

# A Guideline in Designing Architectural Spaces for Mothers and Their Children with the Approach of Improving the Well-Being Quality

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## Abstract

Childhood is the first and most important stages of life and an introduction in transforming the adult human character. The psychological needs in childhood is one of the complicated needs; therefore, recognition of children in Child Psychology is an essential issue. The most natural groups that can satisfy the human needs is the family. The family's task is to take care of the child, their education, members communicate securely with each other and contribute to the independence of children. Therefore, the mother is considered as linchpin of balance and tranquility and progress of family and community. Providing criteria and methods of design, architecture and living space that is congruent with the mother and child conditions is essential. Since with mother's mental health, children also can be trained and grown in a favorable Environment. The goal is to create a guideline for designing an environment that influences both mothers and their child's. The first priority of these spaces is their connection with the urban context. Using investigative methodology, this research identified the factors that influence the architectural design for children and mothers. The results reveal that including the integration and continuity of internal and external spaces, the creation of interactions between mothers and children, and landscape design elements, improving the quality of space. Using these guidelines could help the designers obtaining new perspective during the design stage of architecture and improve the quality of the environment.

**Keywords:** architectural space, Mothers and Children, Mental Health, Psychology, Child

## 1. INTRODUCTION

There is a direct relationship between mental health and proper design of physical environment. The ways such as the use of diverse colors, playing and ornamental instruments, and the use of light can have a positive effect on mental health (Hopkins, 1990). Responsiveness to mental health in the design is a psychological concept of health, and in the internal domain includes advancement and stimulation of the desire to have mental health, by knowing the self and promoting the relationship of mental health in one's soul and, whereas in the External domain, it involves practicing livelier lifestyle and creating such environments. The role that physical factors play in the healing process, and in particular the results of the improvement of patients and families, is mentioned by most authors. For example Moore (2000), Weisman and Joseph (2006) and Aarts (2011) agreed with the effect of the physical environment on the healing process not only in patients but also on the lives of individuals. Childhood is the first and the most important period of life and an introduction to human personality changes, the psychological needs of which are more complex than physiological needs; therefore, the recognition of children in the developmental psychology of childhood is considered as the main and important issue. The sociological approach is the latest approach after child-centered views. This approach regards the child as a social activist, which forms part of his personality in relation to different spaces (Adams, 2008). The home, kindergarten, school, park and other public spaces such as streets, suites and alleys must be capable of meeting the children's biological, educational and leisure needs (Aqa Latifi, 2008). But the modern city not only does not know how to accept the child, but also prefers to keep it in protected areas, such as playgrounds, until it encounters the urban environment. In this regard, attention to aspects such as the design of landscape architecture and the renovation and renewing of existing buildings around urban spaces and the planning and design of mixed urban uses in addition to preventing and reducing the occurrence of crime effect on enhancing the sense of safety in urban spaces (Hill and Sandfor, 1995) Therefore, environmental design plays a significant role in ensuring the safety, security and mental health of children. The environment as one of the factors influencing human morality must be of importance to people's differences to respond to their different needs; thus, the environment must be tried to match the basic human needs of the human being. Children's conditions require appropriate environmental design to control their behavior and improve their mental health (Barnett, 1987). The color and internal architecture of the children's living environment are very effective in their spirits and mental relaxation. One of the most natural groups that can satisfy human needs is family (Kamelnia and Haghiri, 2009). The responsibility of the family is to care for and educating children, to establish healthy connections between members and to help children's autonomy. Therefore, mothers are considered as the main

