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**EMOTIONAL RESPONSE AMONG
ARCHITECTURE STUDENTS
TOWARD VIRTUAL
BIOPHILIC DESIGN STUDIO**

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ABSTRACT

Design studio as a learning environment plays an important role toward the architecture students' emotions. Students are often exposed to stress and pressure, which lead to exhaustion while completing their projects in the studio. The positive emotions among architecture students should not be neglected and must be a high priority in redefining the design studio as a learning space. Neuroscience studies can help relate emotions and learning, particularly in reducing stress and building up positive emotions among architecture students in their studios. The experiment is conducted to measure the emotional responses towards four different biophilic approaches of indoor wall facades treatment for the design studio using virtual reality as a displayed medium. There are three main instruments used to collect information consist of electroencephalography (EEG) device, heart rate (HR) and galvanic skin response (GSR). This research is based on the data obtained from the experiment results among architecture students from Politeknik Sultan Idris Shah (PSIS). Then, the result was analysed to determine their emotional responses toward the selected implementation of the biophilic design treatment approach. Analysis of one-way repeated measure MANOVA showed a statistically significant difference in emotional responses over biophilic treatment. The research suggested that the indoor physical surrounding of a learning environment impacts students' emotions, especially towards indoor plants as the direct experience of nature. In addition, this study uses neuropsychology devices as an alternative to self-report assessment.

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CHAPTER ONE

INTRODUCTION

1.1 Background of The Study

The education paradigm has recently shifted from teacher-centred to student-centred learning (H. K. Wilson & Cotgrave, 2020). It is critical for an educational institution to practically apply the idea of student-centred learning by prioritising students' interests first, recognising their preferences as imperative elements to the learning experience. The key issue is how to turn the previous typical classroom format into an exercise for students' activities. The classroom's physical layout, such as the arrangement of tables, teachers' position while teaching and the tools used to aid learning processes such as whiteboard and projectors, affect the layout for the learning experience. Without a doubt, there is a need to establish new criteria to define this learning environment.

Many tertiary institutions, especially for architectural education, have been practising active learning by applying the concept of student-centred learning (Talbert & Mor-Avi, 2019). The andragogy should be different from the traditional technique in which the students only learn to master the necessary skills. Some advice by practising architects that are the students should be taught to handle undiscovered situations of the future. Architecture students should be prepared with the intellectual curiosity to remain relevant in their professional practices. Polytechnic is one institution that offers the architecture programme for the diploma level. In line with the Ministry of Higher Education's requirements, the institutions must equip the programme with the facilities such as an architectural design studio, computer laboratory and other supporting rooms. The design studio is considered the most critical learning space for architecture students due to its core design subjects, where the students spend long hours finishing their design work (N. L. N. Ibrahim & Utaberta, 2012).

Part of architectural students' education is about the sense of space, significantly how the environment impacts the occupant of the building. In the long term, the students learning spaces, such as the design studio, play an essential role in developing their characters and conduct. Many researchers have identified that good architectural designs contribute to physiology and psychology's positive effects more than just for