TRENDS AND ISSUES INFORMATICS RESEARCH METHODS

TRENDS AND ISSUES

EDITED BY RASIMAH CHE MOHD YUSOFF Doris Wong Hooi Ten



First Edition 2023 © RASIMAH CHE MOHD YUSOFF & DORIS WONG HOOI TEN 2023

Hak cipta terpelihara. Tiada dibenarkan mengeluar ulang mana-mana bahagian artikel, ilustrasi, dan isi kandungan buku ini dalam apa juga bentuk dan cara apa jua sama ada dengan cara elektronik, fotokopi, mekanikal, atau cara lain sebelum mendapat izin bertulis daripada Timbalan Naib Canselor (Penyelidikan & Inovasi), Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor Darul Ta'zim, Malaysia. Perundingan tertakluk kepada perkiraan royalti atau honorarium.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopying, recording, or any information storage and retrieval system, without permission in writing from Deputy Vice-Chancellor (Research & Innovation), Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor Darul Ta'zim, Malaysia. Negotiation is subject to royalty or honorarium estimation.

Editor : RASIMAH CHE MOHD YUSOFF & DORIS WONG HOOI TEN Editor Penyelaras/*Acquisition Editor* : RASYIQAH ABD RANI & NUR ALIAH ABU ZAKI Pereka Kulit / *Cover Designer* : NUR'ATIQAH ARSHAD

Diatur huruf oleh / Typeset by :

RASIMAH CHE MOHD YUSOFF & DORIS WONG HOOI TEN Razak Faculty of Technology and Informatics UNIVERSITI TEKNOLOGI MALAYSIA 54100 UTM Kuala Lumpur Wilayah Persekutuan Kuala Lumpur, MALAYSIA

Diterbitkan di Malaysia oleh: **PENERBIT UTM PRESS** UNIVERSITI TEKNOLOGI MALAYSIA 81310 UTM Johor Bahru Johor Darul Ta'zim, MALAYSIA (PENERBIT UTM ahli MAJLIS PENERBITAN ILMIAH MALAYSIA–MAPIM dan MABOPA dengan no. keahlian 9101)

Dicetak di Malaysia oleh: JASAMAX ENTERPRISE No. 16, Jalan Kebudayaan 2, Taman Universiti 81300 Skudai, Johor, MALAYSIA



Cataloguing-in-Publication Data Perpustakaan Negara Malaysia A catalogue record for this book is available from the National Library of Malaysia ISBN 978-983-52-2002-9

Contents

Contributors Preface		vii ix
Chapter 1	Research Methods in Informatics <i>Rasimah Che Mohd Yusoff and</i> <i>Doris Wong Hooi Ten</i>	1
PART I	Quantitative Research Methods	
Chapter 2	Fundamentals of Survey Method Rasimah Che Mohd Yusoff, Sya Azmeela Shariff, Norziha Megat Mohd Zainuddin, and Roslina Ibrahim	13
Chapter 3	A Survey Instrument Development to Evaluate the Adoption of Social Networking Sites Yazriwati Yahya, Nor Zairah Ab Rahim, Roslina Ibrahim, and Nilam Nur Amir Sjarif	33
Chapter 4	Working on User Experience Research Participants with Impairments Lim Ean Heng, Lee Chen Kang, Manoranjitham Muniandy, and Doris Wong Hooi Ten	61

vi Contents

Chapter 5	Assessment of Validity and Reliability of Instruments for Modified Data Architecture Metamodel of Open Government Data: A Comprehensive Content Validity Index Analysis Intan Maizura Arzimi, Nur Azaliah Abu Bakar, and Suziane Haslinda Suhaimi	73
Chapter 6	Exploratory Factor Analysis: State-of-the-Art Review and Contemporary Applications <i>Lee-Kwun Chan, Doris Wong Hooi Ten,</i> <i>Chee-Chieh Tey, and Norazira A Jalil</i>	109
Chapter 7	Statistical Model and Method in Regression Based Prediction Nurulhuda Firdaus Mohd Azmi, Nilam Nur Amir Sjarif, Norziha Megat Zainuddin, and Istas Fahrurrazi Nursyirwan	149
PART II	Qualitative Research Methods	
Chapter 8	Deductive Qualitative Analysis Approach Rohaizan Daud, Nor Zairah Ab Rahim, Roslina Ibrahim, and Suraya Ya'acob	171
Chapter 9	Delphi Technique Anusuyah Subbarao and Mohd Naz'ri Mahrin	187
Index		205

