



TITLE: How NeuroArchitecture-Oriented Environmental Design Can Help Prevent Neurological Diseases in Primary Schools' Students (a Case Study of Daneshgah Primary School in Shiraz City)

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ABSTRACT (upto 300 words)

Humans and environment impact each other through their constant and inevitable interaction. These environments are generally not neutral and they can be just as much a source of stress and discomfort as they can be of peace and tranquility. Accordingly, it is crucial that designers and urban planners collaborate with neuroscientists, psychologists, and sociologists to contribute to our understanding of people's interaction with their everyday built environment to better prevent users' mental diseases and improve their health and well-being. Given that, the current paper presents how a consortium of multidisciplinary scholars comprising architects, neuroscientists, and software engineers in the Shiraz University's TechLab developed a novel method, called Neurotechture,

to study the impacts of architectural/urban environmental cues on users' mental well-being, emotion, and behavior using neuro-architecture oriented approach and new technologic tools.

This presentation focuses on the TechLab's research in a sample school in Shiraz city in which in addition to interviews and classic surveys, Neurotechture method and Neuro-spatial gridding technique have been also applied. In these studies, 360° virtual videos of the school's spaces were streamed for survey students while wearing FOVE VR Eye-tracking, EMOTIV-EPOC-X EEG headset, and NeXus-4 Polygraph. As the result, the survey students' mental, perceptual, and physiological, conditions were simultaneously monitored and measured to provide information regarding their experience -before and after interventions- associated with different parts of the school. Ultimately, all layers of the obtained dataset were visualized, and correlated using Python programming and the results were interpreted by respective specialists.

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Our research reveals how applying Neurotechure method can help improve the schools into more supportive environments. High-performance and healthier Schools that by embracing the healthier design features can better reflect users' preferences, reduce users' stress and thus prevent many possible neurological syndromes within students.

BIOGRAPHY (upto 200 words)

Kaveh Fattahi is a designer with an academic background and experience in both architecture and urban design.

He got he's Post-Doctoral Fellowship in Architecture and his Ph.D. in Architectural and Structural Design from Hokkaido University, Japan.

He is Director and Founder of TECH-Lab in Shiraz University. At the moment his main research topic is Neuro-architecture, a novel method of studying restorative/destructive effects of environmental cues on users' mental well-being, perception/sensation and behavior using Neurotechnology-oriented approach.

Mahtab Seyedi is a masters graduate of architecture from Shiraz University and is part of a research team called Neurotechure, working on neuro-based architecture and related technologies such as VR eye tracking and EEG headsets. Neurotechure team is investigating different theories covering health and well-being in the built environment and how environmental factors such as lighting, greenery etc. can influence our perception of the environment and peoples' mental health.





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She is an enthusiastic researcher with a group-work spirit. She's also a writer and English language instructor.

