

Strategies to Design Dental Clinic for Children with Mental Health Promotion Approach in the Treatment Process

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Abstract

Dental Clinic is one of the places that severely affect children's mental states. Poor design of such environments, regardless of the needs of children, has aggravated fear and anxiety in them and ignoring this issue will have negative effects. The fundamental problem that exists today is ignoring and neglecting children. Because children are at an age that are not able to participate in the public sphere independently, so they are ignored. Parents, irrespective of them, take their children to clinics for treatment which are not designed for them. Fear of dental clinic causes behavioral problems such as aggressiveness in children and a lack of proper control will endanger children's health. The purpose of this research is to design and evaluate environmental factors effective in reducing fear and anxiety in children and providing strategies to promote their mental health. To achieve these objectives, data are collected through field and desk as well as documentation method and some specific solutions are provided for designing children's dental clinic which creates a pleasant environment with flexible spaces adapted to their age group in the treatment process. The results of this study suggest that attractiveness of natural environment, environmental graphics, play spaces, color and light can have a direct impact on improving the treatment process.

Keywords: dental clinic, needs of children, game psychology, architecture and mental health, environmental graphics

1. Introduction

As human creates his environment is affected by its psychological impact. This inevitable fact has long been raised an important discussion called "mutual influence of man and the environment". (Sami Azar, 1996) Topf notes that the health in health centers can dramatically be defined through the harmony between man and his environment and it is called promoting "human - environment adaptation". (Topf, 2000) Since mental health is related to human emotions, thoughts and behavior and in fact provides the development of intellectual and communicational skills results in emotional growth, flexibility and self-esteem in a person. (Mehrmad, Ashrafi Sultan Ahmadi, & Azizi Nejad, 2011) Stress occurs when an imbalance exists between human needs and the environment. (Evans & Cohen, 1987) Environment may add to this stress with chaos, noise, lack of privacy, lack of lighting, especially when is combined with poor interior color. (Winkel, 1986)

People have physical, social and psychological needs that provides their satisfaction with life. (Ozer, 2009) Research on human needs was first started by McDougall in 1908 and continued by Freud, Murray and Hall, and finally common and operational in psychology by Maslow. (Turkdogan, 2010) In the last century, different views have been developed and evolved about the basic human needs. (Zahedi, Besharat, Pourbohlool, & Lrajianib, 2011) One of the courses which is very important and often neglected is childhood, not knowing that many of our behavioral traits are influenced by the experiences of the first years of our lives and in this period, environment has the most important and crucial role. (Pakzad & Bozorg, 2012)

Living space consists of the person and the environment perceived by the person. So, a position person lives in is his "living space". (Sotoudeh, 2013) According to the founder of the field theory, Kurt Lewin, human behavior is a function of the person and environment which is shown as formula $B = F(P, E)$. (Sotoudeh, 2013) The main idea of the cognitive approach (Gestalt) to social psychology is that the person's behavior depends on his understanding of social situations. (Mann, 1986)

2. Game and Its Impact on the Mental Health of Children

Game as an accepted part of a child's life is of particular importance, which role is often less considered. People often look at game as a waste of time and this attitude especially in the case of children who are studying, are clearly visible. (Pakzad & Bozorg, 2012)

Children's games teach them mapping, exploration, construction, imitation and imagination, when children feel depressed and stressed, the need is necessary. Game makes children comfortable and confident in unfamiliar and daunting positions. Game helps children to know themselves by learning environment strategies. Multi-faceted nature of the game is related to "drugless treatment". The game is not just for passing time or refreshment, the effectiveness of game in hospital along with therapy by distracting children has been discovered using studies in behavioral science. (Talebi & Pashaii Kamali, 2015)



Figure 1: Game, the basic needs of children

Source: www.Designrulz.Com

Game fosters talents, abilities, capabilities of children and strengthens their mind, body and soul. Mitscherlich believe that children and adolescents need to have a relationship and playing with animals and natural elements such as water, soil, plants and play spaces. (Mitscherlich, 1969)



Figure 1: Games, Needless Fundamental Children

Source: www.Designrulz.Com

Many psychologists consider the game as child's school because the game is child labor and is effective in all aspects of development. Healthy game can greatly reduce the negative emotions such as fear, anxiety, hatred and depression. Ericsson believes that game is an attempt to coordinate the physical and social processes with themselves. Play is in fact the child effort to cope with the environment, through which he finds himself and understands the world. (Pakzad & Bozorg, 2012)

3. Environmental Graphic

Due to the broad extent of environmental graphic design, if you want to present a fairly comprehensive definition, we can say that a set of visual elements used in the environment or excluded from it, to provide a favorable environment to affect the audience and create a behavior we are looking for in him. The definition has mentioned some cases:

- A. Effective visual factors
- B. The elimination of waste visual factors to intensify the desired visual factors
- C. Environment and the proportion visual factors should have with environment.
- D. Effectiveness, so that it affects the psyche of the audience and the effectiveness is appeared in his behavioral pattern. (Iloukhani, 2009)

