RESEARCH METHODOLOGY PRACTICAL LABS AND GUIDES

Authors:
Shazaitul Azreen Rodzalan
Nor Hazana Abdullah
Nor Aziati Abdul Hamid
email:
shazaitul@uthm.edu.my, hazana@uthm.edu.my,
aziati@uthm.edu.my

Abstract:
Research Methodology: Practical Labs and Guides is a thorough guide designed to lead researchers through every phase of the research process, whether using quantitative or qualitative methods. It provides hands-on lab sheets and instructions for each research step, ensuring that researchers are well-equipped to plan, execute, and report their studies successfully. The book begins by introducing fundamental research concepts and differentiating between quantitative and qualitative methodologies, setting a strong foundation for the research journey. The book will guiding researchers on selecting a research topic and effectively searching for relevant literature using Mendeley software. Next, the section on formulating a problem statement helps researchers refine and clarify their research problem, creating a clear focus for their inquiry. This book also includes labs on developing a literature review matrix (LR Matrix) to synthesize existing research, formulate focused research questions, and conceptualize and operationalize variables. In addition, it covers labs on designing surveys and interviews, as well as collecting data. Once data is collected, the book provides labs on analyzing and interpreting both quantitative and qualitative data. Finally, the section on reporting offers advice on effectively communicating research findings, including the appropriate structure and style for research reports.

Keywords: guide designed to lead researchers, quantitative or qualitative method

Research Methodology:

Practical Labs and Guides

SHAZAITUL AZREEN RODZALAN
NOR HAZANA ABDULLAH
NOR AZIATI ABDUL HAMID

Research Methodology:

Practical Labs and Guides

SHAZAITUL AZREEN RODZALAN
NOR HAZANA ABDULLAH
NOR AZIATI ABDUL HAMID

Penerbit UTHM
2024

© Penerbit UTHM
Published 2024

Copyright reserved. Reproduction of any articles, illustrations and content of this book in any form be it electronic, mechanical photocopy, recording or any other form without any prior written permission from The Publisher's Office of Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, Johor is prohibited. Any negotiations are subjected to calculations of royalty.

Authors:
Shazaitul Azreen Rodzalan
Nor Hazana Abdullah
Nor Aziati Abdul Hamid
Muhammad Ammar Shafi
Lee Te Chuan
Siti Norziah Ismail

Published by:
Penerbit UTHM
Universiti Tun Hussein Onn Malaysia
86400 Parit Raja,
Batu Pahat, Johor.
Tel: 07-453 8698/8529
Fax: 07-453 6145

Printed by:
Reka Cetak Sdn. Bhd.
No 14, Jalan Jemuju Empat 16/13d,
Seksyen 16, 40200 Shah Alam,
Selangor.
Tel: 03-5510 4254

Website: http://penerbit.uthm.edu.my
E-mail: pemasaran.uthm@gmail.com
http://e-bookstore.uthm.edu.my

Penerbit UTHM is a member of
Majlis Penerbitan Ilmiah Malaysia
(MAPIM)

Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available from the National Library of Malaysia

ISBN 978-629-490-106-3

CONTENTS

CONTENTS			PAGE
PREFACE			xi
Chapter 1	**Overview of Research Process**		
	1.1	Chapter Outline	1
	1.2	Learning Objectives	1
	1.3	Chapter Overview	1
Chapter 2	**Information Searching**		
	2.1	Chapter Outline	7
	2.2	Learning Objectives	7
	2.3	Types of Data Sources	7
	2.4	Steps by steps of information searching using UTHM E-Resources	8
		Lab Sheet 1: Information Searching	13
Chapter 3	**Mendeley Reference Management**		
	3.1	Chapter Outline	15
	3.2	Learning Objectives	15
	3.3	Reference Management	15
	3.4	Introduction to Mendeley	18
	3.5	How Mendeley Works	22
	3.6	How to Reference / Cite on Mendeley	28
		Lab Sheet 2: Reference Management	33

Research Methodology FINAL.indd 7 9/30/2024 10:41:04 AM

Chapter 4 Problem Statement Formulation

4.1 Chapter Outline 37
4.2 Learning Objectives 37
4.3 Problem Statement Overview 37
4.4 Source of Problem Statement 39
4.5 Good Problem Statement 40
4.6 Selecting Research Problem 40
4.7 Step by Step Technique in Problem Statement Formulation 41
4.8 Problem Statement Components 42
4.9 How to Write Problem Statement 43
4.9.1 Problem Statement Example 43
Lab Sheet 3: Problem Statement Formulation 45

