UNIVERSITI TEKNOLOGI MARA

USER CENTRED APPLICATION MODEL: ADRESSING THE INFORMATION ACQUISITION PROCESS TO MANAGE INFORMATION OVERLOAD PHENOMENON AMONG POSTGRADUATE STUDENTS IN PUBLIC UNIVERSITY

ZATUL AMILAH BINTI SHAFFIEI

Thesis submitted in fulfilment
of the requirements for the degree of
Doctor of Philosophy
(Information Technology)

Faculty of Computer and Mathematical Sciences

January 2026

ABSTRACT

Information overload phenomenon has been extensively discussed at the individual, organisational, and societal levels. This research has concentrated on personal level that is individual specifically towards postgraduate students due to less attentions were given to this group. Information overload phenomenon could be initiated due to several factors such as information, information technology, task, organisation, and the person itself. The factors could lead to variety of symptoms and information overload effects that need for appropriate countermeasure as a means of managing the information overload phenomenon. According to the findings of a preliminary study and interview among postgraduate students, a factor studied in this research is the person factor, which led to attention and attitude symptoms and affected the information search direction. The person factor has a significant impact on the information overload phenomenon among postgraduates. There are a wide range of solutions that has been offered including technological and behavioural solutions towards information overload phenomenon. Nonetheless, the existing solutions still need some enhancement to cater the person needs. The existing solution focussed on the hard approach that is technical part of the technology rather than soft approach. Soft approach is absent in the current solutions which focus on user centred perspective in the technology. Thus, this research aims to propose a user centred application model which will be able to manage individual information overload. The research endeavour to study human factors causing information overload among postgraduates, propose a user centred application model, and verify its relevance in managing information overload phenomenon. Furthermore, theoretical study and content analysis had been completed to come out with user centred application model which addressed the information acquisition process among user which assumed to influence the user performance. Based on expert evaluation finding, the user characteristics components which are knowledge, awareness, activity and human capability being considered relevant to application which is used by specific users since they have similar user characteristics. Model refinement had been made with additional components which are action plan and support system to ensure user centredness. Lastly, expert verified that the model is relevant in system design and system development practices. It is realistic to be practiced in industry. Besides, the postgraduate students had also verified that the user centred components are important when utilising the application in IT infrastructure which had proven to improve their research performance and indirectly manage their information overload. Eventually, this model will guide and facilitate the design of user centred applications, benefiting future researchers, developers, and designers in creating better applications.

ACKNOWLEDGEMENT

In the Name of Allah, I am grateful that I have completed my thesis. I am indebted to the Ministry of Higher Education (MOHE) for the scholarship award. It has been a journey of invaluable experience and discovering knowledge. Many people I would like to express my gratitude for helping me in the pursuit of this PhD research. I wish it were possible to thank them all.

Firstly, I wish to thank God for giving me the opportunity to embark on my PhD and for completing this long and challenging journey successfully. My gratitude and thanks go to my ex-supervisor Prof Dr. Nor Laila Md Nor, my supervisor Assoc Prof Dr. Natrah Abdullah and my co-supervisor Dr. Ahmad Iqbal Hakim Suhaimi for their endless support.

My appreciation goes to Faculty of Computer and Mathematical Sciences (FSKM), UiTM Shah Alam which provided the facilities and assistance throughout the journey. Special thanks to my colleagues and friends for helping me with this research.

Finally, this thesis is dedicated to the loving memory of my very dear late mother for the vision and determination to educate me. My father (Shaffiei Mohd) who always pray for my success and my siblings who always supported me. My precious family including my husband (Ahmad Naquib Zafri Zakaria) and my kids (Ahmad Zhareef and Ahmad Zhaheen). I am grateful for their presence during my battle in this tough PhD journey. This piece of victory is dedicated to all of you. Alhamdulillah.

TABLE OF CONTENTS

CHAPTER 1
INTRODUCTION

1.1 Chapter Overview

This chapter serves as an introductory section which provides a synopsis of the thesis and introduces the readers to the research domain and other area of concern investigated by this research. The research objectives and related research questions are then presented, followed by brief descriptions of the research scope and approach. The chapter concludes with the significance of the research and presents the outline of the thesis.

1.2 Research Background

Information overload is not a new phenomenon. It has been in existence for more than 50 years and the earliest example can be found from the library of Alexandria where archaeological evidence shows that there was too much information in a place that a human being could deal with (Shirky, 2008; Whelan & Teigland, 2010) due to limitation of human information processing capacity (Ji, Ha & Sypher, 2014; Laudon, 2014; Pentina & Tarafdar, 2014; Rodriguez, Gummadi & Schoelkopf, 2014; Whelan & Teigland, 2013). Then the futurologist, Alvin Toffler popularised the term in his most notable book, Future Shock, written in 1970, expected that the continuing explosion of information would finally cause problems (Toffler, 1990; Whelan & Teigland, 2013). Since then, information overload research becomes extensive (Lincoln, 2011) and information overload has been found as a multidisciplinary phenomenon that affects individuals, organisations (Butcher, 1995; Edmund & Morris, 2000; Jackson & Farzaneh, 2012; Koots, 2006; Manwani, Bech & Dahlhoff, 2001; Whelan & Teigland, 2013) groups and society (Manwani, Bech & Dahlhoff, 2001; Whelan & Teigland, 2013). Numerous research has been completed on the effects of the information overload phenomenon and its impact on personal, organisational and social.

However, this research is looking at a small scope which is on a personal level. Personal information overload is described as an individual's perception that the flow of information connected with work tasks is higher than can be properly managed, and