Using bright and beautiful colors and forms, the art in a happy and lively environment for children, can take charge of decoration and beautification. Irregular and without harmony attendance of aesthetic values of image has caused many visual disturbances and has severely impaired the psychological security of children. (Mehrnegar & Monazzah, 2012)

The role of space and environmental graphic design cannot be ignored in the interest of children to different environments. The art with the appropriate use of forms, volumes and colors in environments involving children has a different role. Environmental graphic of child actually stimulate children's creativity and raises his curiosity. Children need an exciting environment to be motivated to provide the best in them. Children like large spaces for bouncy activities and small spaces to retreat. (Asadollahi, 2010)



Figure 2: Environmental Graphic

Source: www.designboom.com

In environmental graphic design for children, there should be a coordination between elements and total space, elements are designed proper to the environment and have color and form coordination. Lack of coordination causes confusion in the environment. Child is not able to focus on several features at the same time, therefore, is not able to understand the complexity can cannot think of whole and component simultaneously. He thinks about part of the whole or a component at every single time. As a result, the use of complex elements as dominant is unnecessary and simple relations can be used in combining whole and component. (Satari & Eqbali, 2014) In environmental graphic design for child, the growth characteristics of children should be considered. Space design in accordance with the conditions of children clearly depends on adequate knowledge of the characteristics of their growth. Physical and psychological characteristics of children in various stages of growth, is the basis for space planning and designing for them. All environmental graphic elements - furniture, benches, etc. - must be commensurate with the scale of child and built in scales fit to him including stands, so that children have a sense of attachment to space (i.e. the space is owned by him). (Satari & Eqbali, 2014)

4. Nature Impact on Mental Health

All arts that are major factors in the creation of vision are called visual arts. The presence or absence of visual communications led to a sense of joy and complacency or indifference and unpleasant. (Nami, 1992) So it can

be proved that visual communication leads to understanding and beauty of the plant. Therefore, visual elements involved in creating these feelings can be also examined in the plants and studying visual communications and aesthetic principles in plants is one of the keys to success in creating valuable green spaces. (Mallak, 2000)

Place sensory perception is greatly visual and on the other hand, the plant as a physical living organism has characteristics that with the use of visual communication, its beauty and fitness to space and use can be understood. (Booth, 1983)

Human interaction with nature and green areas had different types of mental, physical and social benefits, as well as reduced stress and faster improvement of disease for human societies and gave them a chance to improve the quality of urban life. In fact, researchers have shown that relationship with nature outside the home, workplace and any other place affects the morale and creates a good feeling in people. (Frumkin, Frank, & Jackson, 2004)

Hartig et al., considered that the positive effects of green spaces on mental health are countless and have proved that in health centers leads to happiness and less using tranquilizer, resulting in faster recovery and discharging from medical centers. (Hartig, Evans, Jamner, Davis, & Garling, 2003)

Franz et al., in their study concluded that postoperative patients who are placed in a room with windows facing the environment and green spaces better tolerate and their recovery period is shorter and much faster. (Franz, Smith, & Suresh, 2005)

Pretty et al., in their study, placed four groups of people in urban and rural environment in the favorable and unfavorable prospects and examined the effects of exercises on their physical and mental conditions. Rural and urban environments with good prospects have positive and significant effects on blood pressure, self-esteem and mental health. (Pretty, Peacock, Seliens, Griffin, & Murray, 2005)



Figure 3: View to the green area from the window
Source: www.archdaily.com

Velarde et al., in the study of green space in people's lives concluded that natural landscapes have more positive impact on the human than urban green space. Green space also leads to mental fatigue treatment in a short time and fast treatment of physical ailments and generally lead to improved human health in the long term. (Velarde, Fry, & Tveit, 2007)

5. Effect of Color on Mental Health

Some considered color as the optical property of form. In fact, element of form makes sense through color. Color in interior design affects human emotions and emphasizes on form, while causing a sense of scale. The use of color is different from one interior space to another. In using color, considering the psychological characteristics of individuals is necessary. (Cheshmeh Sohrabi, Rahim Salmani, Rahim Salmani, (n.d.)

Color is very effective in expressing one place. Color is very important in terms of diversity and harmony.

The colors have a perceptual weight. Although we know that color normally don't affect the physical weight of an object, but body with white, yellow, green or light blue appears to be lighter than the same object in orange, dark blue or dark purple. Black as the darkest color in this case is an exception: it resembles the emptiness. (Greuther, 2011) We imagine that the warm colors are closer to us, as if it tightens the space. Using these psychological effects, we can change the space perceptual features. For example, if in a long space, we paint the front wall orange, and the lateral walls blue,

the space seems to be shorter and wider. Orange shows the front wall closer to us and the blue walls seem farther than they look. (Greuther, 2011)

