MY HOUSE – YEAR ONE VIRTUAL REALITY COURSEWARE

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FACULTY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
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DEDICATION

To my beloved parents and family;
to my father for his loving attention;
to my mother, for her love, support, trust in my chosen path of life;
to my dear little brothers, for supporting my back;
and all friends, for being here with me.
ACKNOWLEDGEMENT

To Almighty-Allah SWT, I'm thankful for the blessing during all the hard times throughout the semester. Special thanks to Sekolah Rendah Kebangsaan Convent Kajang which have given me the opportunity to be involved as part of the teaching session and was so kindly to be involved and corporate in this project. Not to forget the English Teacher Mrs Nik Rahayu which have help me in the development process and providing most of the material in the courseware. Lovely Thanks to my sister which is also the English teacher for Sekolah Kebangsaan Abd Hadi, Kota Bharu. I would like to thanks personally to the all Telekom Smart School Evaluator who has helped me in the testing session. Thank you for all the corporation which has they have given to me. Honor thanks to Encik Zulisman Maksom, my supervisor, and Kolej Universiti Teknikal Kebangsaan Malaysia, for guiding me throughout this project.

Last but not least, credits for my beloved parent and brothers, all my friends, room-mates, and acquaintances, for being my personal critics, and for believing in me.
ABSTRACT

“My House” is a year one courseware that teaches the year one student to identify basic things in that they could find in the house. This is a guided courseware where the student will use the courseware with the presence of the teacher. The courseware is divided into 4 sections where 3 of the section is done using all 2D graphics while the last section is the section that use fully 3D model. The first interface is the montage interface where the student can choose either to directly explore the house or need to go through the user manual before exploring the house. Before the students explore the house, they will be brought to the “enter the house” interface where in this interface they are given choices of part to explore. Meaning they were given the menus to choose which part of the house that they want to explore and navigate. In the Virtual Reality section, they can navigate the house using the normal desktop mouse. They can listen to selections of music available and click on the things they see. Once they click on the things, the text of those things will appear at the bottom of the interface.
ABSTRAK

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CHAPTER I

INTRODUCTION

1.1 Project Background

"My House" is a Year 1 English Courseware that focuses on one of the module in the English Language syllabus for year 1. The exact title of this module is "Things in my house". Unlike other courseware that used mostly 2D and 3D, this courseware uses both 2D and 3D but include an interesting feature, which is Virtual Reality Environment as part of the learning. This approach has not yet been use in any courseware in Malaysia market.

Current courseware presentation mostly involved 2D, 3D or combination of both. It is undeniable that all the courseware being use currently in schools and homes are interesting but somehow it needs to be upgrade by adding new features and styles such as virtual reality. This new type of courseware is an enhancement of current courseware available in market and it could improve learning process.

This courseware will bring student to a house where they will learn to identify parts and things in the house through walkthrough. The student will view this courseware in two environments; normal environment and virtual reality environment. Normal environment involves 2D or 3D presentation, normal navigation such as mouse clicking and does not involve additional equipment. The students are able to tour virtually (walkthrough) in every part in the house. The navigations are still the same as normal environment. This
approach will make the learning process more interesting and enjoyable for student at the age of 7 years old.

1.2 Problem Statement

Teaching and learning process involves two types of material; paper based material (conventional approach) or CD-ROM Courseware (computer approach). In market, there is lots of CD Courseware available for every subject, level and age. All of this courseware is designed creatively and interesting where it features almost every element of multimedia. Due to this situation, the courseware sold in market appears to be similar in terms of how it being presented but different in layout designs. The word presentation refers to how the student will view the courseware where it can be 2D, 3D or combination of both.

Current courseware for year one student in market mostly designed in 2D (sometimes in 3D). The coursewares have mascot and these mascots normally being add as a guide for the student in the courseware or as symbol. Besides that, animations, audio/sound, text and graphics are included in all courseware.

Since all of this courseware applied the same approach to teach the student, it appears to be common and no longer special. Imagine a situation where a class holds 30 pupils of year one, teaching and learning material is courseware, everyday the average number of courseware the students will go through is at least four and all of this courseware has the same approach. Will the learning process become more interesting or not? Obviously, the learning process becomes a dull because the students will view same thing over and over again even though the layout design is different.

To overcome such situation a new style of presentation should be apply for courseware. Instead of using only 2D and 3D environment, a courseware will be more interesting if it includes virtual reality environment as part of learning. Virtual reality environment still uses normal navigation technique such as mouse clicking, using joystick and keyboard input but it is slightly different from normal navigation where via virtual reality the student can tour virtual in the building (walk-through).
For “My House” courseware, the student can tour inside the house; identify parts and things in the house.

