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Using Neuroscience to Investigate Architectural Design Abilities (The Little Architect's Adventure)

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Abstract

Neuroscience is opening exciting doors to the essence of the brain with the help of new technologies, demonstrating that the built environment plays an important role in the physical and emotional health of its users, broadening the opportunities for children to influence their learning and development processes. The purpose of this study was to provide architects with an exploration of the latent powers of architectural design through an authentic experiment to assess the effect different design decisions have on children's physiological and psychological states, and thus on their brain development.

Keywords: Architect; Neuroscience; Brain

Introduction

Indeed, neuroscientists can help architects understand scientifically what has previously been intuitive, thanks to new neuroscience discoveries that are bridging the gap between the physical built environment and human perception and behaviour. According to Pavia, it has been proven that the surrounding built environment can have a direct impact on how the unconscious mind works, and that a large portion of this impact goes unnoticed on a conscious level [4]. However, the two brain systems, conscious and unconscious, are jointly responsible for how we perceive our surroundings and, as a result, how we behave and react to them. Recent discoveries in the complexities of the brain and neural systems also highlight the innately multi-sensory nature of our architectural experiences. The goal of this interdisciplinary approach is to promote the development of environments that promote people's flourishing in terms of behaviour, health, and well-being. [1, 2, 3].

Methods

After refreshing their minds with brainstorming selections, interspersed by a fruitful discussion, the second component of the workshop requires working with children as one group to create dreamy ideas about their learning space using drawings, colours, and collage. This step's role is to encourage children to express their individual thoughts about the design of their spaces, from their own perspective and in accordance with their specific needs [4, 5].

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Meanwhile, virtual reality simulation is regarded as a very useful tool in neuroarchitecture because it allows users to experience multiple spaces at the same time without incurring large costs, allowing researchers to immediately study the effects of those different spaces on the users [9]. Simultaneously, to create the most realistic virtual experience possible and to bring its working concept closer to reality. It was made up of 16 different learning spaces from various projects, allowing us to track children's honest feedback about those design approaches in a simplified architectural language. This phase aided in opening the door for children to express their needs and preferences in their built environment, which occurred as the next step, in which they were asked to, explain by drawing their ideal space design. [8].

Discussion

To begin, in light of this research goal, a liveable experiment based on real-life practise was created in order to assess the credibility of the design principles and guidelines that were initially established in the field. Obviously, the initial planned setup of the experiment encountered numerous limitations and difficulties, including the complexity of the tools required and the difficulties encountered in dealing with children of such a young age [9].

Conclusion

The goal of this research project was to delve deep into the promising emerging field of "Neuroarchitecture" by investigating the architecture design capabilities in influencing individuals' behaviour and well-being. Among the numerous outputs produced during this research, the design impact guide was created in order to make a successful contribution to this promising field's long research path that is currently underway, specifically related to the specific building type design of young children's learning environments. Furthermore, because neuroarchitecture as an approach has stated that there is no recipe to follow when designing with respect to its essential guidelines; its hopeful research progress is expected to only produce organised guiding knowledge, which will be taken into account in the architectural design phases. That particular quandary has been the driving force behind the development of the validated design impact guide. The guide that combined some of the most important inductions from neuroscientific research findings related to architecture, as well as this specific research's application findings; in search of the most

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possible validation to the complicated correlation between architecture and its scientific impact on the well-being of individuals. [10].

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Potential Conflicts of Interest

No conflict or competing interests in the publication of this paper.

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