Color psychology is a very important topic through which, one can achieve the identity of an individual, community and city that is associated with processes like color selection, commentary, analysis and psychological effects of colors. (Luscher & Abizadeh, 1989) Observation and visual interactions causes chemical reactions in the eyes that along with them, some processes occur in the psychological realm. Such reactions that occur after seeing color affect the inner part and the psychological areas. (Itten & Halimi, 2011) Color helps to reduce eye fatigue and irritation. Colors create a variety of contrasts at different times of the day and every hour brought new highlights and make the space varied and lively. Lack of variety and vitality, prevent presence in spaces and their participation in civic life unwanted. With this in mind, diversification and creating happiness in the appropriate space is easily possible. Most notable are commercial streets and open areas for children in which color variation to create happy space has become an obvious matter. (Jahanshah, 2006) Colors in the architecture are different from the painting, and its first reason is that the color in architecture is three-dimensional. In addition, color in architecture faces changes in the sunlight, and most importantly, the issues relating to the life of materials used and their properties and resistance against light, weather, humidity etc. are involved in this issue. For example, as time goes, wood converts to gray and brown. (Poly, 2002) Alberti has a different approach to color. In his book, he deals with the effects of colors in therapy. His approach to the issue of color is more abstract and philosophical, and in addition to color classification, it refers to their emotional value. (Caivano, Juanl, & Javier Hernandez, 2005)



Figure 4: Effect of color on environment

Source: www.Designist.ro

Sadr in the book of architecture, color and human, know that the combination of white for space and green for ceiling causes light-heartedness and dissipating sorrow. (Sayyed Sadr, 2001) Orientation of a room or space has great impact on the quality of light and people's perception of environment color. Each space has its own distinctive shape and proportions and therefore it requires the colors fitting that space. Ignoring the relationship between colors set from one room to another, can create a feeling of disjuncting in the whole space. Taking the combination of colors as the transition from a unit and homogeneous combination creates an environment with a sense of calm. (Poly, 2001)

6. Effect of light on mental health

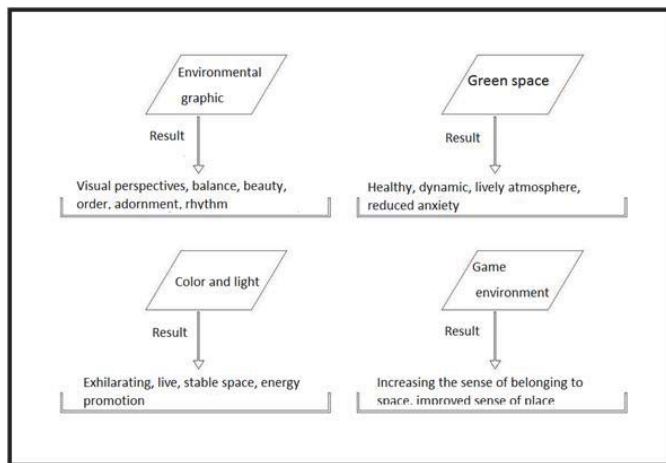
Light is the most non-tangible element of nature, and exists always in Iranian architecture. In fact, it is a sign of the sublime world and spiritual space. (Von Mais, 2006) Light is the first condition for any kind of visual perception. In the absolute darkness, we can neither see space nor form and color. But light is not only a physical necessity. But its psychological value is one of the most important factors for human life in all areas. (Greuther, 2011) Of course, the complex effects of daylight on the human from various aspects are not yet fully understood, but now we can benefit from recent findings in the field of research. "Architects and designers can help to increase the efficiency and mental and physical health of the inhabitants of buildings with precise and detailed design of windows." (Bell, Greene, & et al., 1996)



Figure 5: Benefiting from natural daylight
Source: www.designrulz.com

Daylight lighting is a process beyond creating a right condition for seeing objects. "This process has special emotional qualities that can apparently affect the moods of the public. In this process, its perceptual aspect is more important than other aspects." (DiLouie & Craig, 2002) In environments for children, lighting with severe contrast should be avoided because it causes fatigue in children. The more the use of natural and milder light, it is better. In addition, natural light makes the color elements in the environment be seen in their true colors. (Sattaari & Egbali, 2014)

The research results are presented in the form of some tips in the following graph:



Source: Author

7. Conclusion

It is clear that some environmental stimuli attract children's attention more, and many factors are involved in it. Five factors were examined in the field of visual attention. Green spaces, play areas, environmental graphics, light and color are important factors in the design of children's environment and the message of this effect which includes mental health, is very important. The results show that the five factors are effective in attracting children's attention and affect their mental processes. With exposure to the environmental stimuli that are interesting for them, children begin to communicate with their surroundings. So, we are going to use these models properly and add the type and extent of control over the situation he is placed in it, and change the unfamiliar environment of dental clinic to a familiar surroundings in accordance with his mental events. By placing attractive stimuli in the environment, child mind begins to recognize and by understanding them, his sensory system begins to feel and crosses his mental capacity constraints and

thus, peace of mind will be replaced with the anxiety and aggression. Spaces play an important role in creating a sense of calm and peace of mind, and ultimately they bring mental health for human. To maintain children identity and promoting a sense of belonging in them, we- designers - can use these factors and help improving mental health. For this purpose, it is necessary to properly recognize the very sensitive and important age class, and design for them. It is hoped that the terrific concepts and meanings of dental clinics in children mind are forgotten and a perceivable mental environment occur for them.

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