Universiti Teknologi MARA

Simulation of Electric Field Experiment Using Interactive Multimedia Approach

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ABSTRACT

This application named Simulation of Electric Field Experiment using Interactive Multimedia Approach is an application that provided an interactive science experiment which focused on electric field via desktop application. This application is open for students and general public as well. Generally, students do not have enough time to try experiment at school on their own as their lab hours are typically short. By developing this dynamic application which students can try it on their own, it could lead students to understand the science experiments easier and enable them to use it anytime and anywhere. Hence, this solved the problem and in fact, it could be as a learning tool for students. An evaluation is conducted by answering several questions provided through the application that involved 10 random respondents. This evaluation is conducted to test the ease of use and effectiveness of the application. The evaluation took place after user done using the application by answering questions through the Quick Tap Survey application. The result of the evaluation showed that users are satisfied with the interface of the application and it was easy to use since the instructions are simple and easy to understand. In a wrap, this application is really useful as it utilized multimedia elements that can attract users and at the same time giving lessons to them.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

In science education, experiments are a significant learning style for students to obtain scientific knowledge, expand scientific reasoning skills (Engelmann & Fischer, 2014), gain understandings into scientific method, and develop problem-solving proficiencies (Barzel et al., 2012). A research stated that the work setting modulates the stress responses if students conduct an experiment, in which experimental work settings create complex learning environments that bring the possibility of failure and negative performance evaluations and it may, thus, make students feel stress (Alsop & Watts, 2003; Engelmann & Fischer, 2014; Hofstein & Lunetta, 2003; Pekrun & Stephens, 2012). Furthermore, Carmona (2012) and Dohn et al (2016) stated that regardless of the advantages that experiments can give, most students indicate that they did not like about doing experiments, but tend to become engrossed once they have mastered hands-on experiments themselves.

During this past four decades, researchers have explored the successful of computer simulations for supporting science education (Smetana & Bell, 2012). Simulation is an imitation of a situation or a process which it is the production of a computer model of something, especially for the purpose of study.