

EDUCATION GAMES FOR 5 TO 7 YEAR OLD CHILDREN

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This report is submitted in partial fulfilment of requirements for the award of  
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**Sesi Pengajian** : SESI 2010/2011

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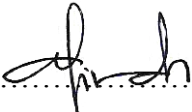
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## ABSTRACT

In this era of globalization, the digital animation is a medium of communication that can be used to create learning environments that attract and stimulate children's interest in learning compared with traditional methods. Colourful animation and movement can improve intelligence as well as in increase of concentration of children. It is also able to train the brain for children to think creatively and critically. Today, most educational games are in the market comes in English than Malay. Therefore, this educational game is one of the initiatives to help children recognize letters in the Malay version. An educational game for children aged 5 to 7 years was built as additional tools in their learning process. It is divided into two categories: learning alphabet and learning how to write alphabet. Where in this category, the child can learn to recognize letters and learn how the pronunciation of each letter correctly. In addition, audio can create an attractive environment and will result in greater focus. In addition, each character is represented with images of colourful children's easier to understand and remember what they learned. Next, the child can learn to write by connecting each point there. It is more attractive than the conventional method which used a mouse or graphics tablet to replace the pencil. By using graphics tablet, causing the child to feel as if they were using a real pencil. Abode Flash CS5 is software used to develop educational games because it can produce an interesting animation, interactive and dynamic.

## ABSTRAK

Dalam menyelusuri era globalisasi yang kian berkembang, animasi digital merupakan satu daripada media komunikasi yang boleh digunakan dalam bidang pembelajaran. Dengan mengaplikasikan penggunaan animasi digital ini, persekitaran pembelajaran yang menarik dapat diwujudkan bagi merangsang minat dan penerimaan kanak-kanak dalam proses pembelajaran berbanding cara tradisional. Animasi yang berwarna-warni serta pergerakan yang menarik mampu meningkatkan daya konsentrasi kanak-kanak semasa proses belajar sedang dijalankan. Ini kerana, kanak-kanak mudah hilang daya tumpuan dan mudah bosan sekiranya belajar sesuatu dalam tempoh yang lama dan tidak menarik. Dewasa ini, kebanyakan permainan pendidikan yang berada dipasaran didatangkan di dalam Bahasa Inggeris berbanding di dalam versi Bahasa Melayu. Oleh itu, permainan pendidikan ini merupakan satu inisiatif bagi membantu kanak-kanak mengenal huruf dan mengenal perkataan-perkataan di dalam versi Bahasa Melayu. Permainan pendidikan untuk kanak-kanak berusia 5 hingga 7 tahun ini dibina sebagai peralatan tambahan di dalam proses pembelajaran mereka. Ianya dibahagikan kepada dua kategori iaitu belajar mengenal huruf serta menulis. Dimana dalam kategori ini, kanak-kanak dapat belajar mengenal abjad serta mengetahui cara sebutan setiap abjad tersebut dengan betul. Selain itu, setiap huruf diwakili dengan gambar-gambar yang berwarna-warni bagi memudahkan kanak-kanak memahami dan mengingat apa yang mereka telah pelajari. Seterusnya, kanak-kanak dapat belajar menulis dengan cara menyambungkan setiap titik yang ada. Ianya lebih menarik berbanding dengan cara konvensional dimana grafik tablet ataupun tetikus digunakan bagi menggantikan pencil. Penggunaan grafik tablet, lebih menyeronokkan kerana kanak-kanak akan berasa sama seperti menggunakan pencil yang sebenar. Abode Flash CS5 merupakan perisian yang digunakan bagi membangunkan permainan pendidikan ini kerana ianya mampu menghasilkan animasi yang menarik, interaktif dan dinamik.