1.3 Objectives

- To enhance the way courseware be presented to students by introducing Virtual Reality environment as part of their learning process using courseware.

1.4 Scopes

This courseware is a standalone courseware where the delivery medium is CD-ROM. The content of this courseware focuses on one module in Year One English Language. The title of module that has been chosen for this courseware is “Part and Things in My House”. Therefore, this courseware is to be use by Year 1 student (at the age of 7 years old). It will be running on normal desktop that supports certain requirement and uses Microsoft Windows 95, 98, ME, 2000, or XP operating system. Since few sections in the courseware uses Virtual Reality Environment, the students are require to use special goggle to view the section that has Virtual Reality Environment. The VR Environment will only simulate the environment in the inside of the playhouse.

The courseware is developed for education purpose. Since the target user is Year 1 student, thus the courseware is a children education courseware. Any primary schools can use this courseware as one of the learning material since the content of the module is based from the syllabus outline by MOE.

Given that this is a children education courseware, the development of this courseware will involve communication with the teachers and Year 1 student. The teachers will help the development as a content expert where all the content for the courseware will be review and approve by the teachers. Besides that, visits will be
carry out to schools in order to make relevant research and study on the students that will help the courseware development and achieve the goals. All activities and task will be carry out and completed based on the schedule plan.

In terms of technology that will be use to develop this courseware; it will use the same technology as other courseware development. 2D images will be illustrate using Adobe Illustrator CS and Flash MX Professional, 3D on the other hand will be modeled using 3D Max 6 and Virtual Reality Environment will be created using EON Reality 5.0.

1.5 Project Significance

The success of this courseware implementation will automatically enhance and improve the way current courseware presented. This is because, the result from the survey made, at this moment there are not any education courseware for children that apply Virtual Reality environment as part of the features. Via this courseware also, user acceptance towards courseware as one of the learning medium can be evaluate. This courseware is definitely a new approach for a better and more interesting learning environment.
1.6 Conclusion

Courseware that soon be develop, is a new type courseware that apply Virtual Reality as one of the features. The courseware will be presented in both 2D and virtual reality. The courseware will enhance the current presentation of a courseware in market and at the same time introducing a new virtual reality as a teaching tool for primary school. Next chapter will explain and focus more on fact about learning with technology, multimedia courseware, and virtual reality environment in education, how colors help children learning. Besides that, the chapter also focused on methodology used to develop this courseware and its requirement.
CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

Literature review refer to searching, collecting, analyzing and drawing conclusion from all debates and issues raised in relevant body of literature. According to Wilson Mizner (1876 – 1933) “If you steal from one author, it’s plagiarism; if you steal from many, it’s research”. Based on Oxford Dictionary, Second Edition (2001), research is a careful study or investigation carryout in order to discover new fact or information as knowledge or perhaps to finds solutions to overcome a problem.

Literature review/research is crucial because firstly it will strongly show that it is relevant to develop the courseware. Secondly, it will help the whole process of courseware development where through study the developer could make hypothesis about user’s expectation, developing a courseware that apply and fulfill all aspect of a good courseware.
2.2 Fact and Finding

2.2.1 Using Technology to Enhance Children's Literacy

Issues and debate about using technology to enhance learning is over and the issue that most educators focusing now is "How can educators utilize the technology they have to enhance students learning." As we have seen in the past 10 years, the use of technology has completely transformed education world. We are now exposed to more information at a faster rate than ever before. Young children are well versed in operating VCR's, DVD's, CD's etc. Computers are having a profound impact on children's lives, both at home and at school.

President Clinton once said that access to computers is becoming critical for full participation in America's economic, political, and social life. If technology has become a critical component in the success, then it is society responsibility as educators to best prepare students and young generation for their future.

According to the Southwest Educational Development Laboratory, part of the mission of educational institutions is to produce workforce-ready graduates who can, among other things, manipulate and analyze raw data, critically evaluate information, and operate hardware and software. Educators can begin as early as Kindergarten to lay the knowledge foundation that students will need to be successful in their adult years.

Constructivists believe that children need to have the opportunity to construct their own knowledge through play and exploration, so they can create, reflect upon and work out their own understanding (Vygotsky, 1978). Offering young children the opportunity to explore technology, allows them to acquire knowledge and allows for a variety of learning styles. When students gather information on a courseware for example, they can be self directed and independent. They can choose what sources they want to examine and what connections to look at more carefully. Technology provides the students with more opportunity to work at their own pace, in the learning style that they prefer. Technology applications provide ways for a variety of minds to gain access to knowledge.
Besides that, well-designed Multimedia based projects offer the user a constructivist approach that utilizes cooperative learning, process writing, and authentic assessment. (Rogers)

Various technologies offer different kinds of content and can serve different purposes in the classroom. E-mail and word processing promote communication skills, and courseware on the other hand, modeling software promotes understanding of certain subject or training. Within the early literacy program, computers used with young children tend to be a powerful learning device that facilitates cognitive development and positive social interaction to young children (Patsy P. 2000).

