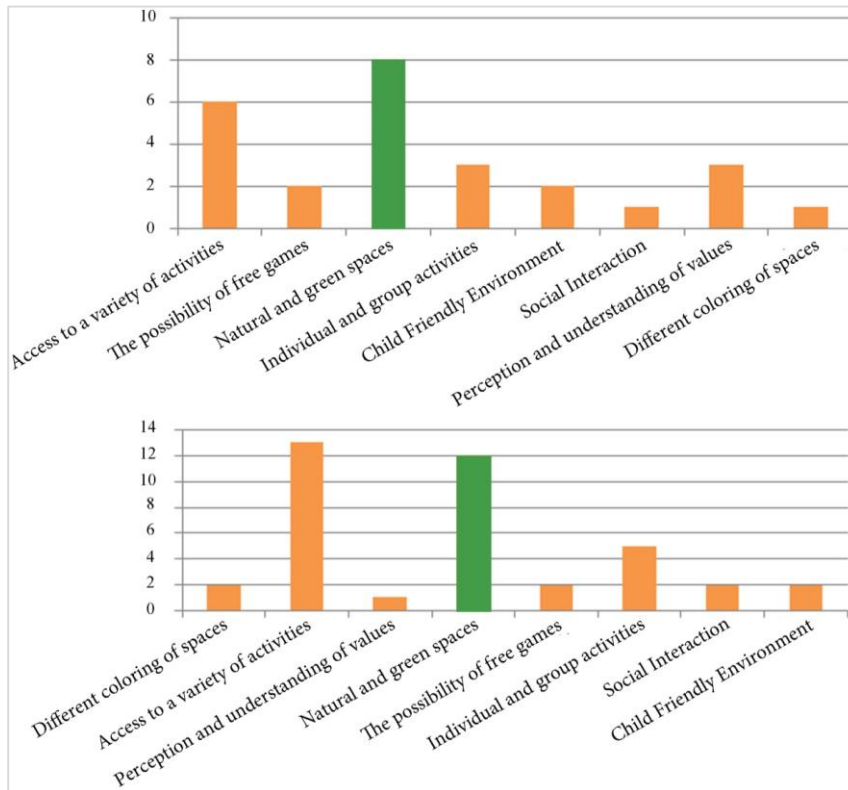

Figure 8: (above) Male children's ideas' assessment;
(below) Female children's ideas' assessment
(Source: Authors, 2015)

Based on the findings of different researches, it can be said that both groups of girls and boys have natural tendency towards the nature and green spaces; they prefer their open space integrate with their natural spaces. Based on the above diagrams, the green space is the first priority or the second priority of children's choice and this fact reminds us of the importance of paying attention to the landscape design and the children's educational gardens, especially sense garden.

Figure 9: Suggestions for designing different spaces of sense garden (Source: Authors, 2015)
Characteristics: (1) Creating solitude spaces in the hill surfaces of sense garden can increase the sense of research among children, (2) Creating some opportunities for planting flowers and plants for children leads to stimulating children's sense of liking the nature and their participation and also their senses of smell, touch, etc. , (3) Situating lakes and fountains in children's sense garden which leads to creating a marked place and also stimulating children 's sense of hearing, (4) Embedding apparatuses which cause playing the sounds and can stimulate children's hearing sense.

Table 7: Analysis of the findings

The obtained components from library studies	The positive points of field observations for samples	Proposed elements in the paintings of children and teacher's interviews	Design solutions
Appealing and friendly environment	*Using childish characters on the facade *Childish frescoes in the connection spaces	*Refers to the pond of paintings (water colors on the floor, etc) *Refers to the stairways (as an attractive element for children) *Refers to the pool of ball (as a charming and colorful element for minors) *The presence of hills in the playgrounds	*Pay attention to childish and decorative elements in the interior and exterior spaces *Create quiet game's zone (playing with sand, water, etc.) *Create visual game's zone (considering the walls and floors in the playground which can be used for painting) *Create stairways and hills in the playground
Active participation and the integration of ideas	-	-	*Create flexible spaces in children's centers and provide the possibility of changing and shaping the environment by children
Access to a variety of activities	*Pay attention to the variety of games based on age groups	*Refers to various play equipment (swings, slides, etc.) *Refers to various games in Painting and interviews (jumping rope, etc.)	*Create different play zones with regard to overall growth needs of children *Providing facilities and playing instruments suitable for children
The possibility of free games	*Presence of children with indirect supervision of coach	*The presence of children for free, either alone or together with other children in the playground	*Considering the curators for each zone and thus no restriction of parents for children to play games *Taking into account an

