

BORANG PENGESAHAN STATUS TESIS*

DEVELOPMENT OF 3D GAME FOR LEARNING CRITICAL

JUDUL : THINKING TECHNIQUE: "MR.RIGHT HAT"

SESI PENGAJIAN : 2010 / 2014

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DEVELOPMENT OF 3D GAME LEARNING FOR CRITICAL THINKING
TECHNIQUE: "MR.RIGHT HAT"

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This report is submitted in partial fulfilment of the requirements for the
Bachelor of Computer Science (Media Interactive)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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2013

DECLARATION

I hereby declare that this project report entitled
**DEVELOPMENT OF 3D GAME FOR LEARNING CRITICAL THINKING
TECHNIQUE: "MR.RIGHT HAT"**

is written by me and is my own effort and no part has been plagiarized
without citations.

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DEDICATION

To my beloved family especially my mother and father, by giving me a spirit for my education.

My kindhearted supervisor, Prof. Madya Dr. Sazilah bt. Salam, the person who always encourages and guide me during this project.

All my friends for being such a good supporter all the time. Thank you very much for the support and guidance given throughout the completion of my Final Year Project.

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For my beloved families especially my both parents, thanks to them for giving me an inspiration to do this project. Finally to all my supporting friends that keep helping me until my completion project.

ABSTRACT

"Mr.Right Hat" is a 3D game that implemented Critical Thinking Technique known as Six Hat Thinking that was created by Edward de Bono. Six Hat Thinking is a powerful technique to develop the problem solving and decision making skills in facing the problem. This game targeting student in higher level education. There are three objectives in this game, firstly is to study how to integrate critical thinking technique in 3D game so that players will learn and practice critical thinking technique while playing the game. Second is to design and develop 3D game that allows players to practice critical thinking technique while playing the game. Lastly is to evaluate the user experience using the game prototype. This game has three levels, which is at level one and two players will expose to the type and function of each hat in Six Hat Thinking technique. At level three, the player will be testing the knowledge that gain in level one and two with the question related to the Six Hat thinking technique. This report has seven chapters that consist of an Introduction, Literature Review, Methodology, Analysis, Design and Implementation, Testing and Evaluation, and lastly is Project Conclusion. In chapter Introduction explains about the details background of the project. Literature Review showed the related project and Methodology is discussed about the method to run the project. Design and Implementation was covered up the multimedia element. Testing and Evaluation is for data gathered and analysis for result. Project Conclusion will take the result of analysis and determine the strength and weakness. Proposition to improve the project will be done based on the results obtained in the analysis of testing and evaluation. It is aimed at improving the project until becomes a quality product.

ABSTRAK

"Mr.Right Hat" adalah permainan video interaktif tiga dimensi yang memperkenalkan teknik pemikiran kritikal yang dikenali sebagai 'Six Hat Thinking' dan diciptakan oleh Edward de Bono. 'Six Hat Thinking' adalah salah satu teknik yang kuat untuk membantu dalam penyelesaian masalah dan membuat keputusan. Permainan ini mensasarkan pelajar di peringkat pengajian tinggi. Terdapat tiga objektif dalam permainan ini, pertama adalah untuk mengkaji bagaimana untuk mengintegrasikan teknik pemikiran 'Six Hat Thinking' dalam permainan supaya pemain akan dapat mengamalkan teknik pemikiran kritikal semasa bermain. Kedua adalah untuk mereka bentuk dan membangunkan permainan tiga dimensi yang membolehkan pemain untuk mengamalkan teknik pemikiran kritikal ketika bermain. Akhir sekali adalah untuk menilai pengalaman pengguna setelah menggunakan prototaip permainan. Permainan ini mempunyai tiga peringkat, iaitu pada tahap satu dan dua pemain akan didedahkan kepada jenis dan fungsi setiap topi dalam teknik 'Six Hat Thinking'. Pada tahap ketiga pemain diuji pengetahuan yang dipelajari di peringkat satu dan dua. Laporan ini mempunyai tujuh bab yang terdiri daripada bab Pengenalan, Kajian Literatur, Metodologi, Analisis, Rekabentuk dan Pelaksanaan, Pengujian dan Penilaian dan akhir sekali adalah Kesimpulan Projek. Bab Pengenalan menerangkan tentang latar belakang butiran projek. Kajian Literatur menunjukkan projek yang berkaitan dan Metodologi membincangkan kaedah untuk menjalankan projek itu. Rekabentuk dan pelaksanaan meliputi seluruh elemen multimedia. Pengujian dan Penilaian adalah untuk data yang dikumpulkan dan analisis bagi hasil. Kesimpulan Projek akan mengambil daripada analisis dan menentukan kekuatan dan kelemahan projek. Usul menambah baik projek akan dilakukan berdasarkan keputusan yang didapati dalam analisis pengujian dan penilaian. Ia bertujuan menambah baik projek sehingga menjadi produk yang berkualiti.

