

Theoretical Paradigm Adapted for School Design for Children with Autism Spectrum Disorder

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ABSTRACT:

There are many school design guidelines available to support 21st century educational demands. However, these guidelines offer little information about educational interventions for children with Autism Spectrum Disorder (ASD) because most of these children have abnormal reactions to sensory stimuli (Kaufman, 2014). Many researchers and architects believe that architectural interventions do influence educational outcomes of children with ASD and have suggested design guidelines for ASD school environments (Beaver, 2011; Mostafa, 2008; Scott, 2009). However, the relation between sensory stimuli and a wide range of sensory profiles of ASD in an educational setting is unclear.

This research proposes a theoretical framework that describes the relation between environmental stimuli and autistic sensory profiles that support clinical intervention. The framework is based on an atmospherics theory Ahn (2016) proposed that describes the theoretical relation between store stimuli and the emotional responses that induce consumer behaviors. Ahn's theory integrates three environmental theories, the SOR Paradigm (Donovan and Rossiter, 1982), Aesthetic Theory (Berlyne, 1971) and Preference Theory (Kaplan and Kaplan, 1982). Ahn's theory can be adapted for this study because it offers architects/designers a useful tool for design developments by enabling them to understand the relations in the environmental stimuli-human experience holistically.

The framework proposed suggests that the twin concepts of "comfort" and "arousal" can be used to determine/measure the perceived environmental quality of a school environment. Comfort is a physiologically and/or mentally amenable condition that supports the activities intended. Arousal is the feeling that subjects experience and the degree to which they are aware of environmental stimuli. The framework addresses hyper- and hypo-sensory conditions of children with ASD and explains the way a designer/architect can achieve appropriate comfort and arousal levels to support an artistic child's individual needs, and therefore, optimize architectural conditions of a classroom to support clinical interventions. A case study of the framework's implications in four existing classroom environments will be used to explain the way this framework can be used in design analysis to determine the way classrooms function to meet the individual needs of children with ASD.

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Kyuhoo Ahn is an associate professor of interior architecture at University of Oregon. He is LEED-accredited and certified by the National Council for Interior Design Qualification and has significant professional design experience in space planning, design and project management, which includes supervising design and installation of more than 500 franchised retail stores in Korea and China, a free standing museum, and several trade shows. His primary research is in developing a design assessment and application model describing human behavior within a built-in environment. He studies how built-in environments influence human experiences and how these relationships inform design decisions. He is particularly interested in investigating universal design issues of architectural environments from a diversity point of view. He tries to identify design issues that promote independency of both abled and disabled individuals.

LEARNING OBJECTIVES:

1. To understand architectural interventions' effects on sensory issues of children with ASD.
2. To understand autistic sensory conditions (hyper vs. hypo) in relation to architectural stimuli.
3. To develop a theoretical paradigm that describes the relation between the environment and autistic behavior that can be useful in design.