Chapter 5 Literature Review Matrix

5.1 Chapter Outline 49
5.2 Learning Objectives 49
5.3 Chapter Overview 49
Lab Sheet 4: Literature Review Matrix 55

Chapter 6 Conceptualization, Operationalization & Hypotheses Formulation

6.1 Chapter Outline 59
6.2 Learning Objectives 59
6.3 Chapter Overview 59
Lab Sheet 5: Conceptualization, Operationalization & Hypotheses Development 65

Chapter 7 Survey Research Design

7.1 Chapter Outline 69
7.2 Learning Objectives 69
7.3 Survey Research Design 69
7.4 Types of Simple Survey Research 70
7.5 Guidelines for Questionnaire Design 73
7.5.1 Principles of Wording 74

Research Methodology FINAL.indd 8 9/30/2024 10:41:04 AM

7.5.2 Principle of Measurement 76
7.5.3 General "Getup" 77
7.6 Stages of Survey Research Process 81
Lab Sheet 6: Survey Research Design 85

Chapter 8 Interview Research Design
8.1 Chapter Outline 87
8.2 Learning Objectives 87
8.3 Overview of Interview 87
8.4 Types of Interview Questions 88
8.5 Tips for Interviewing 88
8.6 Stages in Interview 89
8.7 The Questioning Techniques and Probing 91
8.8 Interview Protocol 91
Lab Sheet 7: Interview Research Design 95

Chapter 9 Data Collection
9.1 Chapter Outline 97
9.2 Learning Objectives 97
9.3 Chapter Overview 97
9.4 Pilot Study 105

Chapter 10 Quantitative Data Analysis (Fundamentals of SPSS)
10.1 Chapter Outline 107
10.2 Learning Objectives 107
10.3 Overview of SPSS 107
10.4 Steps by Steps of Quantitative Data Analyses 112
10.4.1 Data Cleaning 112
10.4.2 Reliability Analysis 115
10.4.3 Data Transformation 118
10.4.4 Descriptive Analysis 121
10.4.5 Normality Test 125
10.4.6 Inferential Analysis 128
Lab Sheet 8: Quantitative Data Analysis (Fundamentals of SPSS) 135

Research Methodology FINAL.indd 9 9/30/2024 10:41:04 AM

Chapter 11 Qualitative Data Analysis (Interview)

11.1	Chapter Outline	139
11.2	Learning Objectives	139
11.3	Qualitative Data Analysis	139
11.4	Thematic Analysis	143
	Lab Sheet 9: Qualitative Data Analysis (Interview)	149

Chapter 12 The Research Report

12.1	Chapter Outline	153
12.2	Learning Objectives	153
12.3	The Writing Process	154
	Lab Sheet 10: Reporting Style	155

BIBLIOGRAPHY 163

BIOGRAPHIES 165

INDEX 167

Research Methodology FINAL.indd 10 9/30/2024 10:41:04 AM

PREFACE

“Research Methodology: Practical Labs and Guides is a straightforward guide tailored for beginner researchers. It’s specifically created to help undergraduate students embark on their research journey, from selecting the right topic and designing a study to gathering data, analyzing it, and sharing their findings. The book uses simple language, ensuring you won’t feel overwhelmed by the complexities of research.

To make things even easier, we’ve included practical lab sheets along with clear instructions. Think of these sheets as your reliable guides and tools for your research expedition. They’ll help you stay on course and complete your work efficiently.

Remember, research is an adventure—an opportunity to explore, discover, and make a difference. So, let’s begin this exciting journey together. Put on your thinking cap, and dive into the world of Research Methodology: Practical Labs and Guides.

Happy researching!”

Research Methodology FINAL.indd 11 9/30/2024 10:41:04 AM

CHAPTER 1

Overview of Research Process

1.1 CHAPTER OUTLINE

Chapter 1 introduces pertinent research processes to ensure research's rigor. Although quantitative and qualitative research processes are different in terms of approaches, they mostly consist of similar activities. This chapter describes each quantitative and qualitative research processes to assist novice researchers to make sense of which processes are similar and which differ.

1.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Understand quantitative research processes.
ii. Understand qualitative research processes.
iii. Differentiate between quantitative and qualitative research processes.

1.3 CHAPTER OVERVIEW

Quantitative research process involves several steps, each crucial in ensuring a systematic and valid investigation as shown in Figure 1.1.

These following steps briefly explain the essence of conducting quantitative research.