pillar of the balance and calmness of the family and society system, and paying attention to their conditions in life is essential. Architecture as one of the branches of art as well as engineering knowledge obtained from the distant past can be considered as a human dish of humanity in gaining the peace and tranquility of humans. Inappropriate and non-standard design affects the severity and irritability of humans (Kearns and Gesler, 1998). Therefore, the presentation of criteria and design methods, the architecture space of life should be appropriate to the conditions of the mother and the child, and is necessary to ensure that the child's mental health can be trained and nurtured in an appropriate environment (Ananth, 2008; Yusoff Abass and Ghazali, 2010). Urban planning, when actually reaches the goals of the city, is desirable to meet the needs and wishes of all citizens according to the age requirement. In this regard, children as one of the population must be involved in urban planning more (Plappert *et al.*, 2005; Dryskl, 2007). In recent years, attention has been paid to the mental and physical health of kids with various researches in the world and also in Iran (Aqa Latifi, 2008; Ismail Zadeh Kovaki, 2011; Kamelnia and Haghbir, 2009), however, due to the lack of expansion and expected indicators are approaching the world in a small number of cities. Therefore, due to the global situation in the cities of Iran, the issue with less modern approaches has been analyzed and studied. Unfortunately, in Iran, the design of urban spaces does not take into account the needs of the child. Therefore, this research carried out in order to identify which urban spaces should have what characteristics suit children's mental development.

Educational, recreational, sport-specific spaces for children and mothers are the spaces that have the most impact on their minds and can create creativity and creative ideas in this age group by establishing an interactive interaction between education, sport and recreation. The child's personality begins to form from birth and is based on a childhood. In this sensitive period, particular attention should be paid to the needs, desires and the formation of the child's personality. By creating curiosity and a happy atmosphere between children, we have not only developed self-confidence in them, but also in this way according to the child's personality (Aqa Latifi, 2008). Adapting the environment with his age and through team play, we will be able to concentrate on them by focusing on the combination of precision in children. Therefore, this section examined issues related to children, including child psychology, entertainment, and child perception of space and architecture. Ultimately led to the design of a children's recreation and sports center. In terms of form, function and other architectural features, the space in which the child lives has a significant role in the formation of the personality and the development of the child's intellectual development (Ismail Zadeh Kovaki, 2011). Regarding this point, in this section, in line with the studies of domestic and foreign projects and in accordance with the psychological characteristics of children, we tried introducing the principles of designing the educational-recreational-sports spaces. The main goal of this section was to create a social, vibrant and dynamic atmosphere for children and mothers. So that they could feel comfortable there and enjoy life (Kamelnia and Haghbir, 2009).

## 2. LITERATURE REVIEW

Based on the sociological approach of children, the "Child City" project is considered as the basis for proposing strategies for creating child friendly urban plans (Kamelnia and Haghbir, 2009). The attention given to the needs of children and mothers is in line with the theory of the rights of citizenship for children, which has been pursued since 1990 and was aimed at contributing children to shaping their surroundings (Kamelnia and Haghbir, 2009). Making decisions about the city, participation in the family, society and social life, access to basic services, protection from violence and crime, security in urban spaces, meeting with friends and playing, and eventually recognition of children as a citizen are of such rights (Riggio, 2002). Studies have shown that the design of hallways with no window and maze, and internal landscapes in buildings has increased psychological stress in children and adolescents (Lobsinger, 1993; Horsburgh, 1998). From the early 1980s, these discussions led architects to design based on childlike concepts and experiences (Kearns, 1998, Gesler & Kearns & Barnett, 2000). These concepts were designed to produce less stressful spaces. Creating a co-habitual environment for the mother and the child is appropriate for the upbringing of the child. In fact, in these types of spaces, five senses of the kid (hearing, vision, olfactory, taste and touch) evolve completely and affect the formation of social relationships. Creating common spaces between mother and child can help to create or improve the relationship between parents and the child and provide a sincere relationship between the child and the mother and make her child valuable (Hopkins, 1990; Gascon *et al.*, 2015; Gascon *et al.* 2016; Xiaoqi and Astell-Burt, 2017). For example, brilliant colors, natural light, inner foliage, park benches, water springs, adolescent artistic works, handsome things, cartoon and television characters, stores and fast food with fragrant aromas in architecture were used (Adams, 2008). These architectural and design features, especially in the late 20th century, have been made in kindergartens and hospitals in North America (Plappert *et al.*, 2005). In his research, Moore (2000) suggested that creating a home-like environment in a nursery would bring more benefits to children, and they would feel like a home, and became very full of vitality. Varni and Katz (2001) concluded in their research that the physical and cultural atmosphere in kindergartens that were built to support families led to heartwarming of children and mothers. The Samuel Institute, as a research center interested in exploring healing processes, concluded that using social, psychological, physical, mental and behavioral components in architecture play

