

Investigating the role of form and color components in promoting children's sensory perception in the kindergarten educational spaces

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Abstract

Background and Objective: One of the effective educational factors in modern education is the architectural style of educational spaces. In such a way that in designing an architectural space, architectural principles are considered in relation to the use of that place. In this regard, the appropriate use of some visual elements, including form and color, is important. Therefore, the present study was conducted with the aim of investigating the role of form and color components in promoting children's sensory perception in the kindergarten educational environment.

Methodology: This research is applied in terms of purpose and descriptive-analytical in terms of methodology. The data collection of the present research is based on library and survey methods. The statistical population of the research is 100 kindergarten teachers and 30 school children in Ardabil city, who were selected by simple random selection. SPSS software was used to analyze the data.

Findings and Conclusion: The results of the study showed that children are very interested in colors and that colors remain in their minds well and can affect the mental states of individuals and children. Therefore, colors can act as a dependent variable in the design of the kindergarten environment in improving the psychological performance of the space and forms as a dependent variable in improving the physical performance of the space have significant effects in helping to increase the child's sensory perception and recognition of the environment. The architecture of the kindergarten space should be such that it provides a calm and joyful space for the growth and increase of children's creativity and increases the motivation for innovation and the implementation of their imaginations. The results of the study indicate that recognizing the individual characteristics of children and various factors such as color, form and different spaces have a significant effect on creating creativity and strengthening children's intelligence.

Keywords: Form, color, children's sensory perception, kindergarten.

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Extended Abstract

Introduction:

The educational space must first be physically desirable. Spaces with desirable physical quality refer to spaces that have been designed to meet the standards of indicators such as healthy air, appropriate temperature, color, light, sound, appropriate view and landscape, energy efficiency, access, and communications. Learning environments will consist of elements that become meaningful together. The characteristics and qualities of each of these elements are effective in shaping different behaviors. Education and, consequently, educational environments have the greatest impact and role on the mentality and civilization of societies. The need to improve the body is to create spaces related to activity; spaces that have suitable and desirable conditions for physical, mental, emotional, and social growth. This is possible through the design of the details of spaces according to behavioral patterns. Architecture is an art that encompasses us, and humans are affected by it more than they affect the space. The architecture or physical space of the school also plays a role as a living and dynamic factor in the quality of students' educational and training activities. From a systemic perspective, the architecture of schools and its constituent principles and elements such as form, proportion and scale, type of spatial organization, color, light, sound, equipment and open space of the premises can have significant effects on students. A beautiful school makes learning easier and brings joy and happiness to children and adolescents, and an inappropriate, cramped, dark, dry and lifeless school brings boredom and depression to students and negatively affects the amount of learning in their active and lively presence in school. Therefore, this research was conducted with the aim of investigating the role of form and color components in promoting children's sensory perception in the kindergarten educational environment.

Methodology:

The present study is developmental-applied in terms of purpose and descriptive-analytical in terms of method. The data collection of the present study consists of two parts. In the first stage, books, articles, websites, libraries, theses, and other information sources were mainly used to review the subject literature of the study. Then, in order to collect information about the effectiveness of both variables, two questionnaires were distributed, one for children and the other for teachers, and analyzed using SPSS software. It should be noted that the statistical population of the study is 100 kindergarten teachers and 30 children in Ardabil city, who were selected by simple random selection. In the first step of the present study, the questionnaires that were provided to kindergarten teachers were examined. This questionnaire was compiled according to the results in Table 2 and Figure 1. The unlimited Cochran formula was used to determine the number of participants in the study.

$$n = \frac{Nz^2 pq}{Nd^2 + z^2 pq}$$

Determining the sample size with Cochran's formula

N= Population size

p=q=0.5

Z-statistic related to the standard normal distribution, its value is equal to 1.96

d: Permissible error value (error value)

According to the formula and placement in which it was made, a sample equal to 96 was obtained with a coefficient (d=0.05). According to the predictions made in the field of unacceptable questionnaires, a total of 110 questionnaires were distributed, of which 100 questionnaires were returned as acceptable. Based on the calculations made, a minimum sample size of 100 is justified according to the formula.

