UNIVERSITI TEKNOLOGI MARA

DESIGN OF LIGHTING MODULES FOR COGNITIVE IMPAIRMENT THERAPY MULTISENSORY ROOM

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ABSTRACT

This project is about the improvement of Multisensory Room which is about the design of sensory modules by improving the light sources circuit and also to design a sensory module that includes the lighting and vibration scenes. This project focuses mainly to improve the previous project which is a connected multisensory room design that offers interfacing, connectivity, and configuration to data storage for clinical data analytics. The multisensory room (MSR) is a therapy prescription for stimulating senses in stages involving patient and therapist interaction. Therapy sessions are known to take effect at a different rate depending on patient's condition and response, often across a long period of for it to be noticeable. This multisensory room has 2 modes that specially designed for 2 different conditions of the patient which is a passive and active patient. There has one sensory module in passive mode which is Fibre optic lighting. For the passive mode, the therapist will turn on the game for the patient in order to attract the patient to experience the multisensory room environment. For the active mode, there have three sensory module which is Led mirror with button, MYO Armband with led mirror and MYO Armband with led strips. All these sensory games need a user's patient interaction as it will control the lighting part. For the improvement of this project, there are some sensory modules that have been modified. For the main improvement is improving the design of sensory modules by light sources circuit of fibre optic. Further, one sensory module was created which is Bubble tube light that includes the vibration scene. It is can encourage the patient to touch the bubble tube because doing so will offer them tactile feedback. The patient will feel the vibratory sensations shiver through their hands.

Keywords— Analytical Data, Cognitive impairment Patient, Doctor, and Multisensory room

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The multi-sensory room also known as a sensory room is designed to develop a person's sense using sensing equipment usually through special lighting, music and toys. It can be used as therapy for the brain impairment who have problems responding to light. This Multi-sensory Room purposely used to stimulate, relax, calm or energize which is use the light as the output. The light such as Fiber optic and LED mirror will be used to relax and calm emotion of the patient.

A multi-sensory environment is an artificially created room or space designed to allow those using it to control sensory input, including sound, lighting, smell, touch, temperature and space. Multi-sensory equipment is used to stimulate the senses and promote pleasing sensation and feelings of well-being. The origin and history of multi-sensory rooms can be traced back to the Netherlands in the late 1970s where psychologists Ad Verheul and Jan Hulsegge developed them as a therapy for individuals with severe disabilities. [1]

A multi-sensory room is a room environment designed with the purpose of stimulating the senses. This stimulation occurs through plants and the use of materials that engage one's senses of sight, smell, touch, taste, and sound. These types of room are popular with both children and adults, especially those who have sensory processing issues, including autism and other disabilities. [2] A recent study evaluated the outcomes of outdoor play using a multiple baseline research design. Positive treatment outcomes were seen in a clinical treatment setting [3].