important role in the mental health of mothers and children (Ananth, 2008). For the first time, Shi'a (2006), in Iran, specifically in the field of urban spaces suitable for children, wrote a book entitled "City Preparation for Children" with the case study of Tehran in 2006, which, while studying how children deal with their needs, referred to the city's main social groups and how cities should address the needs of children and what were the expectations of children from cities. Dryskl (2007) explored ways to participate in the youth, and presents positive direct participation results of children in designing urban spaces in different parts of the world. Aghlatyfi (2008), in his research, presented some simple ways to fit his living spaces. Kamelnia and Hagher (2009), in their article, defined one of the projects in this direction to find patterns of green space design according to the views of the children. In this project, using the methodology of the discussion group and participatory methods such as storytelling, tables and puzzles, modeling, painting and etc., the views of the children on the green spaces were collected and analyzed. Ismail Zadeh Kovaki (2013) showed in his research that the city of Quchan has taken the first steps towards the realization of a child-friendly city; a percentage of children believed that a large number of trees and green spaces and children's play equipment in their neighborhood would be created by presenting them. Different opinions have suggested the need to pay attention to the participation of children in the design and planning of child friendly environments in Quchan. DTLR (2002), in his book, outlined and introduced the indices and essential factors of a city. Riggio (2002), in his article, drew on the urban committee based on its four core principles of child rights: non-discrimination, the greatest interest of children, the rights to life and the maximum development and respect for the children's perspective. The results showed that the behavior of the child in the permeable spaces was very variable. He could detect uncertain angles without defining the limits (Ghazizadeh, 1993; Mirza Aghaei, 2007; Narimani et al., 2007). The results have demonstrated that children's spaces should be exciting and stimulating. A reasonable level of complexity, novelty, diversity, and excitement was necessary in different spaces (Ghazizadeh, 1993; Mortazavi, 2001; Grother, 2007). Children are looking for a successful interactive environment in order to feel fit in the environment. Cognitive development of children in an environment that is responsive to their needs is possible (Ghazizadeh, 1993; Mirza Aghaei, 2007; Narimani et al., 2007). The child is allowed to work in an environment where his or her senses are in an active and safe condition. Noise pollution, air pollutants, lack of desired physical and psychological realms and overcrowding prevent the child from interacting with the environment (Ghazizadeh, 1993; Abdi, 1993; Shi'a, 2006). Understanding the nature of the child by understanding the interior spaces is generally different. Nature allows the child to change. He offers the child a rich and complex game of encouragement and a wide range of learning opportunities (Ghazizadeh, 1993; Abdi, 1993; Shi'a, 2006). Game spaces can meet the needs of children's development in all areas of physical, cognitive, social and emotional growth. For children, the key to designing is to pay attention to playing in the curriculum. The psychological effects of color in the children's spaces of colors have a miraculous effect on human spirit and soul, and color as an inseparable part of architecture has an impact on the morale and behavior of space users and their psychological and emotional states are heavily influenced (Karimian, 2009). Saturated or pure colors are simple and attractive for children and they have more tendency to them. Children have a better relationship with the color of the nature and the color of the human skin. Children love color and react well, but this does not mean that the only way to use the main colors is to use high reflection colors in corridors and stairs and sharp colors on the fences and doors can specify orientation points. Color can cause a variety in paths and readings of moving paths. For example, sharp colors can be used in the lower part of the corridor walls and milder colors in the upper part, or the use of warm colors at the end of the corridors can cause lower corridor lengths (Karimian, 2009; Mirza Aghaei, 2007; Narimani et al., 2007). Physical forms in the periphery of the human body have great effects on learning and their senses; therefore, it is possible to express certain information and concepts through a definite form. This should always be done in designing a form that is consistent with its content (Karimian, 2009; Mirza Aghaei, 2007; Narimani et al., 2007). When the form is proportional to the quality of space, it creates a sense of confidence in the person (Table 1). Light is the first condition for any visual perception. In absolute darkness, we can see neither space nor form and color. But light is not only a physical necessity, but its psychological value is one of the most important factors in human life in all fields. Use of natural light not only plays a major role in learning, but can also affect the level of health and the student's perspective. Considering the importance of the subject of lighting for children's environments, there are some points to use more light and light in the educational environment that have been listed as follows (Mirza Aghaei, 2007; Karimian, 2009). Reflection of light in water and light elements in water create pleasant sensory perceptions. The use of colored glass and ceiling light are recommended to diversify the spaces. The light source should not be placed in the student's eyes field because it causes eye irritation. It is better to have classrooms in the north and south, and in the east and west, there should be no direct sunlight in the space. Long and large windows bring more light into the classroom and illuminate it. More air enters the classroom and provides students with more air. Long and large windows have a feeling of freedom and un-restrictedness (Karimian, 2009; Abdi, 1372; Shi'a, 2006; Table 1).