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## LIST OF TERMS

|             |   |  |
|-------------|---|--|
| <b>AIFF</b> | - | File extension - Audio Interchange File Format                           |
| <b>AS</b>   | - | Actionscript programming language  |
| <b>AVI</b>  | - | File extension - Audio Video Interleave                                  |
| <b>C</b>    | - | C language programming   |
| <b>C++</b>  | - | C++ language programming   |
| <b>EXE</b>  | - | File extension - Executable File (Windows Environment)                   |
| <b>FLA</b>  | - | File extension - Flash Movie Authoring File (Adobe Systems Incorporated) |
| <b>FLV</b>  | - | File extension - Flash Video File (Adobe System Incorporation)           |
| <b>GIF</b>  | - | File extension - Graphics Interchange Format -                           |
| <b>GNU</b>  | - | General Public License   |
| <b>HTML</b> | - | HyperText Markup Language  |
| <b>JVM</b>  | - | Java Virtual Machine   |
| <b>MP3</b>  | - | File extension - MPEG-1 or MPEG-2 Audio Layer III                        |
| <b>MPEG</b> | - | File extension - Moving Picture Experts Group                            |
| <b>OGG</b>  | - | File extension - <i>Ogg</i> Vorbis Codec Compressed Multimedia File      |
| <b>OS</b>   | - | Operating System   |
| <b>PC</b>   | - | Personal Computer  |
| <b>SOHO</b> | - | Small Office/Home Office   |
| <b>SWF</b>  | - | File extension - Flash Format File (Adobe Systems Incorporated)          |
| <b>USB</b>  | - | Universal Serial Bus   |
| <b>WAV</b>  | - | File extension - Waveform Audio  |



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## **CHAPTER I**

### **INTRODUCTION**

Chapter 1 will cover the introduction of this Final Year Project 2010/2011 of Degree. It contains subchapters which are objectives, problem statements, scopes of project, methodology and report structure.

#### **1.1 Project Overview**

Education is needed in every aspect of human life. The development and exchange speed is too high in the communication world that every individual and society attempts to adapt itself.

Nowadays, the education has passed over its traditional methods and is moving towards into the virtual and electronic learning. For this kind of education, the activities are taken via electronic tools. The educational quality is very important, because the most of people who are exposed to this system are experiencing in a new method of education instead of the traditional ways. Then, at the same time they are expecting the same feedback.

In this project, the advantage of the leading software application which is Adobe Flash CS5 Professional is taken in order to design and create the interactive content of education learning. The Adobe Flash CS5 Professional is one of the most advance authoring environments for creating rich, interactive content for digital, web and mobile platforms.

From this application software implementation, the Education Game for 5 to 7 years old children's has been designed. This method is to bring up opportunities for those who are not able to take advantage of the traditional method.

Many researchers say that the process of teaching and learning will be more effective if it is implemented in a non-formal way. The element of humour and happiness in this process of teaching and learning will give a more positive effect.

Digital animation is a medium of communication that can be used to create a stimulating learning environment and exciting as any that have been proposed. In solving a math problem for example, it is more enjoyable with the section being colourful and flying off the computer screen compared to using a piece of white paper which is a static character.

Because of that, if it used effectively, the animation is able to offer an enjoyable learning environment. It is also capable of attracting the attention of children, increasing their motivation and stimulating children to think more effectively. Visual and dynamic presentations prepared by the technology can facilitate the process of animation. It allows children to utilize more senses in the process of gathering information. This indirectly accelerates the process of understanding and maintains that information in a much longer time period in the memory.

## **1.2 Project Objectives**

Objective is one of the important parts that have been to be implemented in this project. The following objectives become as guidance for achieved the target focused.

- i. The first objective is to develop a game based on education for children aged 5 to 7 years old. Most of people like to play games including children's. This project is to take this opportunity in order to attract children around aged 5 to 7 years old or out of this range to play game and the same time learns the basic education.
- ii. Second objective is to help children to learn how to read, write alphabets, and then recognize objects based on alphabets. This game is the basic step

for learning method and it is suitable to be used at home or at school, because from this game children's will recognize the object based on alphabets easily.

- iii. Third objective is to help children to pronounce the correct pronunciation for alphabets. The two ways communication and helping from parents or teachers are importance for the learning process. Unfortunately, sometime parents are too busy and not enough time to spend for their children. So, this project will counter that problem and children still can learn by play the education game. From this game, student not only can recognize the alphabets, but help children to pronounce the correct pronunciation for alphabets and also object.
- iv. Then, to introduce graphics that increases the interest of children to learn the alphabets in the Malay language. The application of the Malay language will help children to more understand about the alphabets and also object is referred to.
- v. Lastly, to designing a user interface for communication between users and computer using the graphic tablet. This is one step of introducing the children with the electronic technology in education process. The graphic tablet is a computer input device that allows one to hand-draw images and graphics, similar to the way one draws images with a pencil and paper. This graphic tablet is used in order to help children to write the alphabets like write using the pencil.

