



RESEARCH METHODOLOGY

Kishor N. Jagtap
Rajani Adam

Kripa Drishti Publications, Pune.

RESEARCH METHODOLOGY

Editors

Dr. Kishor N. Jagtap

Director,

SNG Institute of Management and Research, Pune.
(Former Principal, Smt. C. K. Goyal College, Pune.)

Mrs. Rajani Adam

Publisher,

Kripa Drishti Publications, Pune.

Kripa-Drishti Publications, Pune.

Book Title: **Research Methodology**

Edited By: **Dr. Kishor N. Jagtap, Mrs. Rajani Adam**

Price: ₹525

1st Edition

ISBN: **978-81-971650-3-0**



Published: **April 2024**

Publisher:



Kripa-Drishti Publications

A/ 503, Poorva Height, SNO 148/1A/1/1A,
Sus Road, Pashan- 411021, Pune, Maharashtra, India.

Mob: +91-8007068686

Email: editor@kdpublishations.in

Web: <https://www.kdpublishations.in>

© **Copyright Dr. Kishor N. Jagtap, Mrs. Rajani Adam**

All Rights Reserved. No part of this publication can be stored in any retrieval system or reproduced in any form or by any means without the prior written permission of the publisher. Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages. [The responsibility for the facts stated, conclusions reached, etc., is entirely that of the author. The publisher is not responsible for them, whatsoever.]

PREFACE

In this edited book Research Methodology different academicians have written chapters specifically for those with no previous experience of research or research methodology. Written in a logical and accessible style and providing helpful techniques and examples, it breaks the process of designing and doing a research project into eight manageable operational steps. This book guides you through your Thesis/Dissertation/project from beginning to end by offering practical advice on:

- Research Methodology: An Introduction
- Defining the Research Problem
- Research Design
- Sampling Design
- Measurement and Scaling Techniques
- Methods of Data Collection
- Processing and Analysis of Data
- Sampling Fundamentals
- Testing of Hypotheses
- Analysis of Variance and Co-variance
- Multivariate Analysis Techniques
- The computer: Its Role in Research
- Sources of Data Collection for Research

This book is written with the help of different researcher in mind, offering a simple and easy-to-follow guide through the complex world of research methodology. This book provides an in-depth guide to assist you in navigating the complexities of the research process, regardless of whether you are a student working on your first research project or an individual interested in basic research principles. This book is essential reading for undergraduate and postgraduate students in the social sciences embarking on quantitative or qualitative research work.

CONTENT

1. Research Methodology: An Introduction - Ms. Anita Sule, Dr. Mahavir Shetiya	1
1.2 What Does the Term "Methodology" in Research Mean?.....	2
1.3 What Makes Research Methodology Crucial?.....	3
1.4 Meaning and Definition of Research Methodology:	4
1.5 Types of Research Methodology	4
1.6 Characteristics of Research Objectives:	5
1.7 References:.....	5
2. Defining A Research Problem in Social Studies - Dr. Shruti Ganpule	6
2.1 Introduction:.....	6
2.2.1 Guidelines for Formulating a Research Problem:.....	8
2.3 Conclusion:	9
2.4 References:.....	10
3. Research Design - Dr. Shraddha M. Bhome	11
3.1 Introduction to Research Design:	11
3.2 Objectives of Research Design:	11
3.3 Questions/ Consideration That Should be Undertaken it a Research Design: .	12
3.4 What is the Significance or Importance of the Research Design?	12
3.5 What is the Need for Research Design?	12
3.6 Parts of Research Design:	13
3.7 Features of Research Design:	13
3.8 Contents of Research Design:	13
3.9 Types of Research Designs:	14
3.9.1 Exploratory Research Design:.....	14
3.9.2 Descriptive Research Design:	15
3.9.3 Causal or Experimental Research Design:	15
3.10 Concepts Relating to Research Design:.....	15
3.11 Why to Conduct Exploratory Research?.....	18
3.11.1 Diagnosing a Situation:.....	18
3.11.2 Screening Alternative:	18
3.11.3 Discovering New Ideas:	19
4. Sampling Design - Dr. Syed Mohammad Bakhteyar Fatmi	20
4.1 Introduction:.....	20
4.2 Basic Concepts and Terms:.....	22

