HUMAN SENSORS

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EXAMINER DECLARATION

"We declared that we have read this thesis and according to our view this thesis is sufficient enough for the quality and scope purpose of getting the Bachelor Degree of Science (HONS) in Multimedia Technology."

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We hereby declare the materials and works in this thesis are original except for quotations, excerpts, summaries and references, which have been duly acknowledged.

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ABSTRACT

MOBILE APPLICATION: HUMAN SENSORS

The multimedia project of developing mobile learning application, Human Sensors focusing more on how to provide a convenience informal teaching and learning environment to preschooler from 3 years old up to 7 years old. This project has attempted the learning application as the type of multimedia project chose synchronized with the emerging production mobile technologies and platform. Human Sensors focus on teaching human sensory and let kids can easily understand and clarify. Human Sensors consists five categories which are haptic, vision, hearing, olfactory and gustatory. Besides that, this multimedia project reacts interactively with kids so that they will kids can learn knowledge with fun. In this multimedia project, it will provide a fun learning experience rather than just reading and learning from books. Furthermore, Human Sensors contain multimedia elements that do not exist in books such as animation, video and sound. The content in Human Sensors is clear and directly thus kids can straight away choose and enter the parts they want to learn.

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ABSTRAK

Projek multimedia membangunkan aplikasi pembelajaran mudah alih , Human Sensors memberi tumpuan lebih kepada bagaimana untuk menyediakan satu ajaran yang tidak formal yang boleh memberi kemudahan dan persekitaran pembelajaran yang selesa kepada prasekolah dari 3 tahun hingga 7 tahun . Projek ini telah mencubai aplikasi pembelajaran sebagai jenis projek multimedia tindakan, serentak dengan pengeluaran teknologi mudah alih dan platform yang muncul pada baru-baru ini. Human Sensors memberi tumpuan kepada mengajari deria manusia dan memberi kanak-kanak boleh memahami dan jelas . Human Sensors terdiri dari lima kategori iaitu kesentuhan , penglihatan , pendengaran, penciuman dan deria rasa . Di samping itu , projek multimedia ini bertindak balas secara interaktif dengan kanak-kanak supaya mereka boleh belajar pengetahuan dengan keseronokan. Dalam projek multimedia ini, ia akan memberikan pengalaman pembelajaran yang menyeronokkan dan ia bukan macam buku hanya membaca sahaja. Tambahan pula, Human Sensors mengandungi unsur-unsur multimedia yang tidak wujud dalam buku seperti animasi , video dan bunyi . Kandungan dalam Human Sensors adalah jelas dan dengan secara tidak langsung, kanak-kanak terus boleh memilihi dan memasuki bahagian yang mereka mahu belajar.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In this chapter, we will discuss about the introduction of our project. Basically our project is about the Android applications and we focused in learning process among children. We will also discuss the processes that we have to do in order to finish our project. Next, we want to share about why we chose this title.

Mobile devices have become ubiquitous because they are cheaper and capable of much more functionality. Nowadays, many people use mobile devices to surf the internet, chat with family and friends, send and receive pictures or documents. (Tim Stevens, 2014). Besides that, they also use mobile devices to search for places using GPS navigation equipment.

The most important usage of mobile devices is for children to enhance knowledge. As mobile phones, tablets, and other connected devices become more widespread and inexpensive, wireless technology can dramatically improve learning and bring digital content to children. (Darrell M. West, 2013). Learning interactive mobile applications are encourage "anywhere, anytime" learning approach. Mobile devices allow students to gather, access, and process information outside the classroom. They can encourage learning in a real-world context and help bridge school, afterschool, and home environments. (Cynthia C. & Carly S. , 2010).

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Human Sensor Interactive Mobile Application provides many colorful, lively and interesting images and sounds to capture their attention. Children can also do the exercises provided inside of Human Sensor Interactive Mobile Application. The exercises levels are reach the standard of children thus children can learn from the applications. Human Sensor Interactive Mobile Application will provide a fun learning experience rather than just reading and learning from books. This is because interactive mobile application is deliver multimedia content and creation options. (Yousef M. & Hamideh Z. , 2010). It will be visually stimulating and fun to avoid boredom.

Human Sensor Interactive Mobile Application is actively involved in every child to see and hear. It will deliver each human sensor as they see concepts, words and stories depicted on the screen. It also will encourage children to learn and think because at the end of product there will be an activity to test their understanding on human sensors. All elements in Human Sensor Interactive Mobile Application will be conducted in English language. So it will be easier for all the children to learn regardless their origin of language.

1.2 Problem Statement

According from Allen Frances, M.D, children are active, restless and vitality. They are always dynamic and challenging to sit as quiet when reading book or do exercise. Besides that, books consist less pictures and colorful images which might eventually bored them and maybe just they're uninterested to science. Too much word might cause children to find it difficult to learn in the studying process. Thus, children are resisting learning new knowledge.