### **1.3 Problem Statement**

Nowadays, the increasing of the game application is uncontrollable due to the demand of the consumer. The effect is to the children who are exposed in this environment where there are not interested to study and just want to play games. In this project, a random survey has been done by comparing either child prefers to play a game or to study using the tradition method like books. Most of them like to play

games because games are more interesting compare to books. Thus, this result has triggered the idea to develop a game based on the education learning. The other problems are state below where;

- i. Children not attracted with traditional studies (books)
- ii. Children easily lose focus during the study
- iii. Need parents or teachers to accompany them.
- iv. Software in the market are more towards the English language

From this education game, it can attract the attention of children to play game and at the same time learning about the basic knowledge to read, write alphabets, and then recognize objects based on alphabets. Other than that, this education game also will replace the traditional concept study processes that are using the books. The application of game in the study will make children enjoy and happy to study.

Besides that, normally children are easily losing focus during the study especially when the materials that are used for study is not attracted student attention. Then, if they need to study, parents or teachers need to accompany them. But the problem is, sometimes parents are busy with their work and teacher cannot focus to all children at the same time, so this education that based on game application will help student to study.

Lastly, most of the software that is related with the education in the market is more toward to the English language. It is known that, not all children can understand and comprehend the English language. Thus, it is suitable to start with the Malay language for their first step of education as it is easier to understand.

#### **1.4 Project Scope**

The scope of the project is focuses on education of the children in the age of 5 to 7 years old to learn alphabets in Malay language. The scope also focuses on how the children to read and write alphabets, recognize objects based on alphabets in the Malay language by assumption that children know the basic way to interact with the computer.

There have some software that is used in order to achieve the objectives of

this project. The first one is Adobe Flash CS5 software, where this software is builds specially to create animation and used to make the educational software more attractive, interactive and dynamic. Then, the other software is Sound Forge Pro 10.0, which is the audio editing software to make and edit music, voice and other audio recordings. The audio editing means the user can cut copy and paste some part of recording.

This project also uses the Graphic tablet in order to interface two way communications between user and computer. This means that the user or children can learn especially writing skill like using a real pencil.

## **1.5 Thesis Outlines**

This thesis is represented by five chapters. The following is the outline of this education game project which will cover all the matter that should be discussed after developing this project.

Chapter I give out the information of the introduction to this project. It is including the project overview, project objectives to achieve from this project, the problem statement, and scope of the project.

Chapter II contains literature review. It describes about the research and information about the project. Every fact and information, which found through the journal or other references, will be compared and the better methods have been chosen for the project. It will explain the techniques used in gathering the information, the theory and the case study of previous projects. The literature review will produce a work concept to show the connection between the project with theory and concept.

Chapter III is about project methodology. It will explain the implementation and solution in doing this project. It consist the overall system and the structure needed in the system. Factors that were weighed out in selecting the methods and the advantages are also pointed out.

Chapter IV presents the result of this project. This chapter also includes the analysis of this project. This chapter will discuss the result accordingly to the objective stated earlier in this project.

Chapter V, is the final chapter which summaries the research findings. This chapter also identifies problems and obstacles throughout this research. Some suggestions for future work is discussed which might be useful for further development and improvement to this game.

## **CHAPTER II**

### **LITERATURE REVIEW**

This chapter will focus more on the fundamental review of the research projects background. It contains definitions, descriptions, comparisons, and theory discussions of the hardware and software involved. It also includes research on children educations that are currently available in the market and the internet.

#### **2.1 Research for Online Games Based On Education**

Nowadays, there are many education games available for children aged between 5 to 7 years old on the market like ordering, counting, matching pair and colouring. In this project, there are two concepts that can be interesting for a child which is number and alphabet. However, this project focuses more on alphabet than number. This is because, alphabets are important for children, so before they start to learn about the language they need to know about the alphabet first.

Apart from that, most online game use adobe flash compared to java because flash supports a wider range of graphic elements (GIFs & fonts) and features (opacity). Besides that, flash can make a game more attractive, interactive and dynamic. Below there are several online games in the market and their objective: