# UNIVERSITI TEKNOLOGI MARA

# A PATTERN TO PREDICT THE OCCURRENCE OF MOMENT OF INFORMATION OVERLOAD DURING ONLINE INFORMATION SEARCHING

# NUR AMIRAH BINTI MUSTAPAR

MSc

December 2017

### **UNIVERSITI TEKNOLOGI MARA**

### A PATTERN TO PREDICT THE OCCURRENCE OF MOMENT OF INFORMATION OVERLOAD DURING ONLINE INFORMATION SEARCHING

#### NUR AMIRAH BINTI MUSTAPAR

Thesis submitted in fulfilment of the requirements for the degree of **Master of Science** (Information Technology)

**Faculty of Computer and Mathematical Sciences** 

December 2017

#### ABSTRACT

Scholars have identified that individuals are confronted with information overload during searching for the information in the virtual library. They sometimes do not realize they are overloaded until the symptoms appear and this will lead to many bad effects such as stress and decreased efficiency in decision making. Moreover, previous literature claims that information overload also will lead to the changes in physiological signal of an individual which later result in decreased efficiency of information processing. Several scholars have analysed this phenomenon and investigated its causes, symptoms, effects and countermeasures of information overload but there are lacking empirical data to detect moment of information overload as moment can be represented as a point along the chronological continuum at which occur a certain effects. The purpose of having those empirical data is that it can eliminate the bad effects of information overload. Therefore, the primary purpose of this research is to detect the existence and the occurrence of moment of information overload among individuals during searching in virtual library, which focusing on the pattern reflected in the physiological data that can potentially be used as indicator of moment of information overload. In order to detect the pattern of moment of information overload, this study adopted user testing methods and adopted methods from psychophysiology for elucidating relations between the mind and the body. Collected empirical data were analysed using quantitative analysis and were presented using graphs and tables. Moment is detected as changes of reading of indicator. Study findings revealed that heart rate measurement is the best measure compared to other physiological measurement and the underlying pattern of moment of information overload is presented in a form of matrix. From the study findings, the recommendation of the future work was made which is the detected pattern can be used to design an application which monitor the information load among the individuals.

#### ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to my supervisor Dr. Natrah Abdullah @ Dolah for the continuous support of my master study, for her patience, motivation, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my master study. Besides my supervisor, I would like to thank my co-supervisor Prof. Dr. Norlaila Mohd Noor for her insightful comments and encouragement, but also for the hard question which incanted me to widen my research from various perspectives.

My sincere thank also goes to Madam Zatul Amilah Shaffiee for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. Without her precious support it would not be possible to conduct this research.

I would like to thank my family, my mother my late father my mother in law, my father in law, and to my brothers and sisters for supporting me spiritually throughout writing this thesis and my life in general. Last but not the least, I thank my fellow lab mates for the stimulating discussions, and for all the support and encouragement throughout my years of study. My appreciation also goes to my husband for the sleepless nights we were working together before deadlines. This accomplishment would not have been possible without them. Thank you.

#### TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENT	VI
LIST OF FIGURES	ix
LIST OF TABLES	xi
LIST OF ABBREVIATIONS	xii
CHAPTER ONE: INTRODUCTION	1
1.1 Research Background	1
1.2 Problem Statement	5
1.3 Research Questions	6
1.4 Research Objectives	6
1.5 Research Scope And Limitation	6
1.6 Research Significance	7
CHAPTER TWO: LITERATURE REVIEW	8
2.1 Information Overload	8
2.1.1 Conceptual Framework Of Information Overload	12
2.1.2 Causes Of Information Overload	12
2.2 Defining Moment	20
2.3 Research Framework	23
2.3.1 Cognitive Load Theory	24
2.3.2 User Centered Approach: Psychophysiological Approach	26
2.4 Heart Rate Measurement	28
2.5 Information Search	29
2.6 Patterns For Interaction Design	30
2.7 Methodology : User Testing	31
2.8 Summary	33