1. Select Topic

   The first step in conducting research is to select a suitable and relevant topic that is aligned with your interests, expertise, and the scope of your study. The importance of the topic, its relevance to the field, and its potential contributions to existing knowledge need to be established. To do that, you need to know how to find the topic using information searching and manage that information through referencing management. Information searching enables researchers to locate different types of literature related to the topic, conduct a literature

Research Methodology FINAL.indd 1 9/30/2024 10:41:04 AM

CHAPTER 2

Information Searching

2.1 CHAPTER OUTLINE

Chapter 2 introduces researchers to the process and stages of conducting social research. Specifically, it explains steps by steps of information searching using various databases such as Scopus, Emerald, Google Scholar and others. It includes how to use appropriate key words in information searching using the databases. These databases become the initial point for the researchers to understand how to search the right information pertaining to their research. Lastly, this chapter describe ways to perform in text citation and in reference list using APA style.

2.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Explains steps by steps of information searching using databases.
ii. Use appropriate key words in performing the information searching.
iii. Describe the types of citation from difference sources, including in text citation and in reference list.

2.3 TYPES OF DATA SOURCES

Typically, there are two main types of data sources, referring to primary data and secondary data. Primary data are records that are original in character, where researcher obtains first hand for achieving objectives of the study (Sekaran & Bougie, 2016; Kothari, 2004). Primary data can be collected through several ways such an interviews, questionnaires, and experiments. The questionnaires development will be explained in details, in Chapter 7: Survey Research Design, while the following Chapter 8 will explains on interviews research design.

In contrast to primary data, secondary data are those data obtained secondary sources such as online records, library repositories, and Systematic Literature Review (SLR). Secondary data is a data used to reinforce understanding of

Research Methodology FINAL.indd 7 9/30/2024 10:41:05 AM

CHAPTER 3

Mendeley Reference Management

3.1 CHAPTER OUTLINE

Chapter 3 introduces the method of using Mendeley Reference Manager along with the reference format used in UTHM thesis writing. The citation format and referencing style have an impact on the entire thesis writing and scientific paper produced. Various formats also slow down the writing process if it is done manually without the help of tools that can speed up the writing process and organize the reference list in a more orderly manner and can be run automatically.

Accordingly, several tools for managing reference lists are available on the market. Among the popular ones used are Mendeley, EndNote, Zotero and various other tools. For the practical purposes of this chapter, the tool used is Mendeley. In this chapter, students will be introduced to how to use Mendeley starting from the installation process until generating the reference list and choosing the right citation format according to the university's thesis format.

3.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Understand how Mendeley works and how to manage reference / cite using Mendeley.
ii. Use the Mendeley Reference Manager for academic writing purposes in accordance with the university format.
iii. Use the web importer function as well as merging the citations in Mendeley.

3.3 REFERENCE MANAGEMENT

Referencing is a scientific method of defining a data source by providing a standard set of data that makes it simple to identify, search for, and retrieve the data. While a bibliography lists all relevant sources, regardless of whether they were cited or not, referencing only includes the sources of information that are specifically cited

Research Methodology FINAL.indd 15 9/30/2024 10:41:13 AM

CHAPTER 4

Problem Statement Formulation

4.1 CHAPTER OUTLINE

Chapter 4 introduces students to the main components of research problem writing as well as the characteristics of a good problem statement. Students were also exposed to the importance of problem statements in research as well as the steps of writing problem statements.

"Problem statements lead the reader from a shared context to the perception of a problem, and on to a proposed solution".

4.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Identify problem areas that are likely to be studied in organizations
ii. Construct problem statement for the research
iii. Narrow down a broad problem statement into feasible topic for research

4.3 PROBLEM STATEMENT OVERVIEW

Creating a problem statement in business and management research is a crucial step that greatly impacts the study's success. An effective problem statement should clearly express the issues, possible causes, and resource implications related to the issue, acting as a communication tool for stakeholders, including management and technical staff. Researchers should start by focusing on a manageable segment of their research area, ensuring the problem is articulated clearly and without ambiguity, which aids in finding solutions. Additionally, it is important to consider various stakeholder viewpoints and different aspects of the problem, such as scientific, social, and economical factors, to prevent misidentifying the issue. A structured approach to problem statements can improve clarity and effectiveness, as shown by identifying key indicators that highlight the problem's components. Ultimately, a thorough approach to problem formulation, which

Research Methodology FINAL.indd 37 9/30/2024 10:41:17 AM

CHAPTER 5

Literature Review Matrix

5.1 CHAPTER OUTLINE

Chapter 5 focuses on how to develop literature review matrix and to use it for identification of empirical gaps.

5.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Understand the purpose of developing a literature review matrix
ii. Demonstrate the ability to read and map literature in the matrix table
iii. Critically analyze past literatures.