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This causes some difficulties in their learning process. Here stated the problem of the current status:

1.2.1 Lack of knowledge about science among children

Most of the children are lack of knowledge about science. Science is always in our daily life and useful in daily routine. According to R. Millar, although children learn science in kindergarten or school but they do not understand well what science is. (R. Millar, 2008) This is because the words that were used to explain the theory of science are too difficult for them. Thus, children will easily be bored and they'll find it hard when learning science.

1.2.2 Limitation of educational interactive mobile application and interactive exercise about science

Nowadays, the usage of educational mobile application has been increased year by year. In the market of educational mobile application, we have found that the highest quantity developed of educational application for kids are language, color and numbers learning applications. (FTC, 2012). Development in learning application in the field of science especially human sensors is limited. Besides that, children are always studying and do exercises by using their textbooks and reference books. Those textbooks and reference books only provide some common and limited questions. They cannot to get responds and explanation when mistake occurred. Children cannot gain more experience and exercises for the parts that they fail. It will cause the children fail to differentiate the correct answer of the questions. This problem may causes children to face troubles during examination in the future.

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1.2.3 Spend more time on book

Generally, children are learning from books including textbook and reference book. They need much time to understand from the books compared to an educational interactive mobile application. The printed books contain many information and the questions but they are static. When a child faces a problem when reading or answering a question, the book will never give respond to the child. In the end, the child will stick on that question. Parents also busy in work thus not enough time to help children solve any question written. In that case, the children needs to spend more time to read the notes and find solution to solve that question.

1.3 Aims and Project Objective

1.3.1 Aims

Aims of this project are to help increase the interest of science among children to give a good learning experience among children.

1.3.2 Project Objective

The objectives of this project are:

a. To create a new learning environment for parent and children

Mobile applications are very convenient since everybody have their own smartphone. Enjoyable and engaging shared experiences through mobile application will optimize the potential for children's learning and development can support children's relationships both with adults and their peers. (NAEYC, 2012)

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b. To develop an effective and enjoyable learning process

Children will feel comfortable and be interested along the enjoyable learning experience by this interactive mobile application. This is because educational interactive mobile applications contain multimedia elements and engaged new technology learning tools such as text, illustration, and audio and visual recordings, all of which provide children with a more holistic learning experience. (Darrell M. West, 2013).

c. To learn in a shorten time

Multimedia components are one of the proficient ways to convey educational content because kids can easily understand and clarify the content rather than reading a printed book. According to an article by Jennifer Salopek in "Training and Development Magazine," e-learning courses progress up to 50 percent faster than traditional courses. This is partly because the individualized approach allows learners to skip material they already know and understand and move onto the issues they need training on. (Lee Ann Obringer, 2011). There is similar concept with learning mobile application. The content in mobile application is clear and directly thus children can straight away enter the parts they want to learn. By using this Human Sensor Interactive Mobile Application, children can read and learn the knowledge at anytime and anyplace. This may help children save more time to learn extra knowledge.

1.4 Project Scope

This project scope mainly focuses on developing Human Sensor Interactive Mobile Application for educational purpose among children. This learning process with Human Sensor Interactive Mobile Application which consists 5 categories is created based on

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scientific knowledge as well as generally describes about human sensors including haptic, vision, hearing, olfactory and gustatory. In Human Sensor Interactive Mobile Application, each category explains the facts about human sensor with a story. These stories are created in 2D animation and duration of each story is about 2.30 minutes up to 3.00 minutes. The main character in the stories is a little sweet girl named Nana who will make the stories more interesting, grabbing the young users' attention and provides moral value to viewers. Through the animation, kids will find this meaningful and learn these human sensors with fun and joy. Besides that, these stories are interactive so that users can choose the options and control the flow of the story. For each option, it will explain the details and facts about that object. It also puts together some attractive sound effects and background music to attract user's attention. The learning interactive mobile application also provides some activities such as exercises and practices based on those human sensors. The practices can help users to review the knowledge they have learnt through stories and sounds. Songs played allow children to learn the sound related to the human sensors pleasantly.

1.5 Target User

Our target users are preschooler from 3 years old up to 7 years old. This is because we want to build an interactive mobile application to help preschoolers identify human sensor such as gustatory, olfactory, haptic, vision and hearing through story telling. Nowadays, more than half of children have access to a newer mobile device such as smartphone or tablet. Besides that, some parents usually will download apps for their children. Through this Human Sensor Interactive Mobile Application, parent can communicate and interact with their children and educate them effectively.

