

Universiti Teknologi MARA

**Learning Mathematics Using Drill and Practices
Based on Augmented Reality (AR)**

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ABSTRACT

Mathematics subject is one of the most important subjects to learn from pre-school until university or until whole life. Mathematics is one of the subject are difficult to understand and learning moreover in remembering formula. Using the traditional teaching method such as teach in classroom and reference book, does not help students to understand better. However, without a variety of choose and interactive learning, they can only feel boring and not understand. Thus, this project presents an interactive application that is design to help students in learning Maths better whether at class and at home environment. Using a new trend and technology that are widely used nowadays which is Augmented Reality (AR) technique is proposed in learning Maths. The Scaffolding technique is used in learning Mathematics in order to help students learn Mathematic. Then, an interactive gaming concept are used to help students in understanding the Mathematic subject effectively. The application proposed is developed by computer-based technology for interactivity. Learnability of an application of students will be measured. Based on the testing conducted, result show that the application is effective. As a conclusion, this paper will help students in learning Mathematics.

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CHAPTER 1

INTRODUCTION

This chapter provides the background of this research that discusses the most difficult subtopic in Mathematics subject, the suitable platform and technology that will be used in develop an interactive application. Then, problem statement and objective of the research are decided. The scope of this project and the significant are also discussed.

1.1 Background of Study

Learning Mathematics is not as easy as learning ABC. It need deep understanding and it is also important not just only for the exam but in daily life. For example, when one want to cook tasty cookies the right measurement of the flour, water, and baking powder are needed. Tezer and Karase,(2010) defined mathematics as; “the study of the measurement, relationships, and properties of quantities and sets, groups of related sciences, including algebra, geometry, and calculus, concerned with the study of number, quantity, shape, and space and their interrelationships by using a specialised notation” (as cited in Dictionary of Math, 2010).

This project is conducted to identify the user performance study on the PICER in learning Mathematics using drill and practices based on Augmented Reality (AR) which focused on the topic “Pengiraan Isipadu Cecair”. This project is to develop an application of Mathematics Learning tools to help students in learning the most difficult subtopic in Mathematic subject. This study is in line with the Ministry of Education Malaysia (MOE), which Mathematic is one of the core subjects for students in the Primary School in Malaysia in level 2 (Year 4 – Year 6). Beside that, Mathematic is one of the most important subjects in life which is important to learn from pre-school until university or until whole life. Mathematics subject is also one of the subjects that students must pass in