

UNIVERSITI TEKNOLOGI MARA

**A STUDY OF DEVELOPMENTS
TEACHING AIDS FOR
DYSCALCULIA CHILDREN IN
MALAYSIA**

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ABSTRACT

This paper reports on a study of learning disabilities experienced by students with Dyscalculia condition. The aims of this paper are firstly, to explore challenges of Dyscalculia students within the classroom environment and secondly, to conceptualize on learning aids design to assist Dyscalculia children. Although there are many explorations and studies with regards to learning aids, however, existing learning aids for the dyscalculia condition have been found insufficient and seemingly non effective for dyscalculia children. Following a literature review, this paper proposes a definition, meaning and history on dyscalculia, children, learning aids and learning disabilities. The methods chosen for this investigation were literature analysis, observation, brainstorming, KJ Method, Questionnaires. This paper will show the existing teaching aids in the market, the colour and the shape of design based on questionnaires in the field study. This paper will also show a conceptualize design of learning aids. The validation data of design been validated by educators that had experience with learning disabilities children. This paper also show recommendation and conclusion of this paper.

Keywords : Dyscalculia, Child Developments, Learning Disabilities, Learning Aids

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CHAPTER ONE

INTRODUCTION

1.1 Research Background

In today's world, despite having a basic or good level of intelligence, some individuals struggle to learn academic skills. Writing, listening, speaking, calculating, and reading are among the abilities required for success. These challenges could be the result of learning disabilities. There are children who struggle with reading, while others struggle with speaking and calculating. These conditions are known as Dyscalculia. Kosci (1970) described developmental dyscalculia as a structural mathematical disorder that originates from genetic or congenital disorder of parts of the brain that are a direct anatomico-physiological substratum for age-appropriate mathematical maturation without simultaneous general mental disorder. People with dyscalculia find it difficult to perform calculation. They are faced with this disability in the absence of appropriate product or teaching aids that can assist them in overcoming these weaknesses.

Product design is an analytical process that uses a problem statement for designers to approach problem solving that may improve the quality of life and end users' interaction with others. This involves visualising, solving problems and devising solutions according to the users' needs. Design thinking is a problem-solving approach, which, according to Elsbach (2018), uses tools traditionally used by designers. The originality of design is seen as a way to solve the problems faced by consumers in their daily lives.

The first stage of this research is to understand and study issues or challenges children with Dyscalculia have encountered while learning mathematical tasks. These statements also identify the research questions and objectives as a research focus for identifying product or teaching aids to be validated at the end of the research.

In this research, designers, educators and children with dyscalculia will understand the conceptual framework and design analysis. Further, the collection of data will be key to the development of new knowledge as references to the design process making a product or teaching aids for dyscalculia children based on the interaction and experience of dyscalculia children's thinking.