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LIST OF ABBREVIATIONS

PSM	-	Projek Sarjana Muda
3D	-	Three Dimension
RPG	-	Role Playing Games
ADDIE	-	Analysis, Design, Development, Implementation, Evaluate
FPS	-	First Shooting Person
QA	-	Question and Answer
UAT	-	User Acceptance Test
HCI	-	Human Computer Interface
GML	-	Game Maker Languages
TAM	-	Technology Acceptance Model
PEOU	-	Perceived Ease of Use
PU	-	Perceived Usefulness
ATTITUDE	-	Attitude Towards Using
ITU	-	Intention to Use
SD	-	Standard Deviation

CHAPTER I

INTRODUCTION

1.1 Project Background

Every game is serious, when you ask to the game developers and the hardcore gamer. They take seriously when developed and played it. For developers, it is honorable to them making the great game that played by thousands people across the countries. For the player, it is a self-satisfaction when winning the game they played. Describing the serious game means put the education as the main objective rather than entertainment only. This is what "Mr. Right Hat" has implemented in its gameplay. There are three levels that players need to go through. First and second level will introduce players to the Six Hat Thinking Technique. In the third level, the player will implement what they had learned by answering the question that related to Six Hat Thinking Technique.

1.1.1 Current Scenario

Critical thinking technique like Six Hat Technique can help people in making the Right decision. Many game has used this concept to help people increase the critical thinking skills while playing the game. For the example, board game like chess, the most popular game that need critical thinking to win the game by defeating the opponent. In a puzzle game, there are a lot of examples, like finding a hidden word, guess the word from similar picture, crossword, and Othello. All this game really encourages people to use brain to think and find the solution. For this project, games that will be compared is a Cyber Security game which name Kampung Cyber and the other one is Briker 2. Both game has same concept that need the player to think and find the Right decision to solve the problem.

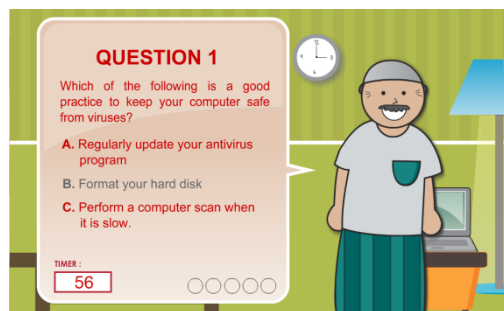


Figure 1.0: Show Kampung Cyber gameplay.



Figure 1.1 : Show game instruction of Brika 2.

1.1.2 Problem in current system

There is some improvement can be done in both games. This two game success implemented the critical thinking concept in the game as a method to win. Below is several suggestions that can be used to make the improvement:

1. This two element quiz and puzzle concept can be combined as one that will need to think more critically to play it.
2. Both game has just one goal to focus, by adding on some bonus element in game for player focus. Example, bonus score, power up and so on. This will make player more excited.
3. For Kampung Cyber maybe can make an avatar that controlled by player to go to each house. For Brika 2 also can make avatar rather than just a block, therefore player could feel more related to the game.
4. In Brika 2, only the move is counted. So, the timer can add to the game so player can know how fast they think to solve the problem. In future they can improve to be a fast thinker.

1.2 Problem Statements

The employer's of manufacturing industry in Malaysia find technical graduates in Malaysia with more than enough technical skills, however, employers feel less satisfied in terms of non-technical skills such as motivational skills, communication, interpersonal, critical thinking, problem solving and entrepreneurial skills(Mustapha & Greenan 1998).

Ministry of Higher Education Malaysia in the year 2006 has issued a list of non-technical skills that necessary to be implemented in every student in higher institutions in Malaysia. One of elements of non-technical skills in the outline are critical thinking and problem solving skills(Shakir 2009).

Employers expect that all of the engineers in Malaysia have the ability to improve their non-technical skills after graduating from university or in the workplace, but the situation is not(Zaharim 2008).

Critical thinking and its corollary and creative problem solving, are key for many companies, (Analysis 2000).

Thinking is not only for finding answers to problems but also to find the best solution to solve a problem. This can be explained more clearly if a skilled worker has a mastery of critical thinking and problem solving skills in a job(Nabil et al. 2011).

According to the problem statement, the game application to learn critical thinking technique will be created. It will provide the learning platform for people to learn the Six Hat which is one of the powerful critical thinking technique.

1.3 Objectives

1. To study how to integrate critical thinking technique which is Six Hat Thinking Technique in 3D game so that players will learn and practice while playing the game.
2. To design and develop 3D game that allows players to learn and practice Six Hat Thinking Technique while playing the game.
3. To evaluate the user experience using the game prototype.

1.4 Research Question

1. How to study and to integrate critical thinking technique which is Six Hat Thinking Technique in 3D game so that players will learn and practice while playing the game.
2. How to design and develop 3D game that allows players to learn and practice Six Hat Thinking Technique while playing the game.
3. To evaluate the user experience using the game prototype.

1.5 Scope

- Developing a 3D game by integrating Six Hat Thinking Technique.
- Target Audience : Student (Ages 17-25)
- Three different levels to introduce and testing about Six Hat Technique..
- The content of the game is based on Six Hat Technique questionnaire.