4.3 Sampling Error and Survey Bias:.....	28
4.4 Characteristics of a Good Sample Design:	29
4.4.1 Sample Size:	29
4.5 Conclusion:	31
4.6 References:.....	32
5. Measurement and Scaling Techniques - <i>Bipin Kumar Dubey</i>	33
5.1 Introduction:.....	33
5.2 Levels of Measurement:	34
5.3 Types of Scaling Techniques:	37
5.3.1 Comparative Scales:.....	38
5.3.2 Non-Comparative Scales:.....	41
5.4 Conclusion:	44
5.5 References:.....	44
6. Methods and Techniques of Data Collection - <i>Dr. Jyoti Suraj Harchekar</i>	46
6.1 Introduction:.....	46
6.2 Primary Data and Secondary Data:	46
6.3 Data Collection Procedure for Primary Data:	47
6.4 Techniques for Collection of Data:	51
6.4.1 Primary Data Collection Methods:	51
6.5 Techniques for Gathering Data:	53
6.5.1 Gathering Primary Data from Sources:.....	53
6.5.2 Techniques for Gathering Secondary Data:	58
6.6 Data Collection Considerations and Best Practices:	58
6.7 Summary:.....	59
7. Methods of Data Collection - <i>Dr. Amol Mane</i>.....	61
7.1 Introduction:.....	61
7.2 Need for Data Collection:	62
7.2.1 Precautions in Data Collection:	62
7.2 Types of Data:	63
7.2.1 Primary Data:.....	63
7.2.2 Secondary Data:.....	63
7.3 Questionnaire Method:	64
7.3.1 Types of Questionnaires:.....	65
7.4 Interview Method:	67
7.4.1 Types of Interviews Used in Research:.....	67
7.5 Observation Method:	70
7.5.1 Types of Observation:	72
7.6 Projective Techniques:.....	75
7.6.1 Types of Projective Techniques:.....	75
7.7 Collection of Secondary Data:	76
7.8 List of References:.....	79