5.3 CHAPTER OVERVIEW

Conducting a systematic literature review involves a structured and rigorous process to identify, select, analyze, and synthesize relevant research studies on a specific topic. The following steps describe the details.

i. Specify Inclusion and Exclusion Criteria

As you search for relevant studies, you'll encounter thousands of studies from a variety of sources. To better manage your searching activities, it is important to specify specific criteria for including or excluding studies. One of the most important inclusion criteria is to select only studies that have similar dependent variables. For example, loyalty can be a dependent variable (DV – the effect) or independent variable (IV – the effect) in a study. If you were to choose studies related to loyalty as DV, exclude all studies that regard loyalty as IVs. This type of strategy could help you tremendously in managing the literature. Other factors that can be used as inclusion or exclusion criteria include publication date and study design. The rule of thumb is to focus on the past five years of studies and extend the period of publications if the availability of studies is very limited. If your research has only

Research Methodology FINAL.indd 49 9/30/2024 10:41:18 AM

CHAPTER 6

Conceptualization, Operationalization & Hypotheses Formulation

6.1 CHAPTER OUTLINE

Chapter 6 describes the process of conceptualization and operationalization. These two important concepts are often used together when designing research methodology. They refer to different stages in the research process and involve defining and translating abstract concepts into concrete terms for measurement. Hypotheses formulation could only be done correctly if conceptualization and operationalization are linked at theoretical and empirical levels.

6.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Understand the conceptualization process.
ii. Understand the operationalization process.
iii. Differentiate conceptualization and operationalization processes.
iv. Demonstrate the ability to develop hypotheses.

6.3 CHAPTER OVERVIEW

Figure 6.1 shows how a variable is being conceptualized to become the conceptual definition. It is then being further operationalized to yield operational definitions which become the basis for measurement.

Research Methodology FINAL.indd 59 9/30/2024 10:41:19 AM

CHAPTER 7

Survey Research Design

7.1 CHAPTER OUTLINE

Chapter 7 explains the research design and questionnaire research is one of the most frequently used methods, especially in the field of management and business. In this chapter, various types of surveys are introduced along with the survey process. Despite the broad-based societal acceptance of survey research, there remains a lingering doubt, especially within the general population at large, concerning the reliability of information derived from relatively few respondents purporting to represent the whole. Therefore, understanding the advantages, the correct process and method in the development of a survey greatly affects the results of the findings and needs to be compatible with the objective of the study to be achieved.

7.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Understand the role of research design and survey design in research
ii. Adapt the survey design process in completing the research activities
iii. Identify the strength and weaknesses of survey design

7.3 SURVEY RESEARCH DESIGN

A survey is an approach for collecting information from or about people to ascertain individuals' attitudes, beliefs, opinions, or their reporting of their experiences and/or behaviors. Surveys rely on asking people standardized questions that can be analyzed statistically. They allow researchers to collect a breadth of data from large samples and generalize to the larger population from which the sample was drawn. The survey strategy is very popular in social science and business research, because it allows the researcher to collect quantitative and qualitative data on many types of research questions. Indeed, surveys are commonly used in exploratory and descriptive research to collect data about people, events,

Research Methodology FINAL.indd 69 9/30/2024 10:41:20 AM

CHAPTER 8

Interview Research Design

8.1 CHAPTER OUTLINE

Chapter 8 discusses research design specifically related to interview. In details, this chapter begins with the overview of interview research design, types of interviews and followed by tips for interviewing. This chapter also highlights the stages in interview, including question techniques in probing during interview session and how to design interview protocol. Lastly, this chapter explains six interview bias.

8.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Discuss how to design interview, its types and tips for interviewing.
ii. Explains the stages in designing interview.
iii. Design interview protocol in obtaining the data collection.

8.3 OVERVIEW OF INTERVIEW

Typically, there are two types of data sources referring to primary and secondary data. The primary data can be obtained first-hand by the researcher related to the variables of interest from individuals, focus group or respondents and most popular sources from questionnaires (quantitative) and interview (qualitative). Meanwhile, the information that can be gathered from the existing sources is known as secondary data. This secondary data can be obtained from company records, reports, and industry analyses.

An interview is generally a qualitative research technique that involves asking open-ended questions to converse with respondents and collect elicit data about a subject. The interview session aims to obtain participants' experiences, understandings, opinions, or motivations regarding subject of interest.

Research Methodology FINAL.indd 87 9/30/2024 10:41:22 AM

CHAPTER 9

Data Collection

9.1 CHAPTER OUTLINE

Chapter 9 describes data collections techniques for both quantitative and qualitative research. It is one of the most challenging steps in both types of research as it is not only time consuming but also costly in certain cases.

