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The Effect of Orientation by Light and Color on the Visual Memory of Autistic Patients

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Abstract:

The design of the interior environment contributes to improving sensory perception and developing the skills of people with autism to better adapt to the environment. People with autism often find it difficult to perceive their environment and adapt to it, and often face problems and disorders in movement and orientation from one place to another, leading to tantrums and anger that reach the point of self-harm and those around them; therefore, ease of movement and navigation is of utmost importance. The research question revolves around the following two questions: How to employ directional cues to help people with autism stimulate visual memory, and what is the effect of light and color guidance in the interior space on the visual memory of people with autism? From this perspective, the research aims to integrate directional cues with interior design elements and consider them an integral part of interior navigation pathways, in addition to recognizing the importance of light and color in providing guidance and ease of perceiving and absorbing elements for people with autism through compatibility with other interior design elements such as walls, ceilings, and floors. The importance of the research lies in contributing to understanding the environments related to people with autism and stimulating their visual memory through the diversity of visual and sensory events in pathways, thus helping this group to adapt to their environment and learn more effectively. Some guidance mechanisms related to light and color, movement organization have been discovered for individuals with autism spectrum disorders (ASD), which contribute to stimulating their visual communication in order to assist in their better integration into learning environments or care and rehabilitation centers and to achieve maximum independence, safety, and full integration into society without fear or anxiety. Interior design plays an important role in controlling the indoor environment of buildings and facilities, as it affects the behaviour, productivity, and mood of their inhabitants. Through proper interior design of the environment for children with autism, we can control their behavior, productivity, learning, and acquisition of skills and experiences. It also ensures the provision of safety and security aspects in the space where the child lives. The process of designing interior environments for children with autism depends first on studying the child's behaviors and the spatial elements that affect them. Based on this, spaces are treated and elements that stimulate positive behaviors are used to help individuals with autism understand their place in the environment and find their way better through spatial designs that are sensitive to their needs. This depends on the creativity of the designer in finding solutions and employing various means and technologies to overcome some of the problems experienced by some children with autism, such as difficulty in visual communication, weakness in visual memory for complex and disorganized objects, and places devoid of stimulating elements, which in turn affect their movement and transition within internal spaces. The use of directional signs is considered one of the main factors in facilitating and organizing movement within a space. It contributes to the ease of perceiving and comprehending the elements of the space in accordance with human activity. Directional signs go beyond their complementary role among design elements to become one of the fundamental components for achieving functional design goals, as they are one of the visual influences within the space (Nouri, 2020). However, researchers have observed that individuals with autism face difficulty in daily navigation and finding their way, and do not perceive traditional means of direction properly (Smith, 2015). Additionally, the need for more than one method of communication or direction when designing the same path or space is a challenge specific to this group. The ideal space for one person may not be ideal for another, and their needs vary greatly from person to person. Therefore, it is necessary to integrate multiple mechanisms for direction and employ internal design elements such as light and color in a guidance system. These elements play an important role in stimulating imagination and emotional responses in individuals with autism. They also contribute strongly to forming memories and emotional connections with spaces and places, creating a supportive environment (both functionally and aesthetically) that does not cause fear or anxiety while facilitating movement without relying on others.

Problem Statement of the Research: What is the effect of light and color guidance on the internal space on the visual memory of individuals with autism? How to employ guidance signs to assist individuals with autism in stimulating their visual memory.

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Objectives of the Research:
The study aims to achieve several objectives, including: Integrating guidance signs with interior design elements and considering them an integral part of interior design. Recognizing the importance of light and color in creating guidance and facilitating perception of space and its elements for individuals with autism. Developing considerations and guidelines related to the mechanism of light and color guidance, organizing movement for individuals with autism, and contributing to stimulating their visual communication.

Significance Research: This study derives its importance from the necessity of paying attention to designing interior environments for individuals with autism, as they are part of society. The research highlights the importance of light and color in providing guidance and ease of finding a path for individuals with autism. The study contributes to understanding environments related to autism and stimulating visual memory through the use of interior design elements as a mechanism for guidance and direction, in order to increase productivity and learning for this creative group.

Research hypotheses:
The research assumes that employing interior design elements in the guidance and direction system for individuals with autism contributes to ease of movement and finding a path more easily, and stimulates visual communication for individuals with autism.

Research methodology:
The research follows a descriptive analytical methodology by describing and analyzing signs and symbols as an input for visual communication for individuals with autism, and employing interior design elements in the guidance and direction system for individuals with autism, in order to arrive at some considerations and guidelines related to the mechanism of guidance through light and color and organizing movement for individuals with autism, which contribute to stimulating their visual communication.

Research delimitations:
Spatial boundaries: rehabilitation centers for individuals with autism, schools, and educational centers.

Results: A good understanding of the nature of individuals with autism contributes to creating transitional spaces that stimulate their visual communication, increase their productivity, improve their behavior, and enable them to enhance their skills by interacting more effectively with their surrounding environment. Guidance and direction using light and color can strongly contribute to forming emotional memories and connections with spaces and places, creating a supportive (functional and aesthetic) environment that stimulates their visual memory. Employing interior design elements and integrating them into the guidance and direction system for individuals with autism enhances ease of movement and finding pathways more easily, and reinforces their visual memory. Several considerations and guidelines have been developed regarding the mechanism of guidance and direction using light and color, and organizing movement for individuals with autism, which contribute to stimulating their visual communication, enabling them to improve their skills and acquire self-reliance.

Recommendations: Attention should be given to designing transitional spaces such as corridors, as well as interior spaces such as therapy rooms and classrooms, as they play an important role in facilitating movement, reducing stress, and stimulating visual memory for individuals with autism, resulting in a faster response to treatment. It is necessary to adopt the concept of integrating way finding elements with interior design elements such as walls, ceilings, floors, and furniture to create welcoming environments and ensure smooth transitions from one place to another. Wayfinding design should be included in the initial stages and plans of project design, and attempts should be made to integrate it with interior design elements instead of just placing small wayfinding signs next to doors; enhancing the aesthetic and functional value of the space. It is necessary to adopt a color code specifically for individuals with autism in the Egyptian building code, as well as design and implementation regulations for facilities catering to individuals with autism, due to their extreme sensitivity to colors and surrounding elements.

Keywords:

Color, Light, Interior Space, Visual Memory, Autistic.

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