The human scale can be considered appropriately between the size and quality of spaces and perceptual

capabilities and physiological characteristics of humans. Considering the scale of the child, it creates spaces that are understandable for children and creates a sense of security and attachment to the environment. When the child feels to belong to space, the sense of ownership and independence forms in him/her. The greater the space scene with the child, the greater the quality of space and the diversity of children's playing (Karimian, 2009). The big environments call children to move and see, and smaller environments are driven by focus and attention. Large entrances and large public spaces are not desirable for children, and they have a higher level of physical comfort and psychological relaxation in the environment and scale. The maximum horizontal distance that the child can detect another person is 11 meters and this distance should be considered in the dimensions of the spaces. Also, in the use of elements, furniture and decoration also attention should be paid to the child's scale. The height of the door and window handles and the power key should be in the dimensions and proportions of the children. Also, the use of furniture on the scale of children helps spaces to be more attractive (Karimian, 2009; Abdi, 1993; Shi'a, 2006; Table 1).

Sense of hearing defines experience and understanding of space. Space is understood and felt from the visual forms as well as the echo of the sound, but auditory perception usually remains as an unconscious experience in the mental background. Also, sounds can greatly relate to the senses of individuals and increase space by their experience in space (Shi'a, 2006). Usually when hearing sounds, things that are heard are not seen and sounds such as the fragrances and things that are touched affects the feelings and tempers of the children. Children usually search their surroundings, they enjoy spaces with unusual sounds and expand their imagination. But, on the other hand, materials, size, shape and proportions of buildings also affect the sound, and studies have shown that confusing sounds can reduce the perception and ability of accuracy in children and cause depression and violence in them. Also, the severity of external noise in educational settings reduces the understanding of what is said by the coaches to the children or the topics they read for them (Abdi, 1993; Shi'a, 2006; Table 2).

### **3. METHODS AND MATERIALS**

This study used investigation as the main method in identifying the effective factors influencing mother and their children with the approach of increasing their mental health.