9.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Describe quantitative data collection techniques
ii. Describe qualitative data collection techniques
iii. Explain the ethics of data collection
iv. Demonstrate the ability to collect data effectively

9.3 CHAPTER OVERVIEW

Depending on their research questions, objectives, and the characteristics of the phenomenon they are studying, researchers frequently decide between quantitative and qualitative data collection methods. To understand a research problem more thoroughly in some cases, mixed methods research combines the two approaches. Research methods called quantitative data collection methods are used to collect numerical data for statistical analysis. These techniques are frequently used in empirical research to methodically gather and quantify data, allowing researchers to reach unbiased conclusions and generalize about a population. Quantitative and qualitative data collection methods have several crucial differences as listed in Table 9.1.

The key distinction between quantitative data collection methods and qualitative data collection methods lies in how the data is collected and analyzed. For example, observation is qualitative when it concerned with exploring and understanding the nuances and underlying meanings of observed phenomena. It is more subjective

Research Methodology FINAL.indd 97 9/30/2024 10:41:23 AM

CHAPTER 10

Quantitative Data Analysis (Fundamental of SPSS)

10.1 CHAPTER OUTLINE

Chapter 10 explains fundamental of SPPS, including detail steps by steps in importing data, data screening, and several data analysis for both descriptive and inferential analyses.

10.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

Describe processes in analyzing quantitative data using SPSS software by,

i. getting data ready for analysis
ii. preparing the data file
iii. getting feel for the data
iv. examining different types of statistical techniques in SPSS software.

10.3 OVERVIEW OF SPSS

In SPSS, there are FIVE (5) main views, referring to (1) Data editor window, (2) Viewer window, (3) Pivot table editor, (4) Chart editor window and (5) Syntax.

i. Data Editor Window

Data Editor Window is the Data Editor window displays the contents of data file, where it can be open, save and close existing data files, create a new data file, enter data, make changes to the existing data file, and run statistical analyses as depicted in Figure 10.1 and Figure 10.2.

Research Methodology FINAL.indd 107 9/30/2024 10:41:23 AM

CHAPTER 11

Qualitative Data Analysis (Interview)

11.1 CHAPTER OUTLINE

Chapter 11 focuses on qualitative research analysis (often for in-depth interview) called thematic analysis. It is a flexible and systematic approach that allows researchers to gain a deep understanding by uncovering patterns, trends, and insights from the underlying meanings, experiences, and perspectives of participants in their own words. These in turn, can be an input for theory development, policy decisions, or further research. Before understanding on thematic analysis, it is important to know about qualitative data analysis as a whole.

11.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Understand qualitative data analysis and understand thematic analysis process.
ii. Understand how to ensure to ensure the rigor, trustworthiness and validity of thematic analysis.
iii. Differentiate thematic analysis from other types of qualitative data analysis.

11.3 QUALITATIVE DATA ANALYSIS

According to Miles and Huberman (2004), there are four major phases of qualitatitive data analysis as follows;

i. Data Collection: Data collection techniques can be in forms of interviews, focus groups, observations, narrative inquiry, enthography and many others in which the data are in qualitative format (e.g. interview transcript, observation log, diaries). Miles and Huberman (2004) further emphasize that in qualitative data analysis, data analysis is done while collecting it, which allows for the refinement of the research focus and approach.

Research Methodology FINAL.indd 139 9/30/2024 10:41:28 AM

CHAPTER 12

The Research Report

12.1 CHAPTER OUTLINE

Chapter 12 begins with the importance of preparing well-written research report in informing the audience the research results. Firstly, the report needs to include issues or problems that motivate the researcher to conduct the research. From these issues or problems, then research questions and research objectives will be developed. Secondly, the research reports also need to include literature review on subject of interest and highlights the development of framework. Next, the process of designing the research need to be reported including process of data collection. Fourthly, the data will be analyzed and the results will be reported. Lastly, the researcher need to do interpretation and justification of obtained results. It is also important that the results of the study and the recommendations for solving the problem are objectively and effectively communicated to the sponsor, so that the suggestions made are accepted and implemented. Writing the report concisely, convincingly, and with clarity is perhaps as important as conducting a rigorous research study. Indeed, a well-thought-out written report and oral presentation are critical.

The exact contents and organization of both modes of communication – the written report and the oral presentation – depend on the purpose of the research study, and the audience to which it is targeted. The relevant aspects of the written report and oral presentation are discussed in this chapter.