8. Processing and Analysis of Data - Dr. Gagan Gunjan 80

8.1 Introduction: 80

8.2 Methods for Data Processing in Research: 80

 8.2.1 Data Processing Cycle: 81

 8.2.2 Operations in Data Processing: 82

8.3 Data Analysis: 84

 8.3.1 Quantitative Methods: 84

 8.3.2 Qualitative Methods: 85

 8.3.3 Data Analysis Methods: 85

 8.3.4 Quantitative Methods: 87

 8.3.5 Steps for Data Analysis Process: 88

8.4 Data Requirements Specification: 88

 8.4.1 Collect Data: 89

 8.4.2 Data Cleaning: 89

 8.4.3 Analyzing the Data: 89

 8.4.4 Data Visualization: 89

8.5 Communication: 89

8.6 Conclusion: 90

8.7 References: 90

9. Sampling Fundamentals - Suranjana Das 91

9.1 Introduction: 91

9.3 Sampling Fundamentals in Research Methodology: 92

9.4 Stages of Sampling: 95

9.5 Methods of Sampling: 97

 9.5.1 Probability Sampling: 97

 9.5.2 Non-Probability Sampling: 98

9.6 Conclusion: 100

9.6 References: 100

10. Testing of Hypotheses - Dr. G. Renuka 101

10.1 Introduction: 101

10.2 Hypotheses: 101

 10.2.1 Steps in Hypothesis Testing: 102

 10.2.2 The Structure of a Hypothesis Test: 104

 10.2.3 Benefits of Hypothesis Testing: 104

10.3 Types of Hypotheses: 105

 10.3.1 Types of Statistical Hypotheses: 106

10.4 Types of Errors: 108

10.5 Characteristics of Hypothesis: 109

10.6 Conclusion: 110

10.7 References: 110

11. Analysis of Variance and Co-Variance - Dr. Ch. G. Gupta.....	112
11.1 Introduction:.....	112
11.2 History of ANOVA:	112
11.3 Analysis of Variance:	114
11.4 Classification of ANOVA:.....	115
11.5 Calculation of Variance:	115
11.6 Analysis of Co-Variance:.....	115
11.7 Conclusion:	118
11.8 References:.....	119
12. Multivariate Analysis Techniques - Dr. T. M. Prashanth Kumar	120
12.1 Introduction:.....	120
12.2 An Example of Multivariate Analysis:.....	122
12.3 Multivariate Analysis of Variance (MANOVA):.....	125
12.3.1 Factor Analysis:	125
12.3.2 Cluster Analysis:.....	126
12.3.3 Correspondence Analysis:	126
12.3.4 Conjoint Analysis:.....	126
12.4 Types of Variables:.....	127
12.5 Conclusion:	127
12.6 References:.....	127
13. The Computer: It's Role in Research - Dr. Rita Kakade.....	129
13.1 Introduction:.....	129
13.1.1 Defining the Computer's Role in Research:	129
13.1.2 Understanding the Importance of Computers in Modern Research Methodology:	129
13.2 Evolution of the Computer in Research:.....	130
13.2.1 Historical Overview of the Computer's Integration into Research Practices:	130
13.2.2 Milestones and Breakthroughs in Computing that Influenced Research Methodologies:.....	131
13.3 Data Collection and Storage:	132
13.4 Data Analysis and Modeling:.....	133
13.5 Collaboration and Communication:	134
13.6 Literature Review and Information Retrieval:	135
13.7 Simulation and Experimentation:.....	137
13.8 Visualization and Presentation:	138
13.9 Ethical and Societal Implications:.....	139
13.10 Future Trends and Challenges:.....	141
13.11 Conclusion:	142

14. Sources of Data Collection for Research - <i>Dr. Vijay B. Kadam</i>.....	143
14.1 Introduction:	143
14.2 Data:	143
14.3 Qualitative Data:	143
14.4 Quantitative Data:	144
14.5 Need of Data:	144
14.6 Sources of Data:	144
14.7 Primary Data:	145
14.8 Sources of Primary Data:	145
14.9 Secondary Data:	147
14.10 Sources of Secondary Data:	148
14.11 Conclusion:	149
14.12 References:	149

ABOUT THE EDITORS



Dr. Kishor N. Jagtap

Director, SNG Institute of Management & Research, Pune. Former Principal, Smt. C. K. Goyal Arts & Commerce College, Dapodi, Pune. He has teaching experience covers a span of 35 years for the under and post graduate classes. Management, International Journal of Business, Management & Social Sciences. He has contributed 85 research articles and research

papers in various National and International Research Journals. He has Prepared and Uploaded 500+ Educational Video on YouTube (Academic Excellence). He has to his credit 340 Books for Law, Commerce and Management stream. He is a recipient of "Best Teacher Award", "Best Director Award", "Life Time Achievement Award" and "Educational Leader of the Year Award-2022"



Mrs. Rajani Adam

She Received the MCA from Tilak Maharashtra University, Pune in 2010. She has worked as a lecturer at A. R. Burla College, Solapur with the experience of 7 years. She is Currently working as a Publisher of Kripa Drishti Publications, Pune.

Research Contribution: Her aim is to help esteemed University/College/Institute and organization to serve the

Academic Professional Development Service to students, research scholars, Faculties, and staff. Published national/International Books, Edited Books, Reference Books, Textbooks. Running Online research Courses (Research Methodology) for PhD. Scholars with Moodle platform. Organizing Conferences/Seminars. PhD. Guidance and API guidance provided.

Conducting the following international peer reviewed journals.

1. International Journal of Research and Analysis in Science and Engineering (ISSN: 2582-8118)

2. International Journal of Research and Analysis in Commerce and Management (ISSN: 2583-6285)

- Founder Member of Shrividya Learning Institute, Solapur, Maharashtra.
- Founder Member of Vega Software Technologies, Pune
- Publisher, Kripa Drishti Publications, Pune.



**KRIPA DRISHTI
PUBLICATIONS**

Price: ₹ 525

ISBN: 978-81-971650-3-0



9 788197 165030

Kripa-Drishti Publications

A-503 Poorva Heights, Pashan-Sus Road, Near Sai Chowk,
Pune - 411021, Maharashtra, India.

Mob: +91 8007068686

Email: editor@kdpublications.in

Web: <https://www.kdpublications.in>