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1.6 Project Description

1.6.1 Storyline

a. GUSTATORY STORY

In one fine afternoon, the sky gradually turned dark along with floating clouds. (Click the cloud) Nana was going back home from school in the rain. Nana forgot to bring umbrella. Therefore, she went back home without using umbrella. (Click the door) Nana entered her house. Nana did not immediately take her bath; she went to the living room watching television instead. (Click television) Next day, Nana was sick and lying on the bed. Her mother brought her go to see doctor. (Click doctor) The doctor examined Nana's temperature and confirmed she was having fever. Doctor gave her medicine. (Click Nana's mother) When reached home, her mother gave her the medicine and she frowned but still, she took it unwillingly. (Click medicine) Nana took the medicine, ate it and taste bitterness when consuming medicine. (Click plums) Therefore, her mother took some plums for her to eat. When eating the plums, the plums tasted sour and she told her mother that she never wants to be sick again because the medicine was bitter.

b. HEARING STORY

One morning, students went to school to learn new knowledge. Students took their seats and waited for their teacher to enter classroom. (Click the bell) The bell swung and rang. (Click teacher) Teacher walked into classroom. The classroom became quiet. After that, teacher started to teach. Teacher was teaching them about song of festivals. Teacher was explaining some details of the festivals to the student. (Click the board of list) Students will learn seven songs of festivals which are Hari Raya Aidilfitri, Chinese New Year, Deepavali, Hari Gawai, National Day, Birthday and Christmas. (Click each festival

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from the board) Each festival has a song and some diagrams to explain the details of the festival. After finish teaching, teacher said thank you to the student and class end. After that, teacher walked out from the class.

c. VISION STORY

In a car, Nana asked her mother where they are going. (Click zoo on the road board) Her mother told her that today they will go to the zoo. Nana was so excited. When they reached the zoo, Nana's father went to the counter and bought tickets. (Click main door of zoo) After that, they all went into the zoo. In the zoo, they are many different types of animals. (Click each of animals) It will explain the characteristics of each animal. (Click camera) Nana and her family took photo with the animal. In the zoo, Nana and her family saw different animal has different type of characteristic. Nana told her father that she saw cows and goats were eating grass in the field. Nana's father told her that animals which eat plants are herbivore. (Click tiger and lion) Tiger and lion were moving in a cage. Nana felt curious why they were kept in cage so she asked her mother. (Click Nana's mother) Nana mother told her that because lion and tiger are dangerous meat-eater and they were carnivore.

d. OLFACTORY STORY

During school holiday, Nana and her family went to a village to visit their grandparent. Nana's grandparent was waiting them at in front of their house. Nana's grandparent was happy when they saw them arrived the village. (Click nose) At village, Nana smelled something and asked her grandparent what is that smell? (Click grandfather) Grandfather told Nana that smell is from the durians. After that, grandparent brought them to the durian garden. (Click durian garden among three place which are paddy,

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durian garden and oil palm plantations) When they reached durian garden, (Click durian) a durian fall from the tree with a 'pop' sound. (Click durian) Nana took the durian and smells it. Nana said that the smell of durian is very aromatic. After that, main character and her family took the durian and went back home to eat it.

e. HAPTIC STORY

Last Friday, teacher brought the pupils to the nearest botanical garden. Through the outdoor education, teacher will teach pupils how to identify different types of plants. In the botanical garden, pupils can learn many kinds of plants such as cactus, mimosa, and other. (Click each of plant) When click cactus, the teacher will introduced the cactus, teacher said that pupils must be careful when touching the thorns of cactus. Nana was imagining the condition when she gets hurt and pain if she carelessly touched the thorns. When click mimosa, the story will start with a pupil saw a mimosa. He touched them curiously and found out that the leaves of the mimosa will shrink and close. The pupil asked his question to teacher. (Click teacher). Teacher explained to every pupil that mimosa was very sensitive to haptic. There were two naughty boys playing when the teacher was explaining. (Click the branch of plant) They broke a branch of a plant. The broken branch flew out some viscous liquid. The pupils accidently touched the viscous liquid. (Click the hand) The pupils felt sticky when they infected by the viscous liquid. The teacher hurriedly brought the pupils to the toilet to wash their hands. (Click faucet) The pupils were washing their hand. (Click teacher) The teacher told that some plants may release viscous liquid, pupils should be careful to avoid breaking the plants. The last activity in botanical garden was teaching pupils how to plant. Teacher taught the ways on how to identify the differences of the soils and sands. (Click soil and sand) Feeling when touching soil and sand were different. When click soil, teacher will explain that soil

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has a moist feeling and piece shape when touch. Soil was suitable plant a flower. When click sand, teacher was explain that sand has a dry feeling and particle shape. Sand was not suitable to plant a flower. Time passed and it's time to go back home. On that day, Nana learnt much knowledge.

1.6.2 Moral Values to Audience / User

Teaching children in good manners is one of the biggest challenges faced by parents. Moral is complex and abstract. It has a difficult concept for children to understand. Moral values were taught early and regularly are more likely to develop the sense of conscience needed to make children think twice before they respond.

a. Respect to Teacher

Respect is one of the most important values to be taught to children. This is because when people have respect for one another, they are able to communicate much better and get along better when everyone respects each other. In this project, we can see that Nana and her classmates respect to their teacher. When teacher walked into classroom and started to teach, they will become quiet and pay attention to listen.

b. Responsibility

It is important to be responsible because responsibility can improve our life. We will gain other's trust if we act as a responsible person. In this project, we can see that Nana's mother is a responsible people. When Nana is sick and after back from clinic, Nana's mother given the medicine and supervise Nana to eat at home. As a role of mother, Nana's mother is responsible to care the health of Nana.

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