12.2 LEARNING OBJECTIVES

After completing this chapter, student will be able to:

i. Describe the characteristics of a well-written research report that is tailored to the needs of a specific audience.
ii. Write a thorough and complete research report.
iii. Describe the characteristics of a well-written report

Research Methodology FINAL.indd 153 9/30/2024 10:41:29 AM

BIBLIOGRAPHY

Abdullah, N. H., Shamsuddin, A., Wahab, E. and Hamid, N. A. A. (2014). The Relationship between Organizational Culture and Product Innovativeness. *Procedia – Social and Behavioral Sciences,* 129, 140-147. DOI:10.1016/j.sbspro.2014.03.659

Biloa, X. S. (2023). The Impact of Leadership Style on Employee Job Performance. Open Journal of Leadership, 12(4), 418-441. doi: 10.4236/ojl.2023.124020

Hair, J. F., Ringle, C. M. and Sarstedt, M. (2013). Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results, and Higher Acceptance. *Long Range Planning*, 46(1-2), 1-12.

Jones, T. and Taylor, S. F. (2007). The Conceptual Domain of Service Loyalty: How Many Dimensions? *Journal of Services Marketing,* 21(1), 36–51. doi:10.1108/08876040710726284

Kassim, N. and Asiah Abdullah, N. (2010). The Effect of Perceived Service Quality Dimensions on Customer Satisfaction, Trust, and Loyalty in E-Commerce Settings: A Cross Cultural Analysis. *Asia Pacific Journal of Marketing and Logistics*, 22(3), 351-371. https://doi.org/10.1108/13555851011062269

Kothari, C. R. (2004). Research Methodology: Methods &Techniques. New Age International (P) Ltd.

Kwong, M. Z. and Candinegara, I. (2014). Relationship between Brand Experience, Brand Personality, Consumer Satisfaction, and Consumer Loyalty of DSSMF Brand. *iBuss Management*, 2,89–98.

Miles, M. B., & Huberman, A. M. (2014). Qualitative data analysis: An expanded sourcebook (2nd ed.). Sage Publications, Inc.

Neuman, W. L. (2014). Social Research Methods: Qualitative and Quantitative Approaches. 7th ed. Pearson Education Limited: United States of America.

Oliver, R. L. (1997). *Satisfaction: A Behavioral perspective on the Consumer*. New York, NY: Irwin-McGraw-Hill.

Pallant. J. (2011). SPSS Survival Manual: A Step by Step Guide to Data Analysis using SPSS. 4th ed. Australia: Allen & Unwin.

Rai, A. K. and Medha, S. (2013). The Antecedents of Customer Loyalty: An Empirical Investigation in Life Insurance Context. Journal of Competitiveness, 5, 139-163.

Sekaran, U. and Bougie, R. (2016). Research Methods for Business: A Skill Building Approach. (7th ed.) West Sussex, United Kingdom: John Wiley & Sons Ltd.

Suchánek, P. and Králová, M. (2019) Customer Satisfaction, Loyalty, Knowledge and Competitiveness in the Food Industry. *Economic Research-Ekonomska Istraživanja*, 32(1), 1237-1255, DOI: 10.1080/1331677X.2019.1627893

Swap, W., Leonard, D., Schields, M. & Abrams, L. (2001). Using Mentoring and Storytelling to Transfer Knowledge in the Workplace, Journal of Management Information Systems, 18(1), 95-114.

Taderhoost, H. (2021). Data Collection Methods and Tools for Research; A Step-by-Step Guide to Choose Data Collection Technique for Academic and Business Research Projects. *International Journal of Academic Research in Management (IJARM),* 10(1), 10-38.

Yaakop, A. Y., Shi, Y. P., Foster, B. and Saputra, J. (2021). Investigating E-Wallet Adoption of COVID19 Intra-Period Among Malaysian Youths': Integrated Task-Technology Fit and Technology Acceptance Model Framework. *International Journal of Data and Network Science*. 295-302, DOI:10.5267/j.ijdns.2021.6.004

Research Methodology FINAL.indd 164 9/30/2024 10:41:30 AM

BIOGRAPHIES

Shazaitul Azreen Rodzalan is a senior lecturer at UTHM with seven years of working experience in teaching various courses such as Research Methodology, Organizational Behavior and Strategic Management. Her research interest including skills, training, human resource, and leadership. She has expertise in quantitative data analysis, including mixed methodology.

Nor Hazana Abdullah is an Associate Professor at UTHM for the past 18 years, teaching various courses from Human Research Management, Organizational Behavior, Industrial Psychology and Research Methodology. Prior to that, she had been working as an HR practitioner applying Research Methodology in real cases for 11 years. Her expertise is on quantitative data analysis although she prefer mixed methodology in most instances.