### **4. RESULTS**

The goal was to create a happy, relaxing, environmentally friendly environment for children and mothers who needed mental health and well-being. This environment can support children who grow up in stressful areas and provide space for mothers. They can spend time for themselves. In this environment, children feel safe and relaxed with their mothers and learn time without creating tension and feeling insecure in the educational environment. They will be happy with their mothers. And mothers enjoy the joy of their children. In order to reduce these tensions, the process of development and raising up of children would be a positive trend. In this project, we have been trying to provide the children and mothers, mental health, education, and security that through global design we were able to create a safe and comfortable environment for them, an environment that can create development environment for child's physical and mental empowerment for them, as well as creating a suitable mental environment for mothers and educating the them about how to treat children with a comprehensive and effective community.

Strategies for the characteristics of the children's and mothers' environment are presented according to their needs. The information has been evaluated through field surveys in children and mothers' spaces. The following table shows these solutions (Table 1).

**Table 1.** Implemented design features to create optimal environments for children (reference: authors)

Availability and Order	Detecting the unobtrusive angles of the environment, from defined ranges
Exciting and appealing	A balanced limit of complexity, novelty, diversity and excitement in different spaces
Competency and Responsiveness	The development and recognition of children is possible in an environment that is responsive to their needs.
comfort and safety	Sound pollution, air pollutants, lack of physical and psychological realities, and sense of congestion prevent good interaction in the child's active and safe conditions with the environment.
naturalism and observation	Encouraging the child to play a rich, complex and wide and creating range of opportunities to learn in nature by understanding the interior spaces.
participation and playability	To meet the needs of child development in all areas of physical, cognitive, social and emotional growth
The psychological effects of form in children's spaces	Physical forms in the peripheral environment of man influence his learning and his senses; therefore, it is possible to express certain information and concepts through a certain form.
Psychological effects of light in children's spaces	Light is the first condition for any visual perception. Light is not only a physical necessity, but its psychological value is one of the most important factors in human life in all fields.
Psychological Impact of Scale in Children's Spaces	The human scale is the right fit between the size and quality of spaces and perceptual capabilities and the physiological characteristics of man. Paying attention to the scale of the child creates children's comprehensible spaces and creates a sense of security and attachment to the environment.
Psychological effects of sound in children's spaces	Sense of hearing defines experience and understanding of space. Space is as much understood and felt by visual forms, can greatly increase the senses of people from space to their level of experience in space.

## 5. CONCLUSION

Childhood is a time of decisiveness. Education during this period, is important for children to spend their most time in educational environments. The design of special environments for children based on psychological characteristics has been instrumental in meeting their psychological needs (Varni and Katz, 2001; Joseph 2006; Hampshire Kate et al., 2011). The design of urban spaces suitable for the development of maternal and child health is one of the objectives of sustainable urban design, which has been expanded in recent treatises, especially in developed countries, and provides guidelines and design standards for the comfort, health and safety of mother and child from the results of such approach. The purpose of this article was to creating a guideline in designing architectural spaces for mothers and their child's, through designing and improving the quality of urban spaces and residential buildings, to promote the general health of citizens. Designing safe spaces for mothers and providing mothers with mental health and nursing will provide them with an opportunity to participate in urban sprawl. Also, the mother-child's accompaniment can teach child's life skills (Gascon et al. 2015; Gascon et al 2016; Xiaoqi and Astell-Burt, 2017). From previous studies and based on the present research, there are some points that can be useful in the design of special environments for children. In the design of the architecture, the recreational sports training center for children and mothers has been used in the design, including the integration and continuity of internal and external spaces, the creation of interactions between mothers and children, and landscape design elements, improving the quality of space to create calm and mental health, the use of designs and colors related to the child's architecture, the proper lighting of the whole set, the creation of natural and green prospects for the promotion of mental health, the creation of separate and common spaces for the activities of mothers and children, the use of integrated level and flat in spaces to enhance the safety of children, the possibility of removing partition segments for diversity in the arrangement of spaces, the use of furniture and elements of a different dimension for children to understand and relation to space (Tranter and Whitelegg, 1994; Moore, 2000; Thomas, 2006; Holt Nicholas et al., 2009).

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