

37479

Universiti Teknologi MARA

**The Face Metaphor of a Virtual Teacher:
Development of the Engine to Convey
Sad Facial Expression**

Herni Haryati binti Badrulzaman

Thesis submitted in fulfilment of the requirements for
Bachelor of Science (Hons) Information Technology
Faculty of Information Technology And
Quantitative Science

October 2004

DECLARATION

I certify that this thesis and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

OCTOBER 11, 2004

HERNI HARYATI BADRULZAMAN

2002325608

ACKNOWLEDGEMENT

So much that I have learnt through out the process of completion of this project. I would like to express my gratitude to Allah s.w.t the most Gracious and most Merciful because eventually I could complete this project.

First and foremost, I would like to express my most sincere appreciation and gratitude to my supervisor, Dr Nor Laila Md Noor, for her guidance, counsel, patience and moral support; her constant encouragement and enthusiasm with idea were great source of inspiration. Secondly, my appreciation to BSc Information Technology and BSc Statistics lecturers for their guidance and assistance to me from the beginning till the end of my studies.

Most important, my expression of gratitude to my beloved parents especially to my mother, without their presence, encouragement and understanding, of this pursuit would not be successful.

Last but not least, to my colleagues who have directly and indirectly assisted and encourage me to accomplish this project.

Herni Haryati Badruzaman

TABLE OF CONTENTS

CONTENT	PAGE
TITLE	i
ACKNOWLEDGEMENT	ii
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABSTRACT	x
CHAPTER ONE: INTRODUCTION	
1.1 Research Background	1
1.2 Problem Statement	2
1.3 Objective of Research	3
1.4 Research Questions	3
1.5 Significance of Research	3
CHAPTER TWO: THEORETICAL CONSIDERATIONS	
2.1 Introduction	4
2.2 Research Framework	4
2.2.1 Human Face Features	5
2.2.2 Iconic Face	5
2.2.3 Sad Engine	6
2.2.4 Frown	6

ABSTRACT

This research is about developing a face metaphor of a virtual teacher that is used to create a sense of presence in the e-learning environment. In this research qualitative information through sad facial expression will be focused on. The expression of the virtual teacher will focus on the mouth area; example of sad facial expression with a closed mouth bent downwards. Exploratory approach is used in the construction of a model for face metaphor of the virtual teacher. In order to developed the sad facial expression of the virtual teacher, sad engine was first developed. Matlab is used to develop the sad engine. The sad engine was first construct using the technique derived from finite automata before codifying it into Matlab. There was five degree of sadness developed in the sad engine. The virtual teacher was first in the state of expressionless or the neutral state. As more and more incorrect answers were given, the degree of sadness will increased.