Nor Aziati Abdul Hamid is currently a fulltime senior lecturer and Principal researcher for Industry Centre of Excellence for Railway. She has experience in teaching for two decades in postgraduate and graduate level for Research Methodology course at Faculty of Technology Management and Business, UTHM. Her research interests include System Assurance, Operation Management, Information System and Business Analytics. Dr. Nor Aziati served as member of the various association and also the journal editor for the faculty.

Research Methodology FINAL.indd 165 9/30/2024 10:41:31 AM

Muhammad Ammar Shafi is an academic and researcher in the field of Statistics, e.g., data analytics, artificial intelligence and statistical modelling, currently serving as a senior lecturer at Universiti Tun Hussein Onn Malaysia (UTHM) for the past 4 years. he has significantly contributed to the academic development of students through his teaching of the Research Methodology Lab, a practical extension of theoretical research methods. This course is designed to provide hands-on experience in applying research methodologies, equipping students with practical skills essential for conducting empirical research. His academic journey has been marked by a commitment to exploring innovative solutions and contributing to his field of study. His expertise is on quantitative research, and he has been involved in several significant projects of innovations and publications as in national and international level.

Ts. Dr. Lee Te Chuan is a respected Senior Lecturer in the Faculty of Technology Management and Business at Universiti Tun Hussein Onn Malaysia. His dynamic research spans diverse fields including materials sciences, engineering management, and Industry 4.0. Beyond his academic roles, he holds the esteemed position of Editor-in-Chief for the Journal of Sustainable Materials Processing and Management. Furthermore, he also contributes significantly to the scholarly community as a reviewer for prominent impact journals, including Nature, Elsevier, and Springer. His comprehensive work underscores his dedication to advancing knowledge across materials sciences and engineering management.

Siti Norziah Ismail has been a dedicated Instructor Engineer at Universiti Tun Hussein Onn Malaysia (UTHM) since 2008, where she has made significant contributions particularly in the field of research methodologies. Over a span of three years, she played a role in teaching Research Methodology Laboratory courses, guiding students through the intricacies of quantitative and qualitative research. Her expertise in this area not only enriched her students' learning experiences but also helped them develop essential skills for their future careers. As for the future, she remains committed to her role as an educator, eager to embrace new challenges and opportunities to further her impact within the academic community.

Research Methodology FINAL.indd 166 9/30/2024 10:41:31 AM

INDEX

A

analysis 4, 5, 40, 62, 64, 67, 97, 98, 99, 101, 102, 107, 112, 118, 128, 132, 137, 139, 141, 143, 144, 145, 146, 147
analyze 3, 49, 54, 98, 99, 101, 102, 146, 150
APA style 7, 31, 34, 129

C

chapter 1, 7, 15, 37, 49, 54, 59, 62, 69, 87, 97, 107, 139, 153
chart 47, 111, 121, 124
citation 7, 15, 16, 17, 31, 34
collection 24, 26, 70, 72, 76, 87, 97, 98, 99, 100, 102, 103, 104, 105, 139, 143, 145, 153
compute 118, 119
conceptualization 3, 59, 60, 61
conclusion 4, 67
correlation 40, 116, 128, 132, 133
Cronbach Alpha 117

D

data 3, 5, 7, 8, 14, 15, 16, 18, 39, 42, 61, 62, 63, 64, 67, 69, 70, 72, 76, 83, 87, 91, 97, 98, 100, 102, 103, 104, 107, 108, 109, 110, 112, 113, 118, 119, 122, 126, 127, 128, 132, 133, 136, 137, 139, 140, 141, 143, 144, 145, 146, 147, 153
database 11, 14, 16, 24
definition 59, 66
dependent variable 49, 61, 67, 68, 99, 128, 131, 137
descriptive 3, 4, 69, 102, 107, 140, 143, 144
design 49, 69, 70, 73, 74, 87, 116

E

empirical 3, 39, 40, 43, 44, 46, 49, 53, 59, 60, 97, 144

F

formulation 3, 4, 37, 38, 59
framework 38, 42, 46, 67, 68, 153
frequency 121, 124

G

generalization 71

H

hypotheses 3, 39, 59, 61, 67, 68, 70, 98, 100

I

implication 39
independent sample t-test 128
independent variable 49, 61, 67, 68, 99
interval 62, 63, 76, 110, 118, 122
interview 87, 88, 89, 91, 139, 143, 150
investigate 40, 41, 98

