

Interactive English Phonics Learning for Kindergarten Consonant-Vowel-Consonant (CVC) Word Using Augmented Reality

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Abstract—This paper is described about Interactive English Phonics Learning in Kindergarten Consonant-Vowel-Consonant (CVC) Word using Augmented Reality (AR) Technology with aims to make phonics learning more interesting, interactive, and effective. The image marker based technique of Augmented Reality technology allowed children to interact with virtual phonics content through physical manipulation. With this courseware, children are allowed to learn the phonics sound and CVC word matching through phonics card matching. Phonics card here is the image marker. This interaction method provides a better learning experience for children.

Index Terms—English Phonics; Consonant-Vowel-Consonant; Interactive Learning Experience; Augmented Reality; Image Marker.

I. BACKGROUND

Phonics is the relationships of letter and sounds. The knowledge of phonics is important for children to develop and improve their English reading skill. However, phonics is one important component of high quality comprehensive reading program that being lack taught in government kindergarten. Interview sections with both Malaysia's government and private kindergarten have been done. English learning in government kindergarten is not focus on phonics but is whole word reading and alphabet spelling. On the other hand, phonics learning in private kindergarten is more on phonics singing with hand movements, phonics reading using flash card, and paper worksheet. Hence, interactive phonics learning should be used and enhanced in order to help children increase their knowledge retention and attracted to phonics learning [1, 2]. According to Oxford Dictionaries, "Interactive defines as the two-way flow of information between a computer and a computer-user" [3]. In order to make phonics learning becomes more effective, here comes a project with aims of designing an interactive English phonics learning courseware for Kindergarten using Augmented Reality (AR) technology. AR technology allows the physical images or object mixed with a virtual layer. AR started applying in education in order to make learning more interesting and effective [2, 4, 5]. To achieve the objectives of this project, research has been done to identify the phonics content for interactive courseware development, to identify suitable AR development platform, to design an interactive AR courseware framework, and to develop a prototype using the framework designed.

II. RELATED WORK

Several studies are done to determine the phonics content and AR development platform that can use in this proposed project.

A. Phonics Content for Interactive Courseware Development

According to National Institute of Child Health and Human Development, there are five types of phonics instructional methods and approaches which are analogy, analytic, embedded, phonics through spelling, and synthetic phonics [6].

Learners are learning unfamiliar words by analogy to known words in analogy phonics approach. Learners know the simple words and they can always recognize the rime segment of unfamiliar words which is similar to the known words. For analytic phonics approach, learners can analyze the relationship between letters and sounds through previously learned words to avoid pronouncing sounds in isolation. The whole word will be taught for learners followed by letters linking systematically of the word with their respective sounds. Embedded phonics is an approach that typically less explicit and will be used less frequently. Learners need to practice phonics skills by embedding phonics instruction or phonics rules in text reading.

For phonics through spelling approach, it focuses on spelling the words phonemically. Learners are taught to break down the words into phonemes and to select letters for those phonemes. Synthetic phonics approaches begin by learning the phonics sound and blend the sounds together to read the words. Children should learn the common sounds for vowel patterns in order to become fluent readers. They are able to learn the pattern of words and learn the changes of whole word by changing of letter or letter position through making words. This lesson helps to develop phonemic awareness of children as they hear the order of the sounds. This lesson should come with the words that child known such as cat, van and so on.

B. Courseware Evaluation Criteria

Courseware evaluation criteria act as a parameter to measure the effectiveness and the usability of the developed courseware. There are four courseware criteria extract from the study on [7] and [8] which are appropriateness of content, presentation of content, evaluating learning, and technical support and update. First, the appropriateness of content is the criteria used to determine whether the courseware learning