			entrance for the center and create fences around the area to monitor the entry and exit of children
Natural and green spaces	*Enjoy green space *Create Space of sand-play (organic)	*Consideration of children to lawns, trees, flowers, animals, etc., in paintings	*The presence of harmless animals in the playground (turtles, rabbits, etc.) *The establishment of various open spaces (courtyards, patios, etc.) *The use of various plant species with different colors and shapes, fountain, etc. *Create opportunities for gardening and planting plants in the playground
Individual and group activities	*Create tables and furnishings in groups (layout as circular)	*Painting by the children around a table (group activities) *Refers to private spaces (individual activity)	*Consider to Group games *Create a room and furniture for discussion and storytelling. *Create individual spaces in the playground *Create individual activities (biking, reading, etc)
Social interaction	*Consideration of theater * The availability of different services for children to play exhibition games with each other	*Painting with friends and playing with other children	*Consideration of sport games (to gather the children together) *Create social games (such as theater and display) to develop social skills
Perception and understanding of values	*Providing traffic signs and equipment (introducing a social value to children)	* Children refer to the traffic lights, the Iranian flag, etc. in their paintings (perceived social, national and religious values)	*Use childish elements in the playground to introduce different values to children *Organize the simple spaces (avoid designing complex spaces) to facilitate children's spatial perception
Different coloring of spaces	*Use bright colors on the facade *Consider to a variety coloring of spaces	*Indicates a rainbow and colorful elements in the painting (the children's interest in various color spaces)	*Use favorite colors for different age groups in the playground, playing instruments, interior and exterior spaces * Use colored glass frames

(Source: Authors, 2015)

9. CONCLUSION

Designing sense garden involves a variety of aspects, which needs designers' attention. In fact, many designing solutions should be applied to provide multiple sense experiences for the users. Based on the existing evidence, all studies should be carried out based on the sense garden's therapeutic effects which is the most important characteristic of these kinds of spaces and deals with the importance of children's relationship with the nature.

Table 8: The Final Results of Research

Sensory Garden	Designing Guidelines	Qualitative Characteristics	Materials	Design Criteria
Touch	*Group plants into types of textures (i.e. coarse, fine, medium) or forms (i.e. spiky, round, oval) and introduce them gradually, one type at a time. *Avoid lining pathways with long grasses or fast growing plants to prevent them brushing against anyone passing by who would find the light touch uncomfortable. *For someone who may enjoy pressure and crawling under things, provide heavy picnic blankets or create nature tunnels * Include different types of tactile surfaces along the walkways – for example sand, crushed gravel or stone slabs.	*Incorporated into interpretive and educational signs * Tactile imagery, sculptures, student and public work. *Earth tones, Spanish colonial colors, contrast with seating element colors.	*Concrete *Metal, plaster, stone, Wood. *Cement, stone, pavers.	*Use along right side and bottoms of interpretive signs. *Utilize at transition points and entry points. *Wide corridors, contrast colors with raised planters.
Sight	*Someone sensitive to the glare of sunlight needs easily accessible shade, for example patios, porches, arbours, tree canopies, trellises and gazebos. Offer shade for seating and consider positioning chairs so that they do not demand eye contact. *Hang white sheets in direct sunlight to show shadows of plants and trees. Those fascinated by reflections and shadows will enjoy the changing shapes. Latticed partitions and sculptures also cast interesting shadows. *Create visual consistency and predictable patterns, massing plants with similar tones and colors together and only using contrasting colored plants to provide visual emphasis or markers at strategic points.	*Tin panels; provide screenage and acoustical properties through sound reflection. *Copper plated, braille on the sides, interpretive signs for the sensory gardens and campus.	*Corrugated metal. *Copper.	*Panels, framed with 2x2 metal tubing, hinged where necessary, screen utilities and seating. *36"height, setback 18". * Used at corners of entry points, found at transitions and seating areas.
Sound	*Create an enclosed quiet space that is calm, restful and undisturbed. Position it away from the social areas of the garden. *Avoid creating too many sounds at the same time, i.e. mowing a lawn with music playing in the background. *Be mindful of the materials you use for ground cover in communal spaces, avoiding noisy substances such as gravel, and consider using sound-absorbent alternatives (for example cork, bark or sand). *Introduce sculptures and focal points made of materials that amplify the sound of the rain *Include nectar-producing plants and feeders to attract birds.	* Cultural art, tactile or Sensory based, student or local artists. *Curved, low walls, accommodate large groups to semi-private groups, earth tone colors.	*Various. *Concrete, masonry.	*Contrasting colors, located in microclimates and along walkways, avoid classrooms windows when possible. *Massing's based on sensory stimuli, smell (scents) can be used without conditions. *Contrasting colors, negative details at the bottom for water runoff.
Smell	*Choose scented plants and flowers that will only release their scent when rubbed. This gives the hyper-sensitive person control over what they would like to smell and what they would like to avoid. *Group fragrant plants into types (fresh, floral, spicy and sweet) and place them into pots so that they are movable. This makes them easy to take away or introduce in response to individual sensitivities. *Consider planting non-slip creepers or herbs near the path edges so that when you walk on the plant, it will release an aroma – for example pennyroyal, mint or thyme. Many herbs are very aromatic but only release their scent when the leaves are rubbed or grazed	*Used as accents, screens, for shade, tactile, and sensory experiences. *Site appropriate, low height for children to experience, utilize for bind circulation.	*Plants. *Stone, concrete, metal, masonry.	
Taste	* Utilize water harvesting techniques, incorporate a shallow pool pond.			

10. ACKNOWLEDGEMENT

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