Research Methodology FINAL.indd 167 9/30/2024 10:41:31 AM

K

Kolmogorov Smirnov 125
Kruskal-Wallis 128, 131, 132

L

Likert scale 113, 119
literature review 3, 4, 49, 56, 153
longitudinal 70, 99

M

Mann-Whitney 128, 129
mean 109, 118, 119, 122, 124, 128, 131, 132, 137
measure 3, 43, 60, 61, 62, 70, 81, 98, 115, 128
measurement 59, 62, 63, 64, 73, 74, 79, 86, 102, 110, 115, 116
median 122
Mendeley 11, 15, 17, 18, 20, 21, 23, 24, 25, 26, 28, 30, 31
methodology 3, 4, 53, 59, 105, 144
mode 67, 111, 122

N

nominal 62, 64, 76, 88
normality 125, 126
numerical 5, 62, 76, 97, 98, 99

O

objective 98, 105, 147
observation 5, 70, 97, 98, 100, 101, 139
One-Way ANOVA 130
open-ended 71, 72, 75, 83, 87, 98, 102, 103, 104
operational 59, 61
operationalization 3, 59, 62, 81
ordinal 62, 63, 64, 74, 76, 88
output 110, 125

P

participant 5, 101, 104, 105
Pearson 128, 132
practical 15, 38, 39, 40, 46
problem 2, 3, 34, 37, 38, 39, 40, 41, 42, 43, 46, 97, 105, 153
process 1, 4, 5, 15, 17, 27, 38, 40, 49, 59, 62, 76, 81, 83, 103, 105, 115, 140, 141, 142, 143, 144, 145, 147
protocol 3, 87, 89, 91, 96

Q

qualitative 1, 3, 4, 5, 50, 69, 87, 88, 97, 98, 100, 101, 102, 103, 104, 105, 115, 139, 140, 143, 144, 146
quantitative 1, 2, 3, 5, 38, 50, 62, 69, 97, 98, 99, 100, 102, 104, 105, 107, 112, 147
questionnaire 69, 70, 71, 72, 73, 74, 75, 76, 78, 79, 81, 83, 86, 136

R

ratio 63, 64, 76, 110, 118, 122, 145
reference 3, 7, 15, 16, 17, 18, 39
relationship 39, 40, 44, 60, 61, 128, 132, 133
reliability 69, 70, 76, 115, 116, 117, 142, 144, 145
research 1, 2, 3, 4, 5, 7, 17, 18, 37, 38, 39, 40, 41, 42, 43, 49, 53, 54, 60, 62, 64, 67, 69, 70, 77, 81, 83, 87, 89, 96, 97, 98, 100, 101, 102, 104, 105, 139, 141, 142, 143, 144, 145, 146
respondent 70, 71, 72, 75, 76, 119
result 118, 119, 122, 129
review 27, 39, 49, 56, 103, 144, 146, 153

Research Methodology FINAL.indd 168 9/30/2024 10:41:31 AM

S

sample 53, 69, 70, 71, 81, 82, 98, 99, 102, 105, 121, 128, 129, 137
Shapiro Wilk 125
sources 7, 8, 15, 16, 17, 39, 49, 79, 87, 103, 140, 141, 142, 147
Spearman 128
survey 3, 63, 67, 69, 70, 71, 72, 73, 81, 86, 104, 105
synthesis 53

T

technique 70, 72, 73, 87, 118
theory 39, 60, 81, 98, 103, 139, 140, 146, 147

V

variable 40, 49, 59, 61, 68, 74, 108, 119, 120, 128, 131, 137

Research Methodology FINAL.indd 169 9/30/2024 10:41:31 AM

Research Methodology:

Practical Labs and Guides

Research Methodology: Practical Labs and Guides is a thorough guide designed to lead researchers through every phase of the research process, whether using quantitative or qualitative methods. It provides hands-on lab sheets and instructions for each research step, ensuring that researchers are well-equipped to plan, execute, and report their studies successfully. The book begins by introducing fundamental research concepts and differentiating between quantitative and qualitative methodologies, setting a strong foundation for the research journey. The book will guiding researchers on selecting a research topic and effectively searching for relevant literature using Mendeley software. Next, the section on formulating a problem statement helps researchers refine and clarify their research problem, creating a clear focus for their inquiry. This book also includes labs on developing a literature review matrix (LR Matrix) to synthesize existing research, formulate focused research questions, and conceptualize and operationalize variables. In addition, it covers labs on designing surveys and interviews, as well as collecting data. Once data is collected, the book provides labs on analyzing and interpreting both quantitative and qualitative data. Finally, the section on reporting offers advice on effectively communicating research findings, including the appropriate structure and style for research reports.

Penerbit UTHM

ISBN 978-629-490-106-3

04900

9 786294 901063

Sila imbas kod untuk maklumat lanjut