

UNIVERSITI TEKNOLOGI MARA

**INTERACTIVE GAME FOR THE
CHILDREN WITH DOWN
SYNDROME ON HAND-EYE
COORDINATION**

Ima Nuruljannah Binti Ismail

**Thesis submitted in fulfilment of the requirements for
Bachelor of Computer Science (Hons.) Multimedia Computing
Faculty of Computer and Mathematics Sciences**

July 2017

ACKNOWLEDGEMENT

In the Name of Allah, Most Gracious, Most Merciful. Alhamdulillah, I am thankful to Allah SWT for blessing me endlessly throughout my lives. I have put my best effort to complete this research while facing a lot of challenges. Special thanks to Abdul Hamid Bin Othman for being a very helpful and motivation supervisor. He is firm and patient enough to help me to complete my proposal. Last but not last, my gratefulness to all the people around me, special appreciation also goes to my beloved parents Ismail bin Muda and , siblings, lectures, classmates, and fellow friends for making my proposal completion possible in every way. As students, we will strive to keep improving our knowledge and skills in our studies. As my hope for the future, the project proposal will become a start of a successful graduation. Insha'Allah.

ABSTRACT

Down syndrome (DS) is one of the large condition caused of intellectual that impairment the hand-eye coordination. It difficulties that lead to delay many areas of development. For example, children with Down syndrome don't develop motor skills in the same way that the typically-developing child does. They find ways to compensate for the differences in their physical make-up, and some of the compensations can lead to long-term complications, such as pain in the feet or the development of an inefficient walking pattern. Patients also will lose faith and lack motivation to continue the exercise when they observe that there is no improvement when undergoing traditional rehab at home. From this problems, an interactive game are built to help children with Down syndrome to improve their rehabilitations focuses on hand-eye coordination. This game use the simple movement that give improvement for the children focuses on movement of fingers and their eyes. The game has been tested for its functionality on five respondents. The result shows that the game is functioning well with Down syndrome though recovering progresses and encourage more recovering by using keyboard. By using the advanced technology as an Adobe Flash CS3, an interactive game gives positive feedback of eye gaze and hand action. This game also presents the development processes, and also results for the testing of the application including a verbal opinion.

TABLE OF CONTENTS

CONTENT	PAGE
SUPERVISOR APPROVAL	i
STUDENT DECLARATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	vii
LIST OF TABLES	
CHAPTER ONE: INTRODUCTION	
1.1 Overview	1
1.2 Problem Statement	3
1.3 Objectives	3
1.4 Scope of Studies	4
1.5 Significant of Studies	4
1.6 Conclusion	4
CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction of Down syndrome	5
2.2 Related with Down Syndrome	6
2.3 Down syndrome Rehabilitation	6
2.3.1 Coordination	6
2.3.2 Hand-eye Coordination	7
2.4 Adobe Flash	7
2.5 Interaction Design	9
2.5.1 Task Oriented Training	8

CHAPTER 1

INTRODUCTION

1.1 Overview

Down syndrome is a condition caused by extra genetic material located at the 21st chromosome. It is one of the most common congenital syndromes and the largest single known cause of intellectual impairment. There is no association between Down syndrome and given culture, ethnic group, socio-economic status or geographic region (Smith, 1997). The increased maternal age is thought to increase the risk of having a child with Down syndrome although the causes is unknown.

In 1987, 94% of the teenagers were in schools for children with severe learning difficulties (SLD), 6% in schools for moderate learning difficulties (MLD). In 1988, as a result of this study and in line with legislative change towards inclusion in education in the UK, the Portsmouth team began to develop inclusive education in local mainstream schools for the children with Down syndrome starting school in the southeast part of the country of Hampshire. In the rest of the country most children with Down syndrome continued to be placed in special schools.

Based on what been stated, people with Down syndrome also experience learning difficulties that lead to delays many areas of development. However, not all areas of development are affected equally there are particular patterns of learning difficulties. These patterns can inform