

## ABSTRACT

In Malaysia, Science is one of the important subjects in school's curriculum. Nevertheless, it is obvious to be seen that learning Science via traditional method is not making the complex knowledge any easy to learn and understand. Augmented Reality (AR) is the augmentation of the real world's scene via the addition of 3D virtual objects. AR technology has been introduced in Science subject to solve the aforementioned problem. It has been proven that AR is an effective method in delivering lessons to the students instead of the traditional method. It assists in improving the quality of teaching and attracts the students' attention. The study conducted implemented AR in Science subject for Year 1 in primary school by enhancing the students' comprehension of the subject. The scope of the study, however, covers more than the boundary of the syllabus since a pilot study conducted shown that the teachers expect the technology to enlighten the students on muscular system. The purpose is to provide the students with added value apart from the existing Science knowledge covered in the syllabus. The study developed a support tool for Science subject using AR technology. In order to ensure that the AR tool developed is guided by literature and theories, a requirement model of Augmented Reality for Learning in Muscular System (ARMS) has been constructed. It is also proposed to guide the development system and also cognitive aspect of the students. To achieve the aim of the study, four objectives have been formed namely: (i) to identify issues related to the implementation of Science subject in primary school, (ii) to identify issues related to the implementation of AR in education, (iii) to construct requirement model for supporting teaching and learning Science subject using AR, and (iv) to evaluate the proposed requirement model by expert review. In an effort to ensure the study is conducted in a relatively proper sequence, four phases of methodology has been followed. The phases consist of; (i) theoretical study, (ii) preliminary study, (iii) requirement model construction, and (iv) review and validate the requirement model of ARMS by experts respectively. As for the requirement model, it is constituted of two main components which are Requirement to Implement AR in a Classroom (R-IARC), and Experiential Learning Model (ELM). The acceptance of the proposed requirement model has been validated by the experts which formed of Science teachers and AR Experts themselves. The input by the experts have been used to enhance the requirement model proposed. It is hoped that by implementing AR in Science teaching and learning helps to counter the declining interest in Science subject in Malaysian primary schools particularly in suburb area.

Keywords: AR, requirement model of ARMS, Science subject, primary school