According to Patsy P, (2000), Center for Literacy and Disabilities Studies. In their study, children who used computers had an increase in cognitive abilities, such as the memory, spatial and logical problem solving. Gains were also reported in children's self-learning, self-organization, memory, and concentration. Oral language production, counting the number of words spoken per minute, was almost twice as high at the computer than during other activities such as block play. Children often taught each other how to use the menu items and prompts on a new piece of software. Properly used, computer software (such as Multimedia Courseware) can provide a catalyst for social interaction and conversations.

Meanwhile Global Schoolhouse (2000) stated when children participate in reading and writing via computer, they tend to enjoy reading and writing more, they are more willing to write and read more for their work. They are also more careful about spelling, punctuation, and grammar.

Technology can support even the earliest of learners. There are several programs on the market that support reading and early writers through out each stage of their reading and writing development. Programs like Skid Doodle by KB Gear Interactive, Kid Desk by Edmark, Kid Pix by Edmark, Disney's Print Studio, Claris Works for Kids, and Easy Book Deluxe, all provide support for early literacy learners. Books on Cd like Chicka Chicka Boom Boom by Knowledge Adventure and Just Grandma and Me by Broderbund provide simple repetitive text stories for children. Talking word processing software provide immediate feedback on letter
names, sounds, and letter combinations as novice readers experiment with the written language.

The NAEYC recently restated literacy guidelines as developmentally appropriate practice and included an emphasis on providing a variety of teaching strategies and materials to meet children's diverse needs.

Computers are dynamic learning tools. They offer a variety of real world and interactive learning experiences. Using software that allows exploration and replication of real world tasks, students can acquire information and learn in many ways. Computer software can integrate sounds, text, pictures and even movement to provide a multitude of learning options. Multimedia software such as courseware can serve as a valuable classroom resource, as it contributes variety and creativity to students work. Computers can help students build upon their own understanding as a resource tool, they can be used to gather data and resources, converse with others, struggle through a challenging application, and assist in reflection of one's learning.

The use of real world tools, relevant experiences and having a meaningful learning experience help children to acquire knowledge. Studies have shown children who use technology in meaningful, relevant experiences, have an increased level of self-confidence as they rely less on their teacher and more on themselves for knowledge. Technology allows students to increase their understanding and utilize their higher level thinking skills. Students tend to understand the more complex concepts like Math and Science when they can use technology to help them visualize hard to understand concepts.

Technology is a tool, just like a journal, book, or pencil. Technology can be used in developmentally appropriate ways that are beneficial to children. Research indicates that technology is beneficial to a child's learning and development. Technology when used in conjunction to other tools, like blocks, art, sand, water, books, exploration, etc., assists in the development of literacy, cognitive and social skills.
2.2.2 Educational Technologies in Courseware Support Student’s Development in Reading and Writing

Courseware as understand by many educators is multimedia software that applies all features and element of multimedia. In market, multimedia courseware for children at the age of 7 is basically comprises few educational technologies that is mainly to support and focusing the development of children’s reading and writing skills. The Educational Technologies which is normally be apply by courseware for children include electronic books and programmed reading instruction.

Electronic Books. Electronic books, also known as e-books, are electronic texts that are presented visually, which is also could be categorized as a talking book. It features element such as text, audio and animation. Whether available on CD-ROM, the Internet, or special disks, electronic books always provide the text in a visual component. Some electronic books incorporate text enhancements, such as definitions of words or background information on ideas. Others offer illustrations that complement the story. Electronic Books will have a voice over pronouncing the text.

As stated by Beers (1998), audios in Electronic Books promote student’s interest in reading and improve their comprehension of text. When used in conjunction with written texts, it helps improve children's reading skills. Children can listen to the audio version of a book and follow along silently. In addition, they can gain practice in reading aloud the text in conjunction with the audio.

He also said that, hearing text read aloud improves reading ability. The use of audio with struggling, reluctant, or second-language learners is powerful since they act as a scaffold that allows students to read above their actual reading level. This is critical with older students who may still read at a beginner level.

Speech component in Electronic Books offers a digitized reading of general sections as well as pronunciations of specific words within the text; it supports and coaches students as they read the text of the story (Leu, et al, 2000).