

# A Study of a Neuro-Architectural Approach to Create Salutogenic Environments for Children Diagnosed with Autism

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# 1. ABSTRACT

## 1.1 BACKGROUND

The rationale for neuro-architecture acknowledges the latest developments in neuroscience and their potential architectural applications. Creating suitable environmental conditions architects may design stimulating places, which provide the sensory experiences that produce optimal brain responses as evidenced by improved memory and strengthened cognitive functioning.

## **1.2 R**ESEARCH QUESTIONS:

What are the environmental stimuli that produce optimal brain responses to improve the quality of life of children diagnosed with autism? How can stimuli be established to aid the design of learning environments for these children?

## 1.3 METHODOLOGY

The first of three studies identifies and structures knowledge from published studies on neuroscience/ neuro-architecture. For example, neuroscience shows that the constant noise, harsh lighting of healthcare environments can interfere with the early development of a baby's visual/auditory systems. The critical literature review and comparative analysis are conducted to discover primary research, which indicates the impact of the neuro-architectural interventions on outcomes. The first study identifies architectural stimuli that support health/wellbeing as opposed to those that cause disease. Using recently purpose-built schools (Lahore Oasis School for Autism and Jeddah Autism Centre), the second study conducts an empirical investigation of the key architectural factors. The third study develops a framework to help designers evaluate the extent to which learning environments meet needs of autistic children.

#### 1.4 FINDINGS

The research identifies variables, which represent the different types of environmental stressors that inhibit learning or affect cognitive functioning in children diagnosed with autism.

# 1.5 CONCLUSIONS

The research develops a framework for helping designers to create and maintain sustainable learning environments with improved outcomes for these children. Specifically, the neuroscience-informed "salutogenic" model emphasises the interrelationship between health, stress and coping.

# 1.6 Keywords

Neuroscience, neuro-architecture, autism, environmental stimuli, cognitive functioning

# 2. AUTHOR BIOS

**Ayesha Ghazanfar** has a bachelor's in arts from the National College of Arts (1999), in Lahore, Pakistan, and a professional diploma in interior design (2005), from International Academy of Design and Technology, in Toronto, Canada. Having worked on several healthcare projects in Pakistan and Canada, she is currently perusing her PhD studies at Sheffield University, in England, and also teaching at Daral Hekma University in Jeddah, Saudi Arabia.

At Sheffield University, her studies are being conducted with the Healing Architecture Research Group, directed by Dr. Michael Phiri. The title of her thesis is "A study of neuro-architectural approach to architectural design, and creation of sensory-rich salutogenic environments for neurologically dysfunctional children diagnosed with autism."

Ayesha was the recipient of honors award for outstanding interdisciplinary research & concept design at the National College of Arts, for her final project "Therapeutic Learning Environment for Autistic Children." In Canada, she received the Health Care Design award from ARIDO (Association of Registered Interior Designers of Ontario) in 2005, and was also chosen for the Academy's President Honor award. In April of 2009, the American Association of University Women (AAUW) awarded her a doctoral fellowship.

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