UNIVERSITI TEKNOLOGI MARA

COMPUTER GAME APPROACH FOR CHILDREN WITH AUTISM SPECTRUM DISORDER: THEIR ENGAGEMENT AND SOCIAL COMMUNICATION SKILLS

SARA REISI DEHKORDI

Thesis submitted in fulfillment

of the requirements for the degree of

Master of Science

Faculty Of Computer And Mathematical Science

October 2015

AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name Of Student	:	Sara Reisi Dehkordi
Student I.D No.	:	2012633504
Programme	:	Master of Science CS780
Faculty	:	Faculty of Computer & Mathematical Sciences
Thesis Title	:	Computer Game Approach For Children With Autism Spectrum Disorder: Their Engagement And Social Communication Skills
Signature Of Student	:	.....
Date	:	October 2015

ABSTRACT

Autism Spectrum Disorder is characterized in three different areas by difficulties in social interaction, communication and repetitive behavior. Children with Autism Spectrum Disorder faced with difficulty in the communication skills area, which impacts their social world. Findings suggest that technology and computer devices are helpful educational aids for students with Autism. This research ongoing agenda is to find ways to design and develop an educational game on iOS platform and to test and evaluate of the effectiveness of this game. The research reported here involved 14 children with ASD, these students had problem in social communication areas and they showed improvement in social communication skills and user engagement after ten testing sessions in duration of two weeks. This research`s aim was to investigate each individual child`s problem regarding communication by means of design and develop an application for this purpose. By combining suitable components to engage the player and traditional psychological methods as a therapy purpose, use of proposed game encourages players to learn new things while they are working with technology. The results of this research demonstrate that the game that have been designed and developed based on the limitation of participants can promote communication skills in student and engage them in working with technology. The findings from this study reveal practices surrounding the use of computer game approach in therapy sessions and highlight important considerations for design, develop and evaluation of games which has been developed for children with Autism.

TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xi
LIST OF FIGURES	xii

CHAPTER ONE: INTRODUCTION

1.1 Background Of Study	1
1.2 Initial Study	3
1.2.1 Preliminary Study 1	4
1.2.1.1 What Is An Acceptance Technology	4
1.2.2 Preliminary Study 2	7
1.2.2.1 Why A Game	7
1.2.3 Preliminary Study 3	7
1.2.3.1 What Is The Main Problem With Asd Children	8
1.2.3.2 What Are The Specific Other Problems With Asd Children	8
1.2.4 Preliminary Study 4	9
1.2.4.1 What Is The Correct Age Ranging	11
1.2.4.2 Who Are The Participants	13
1.2.4.3 Questionnaire For Parents	14

1.3 Problem Statement 16

1.4 Research Objectives 18

1.5 Research Questions 18

1.6 Scope And Limitation Of Study 20

1.7 Significance 21

1.8 Research Framework 21

1.10 Contribution Of The Study 22

1.11 Overview Of Thesis Structure 23

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction 24

2.2 About Autism 24

2.2.1 Types Of Autism 25

2.2.2 Psychological Methods For Children With Asd 25

2.2.2.1 Applied Behavioral Analysis Method 26

2.2.2.2 Occupational Therapy 26

2.2.3 Autism And Communication 27

2.2.3.1 Communication And Modes Of Communication 28

2.3 Autism And Technology 28

2.3.1 Low Technology For Autism 29

2.3.2 Mid Technology For Autism 30

2.3.3 High Technology For Autism 30

2.4 Examples Of Different Types Of Assistive Technology 30

2.4.1 Video Modeling 31

2.4.2 Online Video Game 31

2.4.3 Computer Game 32

2.4.3.1 Serious Game 33