
Research Methodology

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What is Research Methodology?

- Is defined as a highly intellectual human activity used in the investigation of nature and matter and deals specifically with the manner in which data is collected, analyzed and interpreted

What Constitutes a Research Topic?

- Unanswered question
- Unsolved question
- Concern
- Query
- Statement of inquiry

How to Select a Research Topic?

- Personal interest
- Social problem
- Testing theory
- Prior research
- Program evaluation
- Human service practice
- Minorities in research

What are some of the Limitations Encountered when Doing or Thinking of Doing a Research Project?

- Time constraints
- Financial consideration
- Anticipating and avoiding problems
- Equipment limitations
- Human resource limitations
- “Out of the box” thinking
- “In the box” thinking

What is a Literature review?

- Systematic review of available resources
 - Theoretical and conceptual concepts
 - Identification of independent and dependent variables
 - Measurement and operational definitions
 - Selection of appropriate research technique
 - Sampling strategy
 - Statistical technique
 - Findings and conclusions of similar studies studied

Where do I find Sources of Information for my Literature Review?

- Books
- Journals
- Internet
- Data bases
- Archives
- Interviews
- Observations
- Reports
- Records

How to Select an Appropriate Methodology?

- What is the nature of the problem being investigated?
- Is the problem being investigated subjective or objective?
- Four types of research methods:
 - Qualitative
 - Quantitative
 - Mixed (qualitative and quantitative)
 - Critical and action oriented

What are some of the Common Types of Qualitative Methodology?

- Surveys
- Longitudinal
- Cross-sectional, correlation
- Experimental
- Quasi-experimental
- Ex-post facto research

What are some of the Common Types of Quantitative Methodology?

- Biographical
- Phenomenological
- Ethnographical
- Case study

What Type of Data to Collect?

- **Categorical**

- nominal-observations that can be coded
- ordinal-observations that can be ranked

- **Continuous**

- observations that can be counted or measured

- **Mixed**

- matrix of categorical and continuous data

How to Collect Data?

- Observations
- Interviews
- Reports
- Records

How to Analyze Data?

- Need to consider the type of data collected
 - categorical
 - continuous
 - mixed

What are some of the Tests Used on Categorical Data?

- Chi-squared test-to determine the relationship between variables
- Fisher's test-to compare two unpaired groups
- McNemar's test-to analyze a matched case-control study
- Kappa-to quantify interafter agreement
- Wilcoxon test- to compare one group to a hypothetical value
- Kruskal-Wallis test-to compare three or more groups
- Spearman test-to compare association between variables

What are some of the Tests Used on Continuous Data?

- T test- to compare one or two groups
- ANOVA-to compare three or more groups
- Pearson test-to compare the association between variables

How to Draw Conclusions from Data?

- Use of graphical presentations
- Use of statistical analyses
- Sharing data among colleagues and receiving constructive feedback
- Critically analyzing data and results

How to Present Research Findings?

- Tables-matrix of rows and columns representing variables
- Figures-visual organization of data/observations
 - pictures
 - pie charts
 - line charts
 - bar charts
 - flow charts
 - organizational charts
 - cartogram charts
 - Gantt charts
 - scatter plot charts

How to Present your Paper According to the APA style?

- APA stands for American Psychological Association
- APA is the most commonly used style in the Social Sciences
- APA provides useful guidelines on:
 - style
 - in text citations
 - references

APA Style

- Third person should be used
- Active voice should be used
- Writing should be clear, concise and plain
- General format should be:
 - paper size-8.5 x 11
 - 1" margins on all sides
 - double spaced
 - written in 12 point font using Times New Roman
 - short title and page number on the upper right hand corner of every page

General Format of APA Paper

- Title
- Abstract
- Main Body
 - methodology
 - results
 - discussion
 - conclusions
- References

APA Referencing Style

- Last name of author, followed by initials
- Last names of authors arranged alphabetically in the reference list
- Capitalize the first letter of the first word in titles and subtitles
- Capitalize all major words in journal titles
- Italicize titles of books and journals

APA In-text Citation

- Author's last name and year of publication placed in parenthesis next to where the information is cited
- Three or more authors, use all three when first cited then followed by the first author et al., year for subsequent in-text citations
- Six or more authors, use the last name of the first author followed by et al., year of publication

References

- Patton, D. 2000. *Fundamentals of Scientific Research*. New York: Scientific Publishers
- <http://owl.english.purdue.edu>
- *Publication Manual of the American Psychological Association*, 5th ed.
- <http://www.apastyle.org>

THANK YOU
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THE END