Results and Discussion:

According to what was obtained from the analysis of the questionnaires in this study, it can be stated that there is a significant overlap between the opinions of educators and children. The desired color in their eyes is green. The desired form in the eyes of children is soft and circular forms. The favorite texture of children is fabric and wood. They show a great interest in playing in open environments. No one can deny the effects of colors in education. Because all colors act the same in all situations, especially when the human mind focuses and brain cells begin to record and store new data. Therefore, considering the above statement, one should be aware of the importance of colors in all stages of education and, with this awareness, try and be careful to use each color in its place so that its positive effects can be seen over time. Coloring schools and using writing instruments that have the right color is a sensitive and precise matter. First of all, it is better for the administrators of schools and colleges to act according to the interests and spiritual and intellectual needs of children and adolescents who are studying, instead of acting on personal preferences that are appropriate to their age and way of thinking, which in many cases cannot be avoided. Because, for example, a person who is forty years old, his way of thinking, desires, various spiritual dimensions, etc. are different from a student who is thirteen or fourteen years old. So it is a bit surprising that these differences are ignored and the consequences of this inadvertent neglect are visible in various educational and upbringing dimensions. Now that this issue has been clarified, we must first note that the school and college environment needs to be attractive through appropriate colors that are appropriate to the students' moods, for example, the classroom blackboard should be green. As is the case in most schools, in this way the student feels like studying and paying attention. By reading the white words on it, he can achieve a kind of intellectual growth and development and not feel tired and bored over time. Of course, it is necessary to mention that education officials and parents of students should pay close attention to the pen and color used for writing. According to various experiments conducted on students, it has been proven that since dark colors appear better on a white surface and reduce eye fatigue due to ease of reading and being visible, the pen used on bright and white surfaces should be dark and blurry rather than blue, red, and green, which increase eye fatigue due to poor light reflection. It would be good to surround the green board with another color such as white, so that the student can focus more on the board and avoid dealing with issues and events on the margins of the classroom. Since a child needs physical and intellectual growth and development throughout his life, and one of the factors involved in this is the effect of colors on him, it is good to use warm and cheerful colors as much as possible throughout the school.

Conclusion:

Although design in specific areas of architecture, including educational spaces, is more regulated than other spaces in architecture, the sensitivity of the subject and the effective effects in future societies make us take a careful and meticulous look at each and every small issue in this area. Considering that kindergarten is a child's second home and the child should feel safe and calm in it. The architecture of the kindergarten space should be such that it provides a calm and joyful space for the growth and increase of children's creativity and increases the motivation to innovate and implement their imaginations. In order to grow, a child first needs to perceive the surrounding environment, therefore an environment suitable for the child's growth is one that has the necessary stimuli and motivations and is in line with his cognitive and perceptual abilities. Every corner of this place should create a new experience for the child and create a special feeling in the child's mind. Paying attention to the architecture of kindergartens is of particular importance, and in order to have a healthy society in the future, we need to provide solutions that can provide the basis for better growth of children. Also, given the increasing concerns of today's families and the decrease in family connections, the

existence of such spaces for children to spend their free time is necessary, and the presence of children in these spaces allows them to better understand their needs and gradually establish a stronger connection with their surroundings. Therefore, in the present study, an attempt has been made to further improve the quality of kindergarten educational spaces by examining the effective components in children's sensory perception. This study examined two important elements: form and color. The findings of this study indicate that the correct and principled use of colors in different parts of kindergarten is an important factor in increasing children's creativity and improving children's psychological aspects and learning. Each color has an emotional and sentimental content, and people's interest and attitude towards colors changes throughout their lives. The results of the research also indicate that recognizing the individual characteristics of children and various factors such as color, form, and different spaces have a significant impact on creating creativity and enhancing children's intelligence, especially at an early age. Also, considering the progress of science and technology, it is possible to create diverse spaces by combining architecture and color psychology to meet children's needs, improve social relations, and create an efficient environment for the development of creativity in them. The prerequisite for this work is to use architectural science in children's education spaces in the best way and according to the needs of children, the scale of the child, and the effect of different colors on their creativity and intelligence. Color architecture together and by considering the characteristics of children can create spaces that are very effective in the mental issues of children's development. Fully recognizing the needs of children is one of the most important components in the design of these spaces. In addition to color, the form of the environment also has a great impact on children's perception. An environment that is clear and legible for a child creates a sense of security and mental peace in him and prepares the ground for other stages of his development. Spaces with bright, cheerful colors and vague forms inspire a sense of imagination and imaginative themes in the child and increase his creativity. Creating efficient educational environments is one of the achievements of architecture and other related sciences. Environments that must be considered in many aspects of their design in order to ultimately achieve the required peace. Therefore, it is vital for teachers and educational institutions to benefit from these achievements as much as possible and provide a more efficient environment.

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