

1  **An Overview of Research Methods and Methodologies**

Course: Research Methodology

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2  **Research Methods vs. Methodology**

- Research methods may be understood as all those methods /techniques that are used for conduction of research.
- Research methodology
 - is a way to systematically solve the research problem
 - understood as a science of studying how research is done scientifically.

3  **Why Do I Need to Know About Different Methods?**

- As a graduate student...
 - To be able to read and understand the empirical literature in your field; to become a critical consumer of information.
- As a graduate student preparing for a thesis or dissertation...
 - To be able to both design and implement your thesis or dissertation as well as future studies that interest you.

4  **Why Do I Need to Know About Different Methods?**

- As a future researcher, practitioner...
 - To be able to intelligently participate in research projects, evaluations, and studies undertaken by your institution.
- As an educated citizen ...
 - To understand the difference between scientifically acquired knowledge and other kinds of information.

5  **What's the Difference Between "Method" and "Methodology"?**

1  Method:

- Techniques for gathering evidence
- The various ways of proceeding in gathering information

2  Methodology:

- The underlying theory and analysis of how research does or should proceed, often influenced by discipline

(Sandra Harding)

6  **Epistemology, Methodology, and Method**

According to Sandra Harding:

- "a research method is a technique for (or way of proceeding in) gathering evidence" (p. 2) while
- "methodology is a theory and analysis of how research does or should proceed" (p. 3)
- "an epistemology is a theory of knowledge" (p. 3). (answers questions about who can be a knower?)

-From "Is There a Feminist Method?" *Feminism and Methodology*. Ed. Sandra Harding. Bloomington: Indiana UP, 1987. 1-15.

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"It is the theory that decides what can be observed."

–Albert Einstein

8  **An Overview of Empirical Research Methods**

1  Descriptive (Qualitative)

- Ethnography (qualitative research design aimed at exploring cultural phenomena.)
- Case Study
- Suvey/Sampling
- Focus Groups

- Discourse/Text Analysis
- Quantitative Description
- Prediction/Classification
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- 2 Experimental (Quantitative)
 - True Experiment
 - Quasi-Experiment
 - Meta-Analysis
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- 9  **Assessing Methods**
 - Research Question(s) is/are key
 - Methods must answer the research question(s)
 - Methodology guides application
 - Epistemology guides analysis
 - All must include "rigor"
(the quality or state of being very exact, careful, or strict)
- 10  **Ethnographies**
 - Observational field work done in the actual context being studied
 - Focus on how individuals interrelate in their own environment (and the influence of this environment)
 - Difficult to interpret/analyze
 - Time consuming/expensive
 - Can influence subject behavior
- 11  **Case Studies**
 - Focus is on individual or small group
 - Able to conduct a comprehensive analysis from a comparison of cases
 - Allows for identification of variables or phenomenon to be studied
 - Time consuming
 - Depth rather than breadth
- 12  **Survey Research**
 - An efficient means of gathering large amounts of data
- 13  **Focus Groups**
 - Aid in understanding audience, group, users
 - Small group interaction more than individual response
 - Helps identify and fill gaps in current knowledge : perceptions, attitudes, feelings, etc.
 - Analysis subjective
- 14  **Discourse/Text Analysis**
 - Examines actual discourse produced for a particular purpose
 - Helps in understanding of context, production, audience, and text
 - Labor intensive
- 15  **Quantitative Descriptive Studies**
 - Isolates systematically the most important variables (often from case studies) and to quantify and interrelate them (often via survey or questionnaire)
 - Possible to collect large amounts of data
 - Data restricted to information available
- 16  **Prediction and Classification Studies**
Goal is to predict behaviors
- 17  **Experimental Research: True Experiment**
 - Random sampling, or selection, of subjects
 - Introduction of a treatment
 - Use of a control group for comparing subjects who don't receive treatment with those who

- do
- Adherence to scientific method (seen as positive, too)
- 18  **Experimental Research: Quasi-Experiment**
 - Similar to Experiment, except that the subjects are not randomized. Intact groups are often used (for example, students in a classroom).
 - Small subject pools
- 19  **Meta-Analysis**
 - Takes the results of true and quasi-experiments and identifies interrelationships of conclusions
 - Systematic
 - Summarizes overall results
 - Quality of studies used?
- 20  **What Makes Research Good?**
 - Validity
 - Reliability
 - Replicability
 - Consistent application/analysis
 - "Trustworthiness"
 - Rigor
- 21  **Validity in Research**
 - Refers to whether the research actually measures what it says it'll measure. Validity is the strength of our conclusions, inferences or propositions.
 - Internal Validity: the difference in the dependent variable is actually a result of the independent variable
 - External Validity: the results of the study are generalizable to other groups and environments outside the experimental setting
 - Conclusion Validity: we can identify a relationship between treatment and observed outcome
 - Construct Validity: we can generalize our conceptualized treatment and outcomes to broader constructs of the same concepts
- 22  **Reliability in Research**

The consistency of a measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. In short, it is the repeatability of your measurement.

It is important to remember that reliability is not measured, it is estimated. Measured by test/retest and internal consistency.
- 23  **Validity and Reliability**

The relationship between reliability and validity is a fairly simple one to understand: a measurement can be reliable, but not valid. However, a measurement must first be reliable before it can be valid. Thus reliability is a necessary, but not sufficient, condition of validity. In other words, a measurement may consistently assess a phenomena (or outcome), but unless that measurement tests what you want it to, it is not valid.

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- 24  **Rigor in Research**
 - Validity and Reliability in conducting research
 - Adequate presentation of findings: consistency, trustworthiness
 - Appropriate representation of study for a particular field: disciplinary rigor
- 25  **Key Considerations to Design Your Research Approach**
 - What question do you want to answer?
 - For what purposes is the research being done? i.e., what do you want to be able to do or decide as a result of the research?
 - Who are the audiences for the information from the research, e.g., teachers, students, other

researchers, members of a disciplinary community, corporate entities, etc.?

- From what sources should the information be collected, e.g., students, teachers, targeted groups, certain documentation, etc.?

26  **The Importance of Methods and Methodology**

If the methodology isn't sound, the conclusions and subsequent recommendations won't be sound.