

Universiti Teknologi MARA

**Scaffolded Mobile Educational Game
Elements for Learning Memory
Management**

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ABSTRACT

Operating system (OS) is quite a hard course to be learned by students as it contains a lot of concepts to be understood and it is also an abstract thing to learn which learning it traditionally causes the students to get bored easily. In order to solve this problem, scaffolding technique had been applied in a mobile educational game elements approach that is more engaging and fun which may gain student's attraction. The research method used was ADDIE which stands for analyze, design, develop, implement and evaluate. This project targeted all Computer Science and Information Technology students that learn OS. The project then was being tested to a total of 30 respondents of computer science and information technology students to test its effectiveness. A survey made had shown a positive result that majority of the respondents choose to learn memory management by using this method as compared to traditional method of learning. Most of the students agreed that the scaffolding technique applied helped them to perform better. This computing project allows students to be more engaged and fun in learning OS. Thus, students can easily apply the concept learned in real world.

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CHAPTER 1

INTRODUCTION

This chapter described the general introduction of this computing project. This chapter covered the topics for background of the project, problem statement, objectives, scopes and significance. This chapter is very crucial in order to properly understand this project.

1.1 Project Background

Operating System is one of the challenging courses which need to be learnt by all Computer Sciences or Information Technology students in order to qualify graduating from colleges. Shuhbhro (2014) said Operating System was a hard class back in the day when he was a student. It contains a lot of concepts to be properly understood and an abstract thing to learn. The students found topics in Operating Systems subject are not easy things to learn and relate (Jones & Newman, 2001).

Crowley (1998) stated that students often get confused in learning Memory Management topic in Operating System. Thus, this topic is going to be focused in order to help students realize that learning Operating System is engaging and fun.

One of the best solutions to keep students' engagement during the lessons is to introduce gamification. According to Wouters et al. (2013), text-based learning and game-based learning lead the same result when immediately tested. However it is proven when tested a few days later, game-based learning is better to retain. Gamification uses game elements, game mechanics, aesthetics and game learning that can certainly cause people engagement, cultivate action, enhance learning and figure out the problem (Kapp, 2013).

This game-based learning project used scaffolding, a temporary support provided for students to help them achieve a learning goal. It is gradually removed when the