Contributors

- **Anusuyah Subbarao** Faculty of Management, Multimedia University Malaysia, Cyberjaya
- **Chee-Chieh Tey** Faculty of Information and Communication Technology, Universiti Tunku Abdul Rahman, Kampar
- **Doris Wong Hooi Ten** Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Intan Maizura Arzimi Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Istas Fahrurrazi Nusyirwan Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Lee Chen Kang Faculty of Information and Communication Technology, Universiti Tunku Abdul Rahman, Kampar
- Lee-Kwun Chan Faculty of Information and Communication Technology, Universiti Tunku Abdul Rahman, Kampar
- Lim Ean Heng Faculty of Information and Communication Technology, Universiti Tunku Abdul Rahman, Kampar
- Manoranjitham Muniandy Faculty of Information and Communication Technology, Universiti Tunku Abdul Rahman, Kampar
- Mohd Naz'ri Mahrin Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Nilam Nur Amir Sjarif Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Nor Zairah Ab Rahim Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- **Norazira A Jalil** Faculty of Information and Communication Technology, Universiti Tunku Abdul Rahman, Kampar
- Norziha Megat Mohd Zainuddin Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur

- Nur Azaliah Binti Abu Bakar Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Nurulhuda Firdaus Mohd Azmi Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- **Rasimah Che Mohd Yusoff** Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Rohaizan Daud Institut Tadbiran Awam Negara, Kuala Lumpur
- **Roslina Ibrahim** Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Suraya Ya'acob Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Suziane Haslinda Suhaimi Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Sya Azmeela Shariff Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur
- Yazriwati Yahya Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur

Preface

In the dynamic landscape of the digital age, the field of informatics has emerged as a driving force behind innovation, transformation, and progress across industries. The fusion of informatics with fields as diverse as education, business, social sciences, and beyond demands flexibility in research methods that can adapt to the unique challenges and opportunities presented by each domain. As the digital era continues to unfold, the demand for insights derived from robust research methods becomes increasingly critical. The blend of theory and practice, the interplay of innovation and methodology, and the fusion of data and insights all contribute to the unique character of research in informatics. Research methods play a crucial role in the field of academia, scientific inquiry, and various professional disciplines. They provide a systematic and structured approach to investigating questions, solving problems, and advancing knowledge in a rigorous and reliable approach.

This book chapter delves into the dynamic landscape of research methods within the informatics domain. It serves as a comprehensive guide for researchers, scholars, and students who seek to navigate the intricacies of conducting research in this ever-evolving field. Included in this are nine chapters that illustrating quantitative and qualitative research methods in various informatics domain:

- (1) Research Methods in Informatics
- (2) Fundamentals of Survey Method

- (3) A Survey Instrument Development to Evaluate the Adoption of Social Networking Sites
- (4) Working on User Experience Research Participants with Impairment
- (5) Assessment of Validity and Reliability of Instruments for Modified Data Architecture Metamodel of Open Government Data: A Comprehensive Content Validity Index Analysis
- (6) Exploratory Factor Analysis: State-Of-The-Art Review and Contemporary Applications
- (7) Statistical Model and Method in Regression Based Prediction
- (8) Deductive Analysis Qualitative Approach
- (9) Delphi Technique

We extend our gratitude to the contributors of this book chapter, who bring together their expertise and experiences to illuminate the path for researchers navigating the uncharted waters of informatics research methods. Their collective insights will undoubtedly inspire and guide readers in their quest to unravel this growing field of informatics research.

Rasimah Che Mohd Yusoff Doris Wong Hooi Ten

Universiti Teknologi Malaysia 2023