Research Methods & Design Outline

- Types of research design
- How to choose a research design
- Issues in research design

Types of Research Design

- Correlational
- Field (survey)
- Experimental
- Qualitative
- Meta-analysis

Types of Research Design

- **Correlational Study**
  - **Explores or tests *relations* between variables**
  - **“Rules out” alternative variables that could play a role in relations between variables**
- **Field**
  - **Studies participants in their natural setting**
  - **Maximizes realism**

Sekaran, Saks

Types of Research Design

- Experimental Designs
  - Directly establishes cause-effect nature of relationship between variables
  - Decreases ambiguity
    - Laboratory vs. Field Experiment
      - Artificial setting with high control over variables

Types of Research Design

- **Experimental Designs**
  - **Establish cause via**
    - **Manipulation of cause (aka treatment)**
    - **Temporal precedence of cause (and no other factor) before effect**
    - **Control of all other extraneous factors**

Experimental Research Design Example

GROUP	TREATMENT	FINAL MARKS
Experimental Group 1	Lectures	70%
Experimental Group 2	Simulation	40%
Experimental Group 3	Lecture & Simulation	100%
Control Group	No Treatment	50%

Simulation alone is ineffective.

Lectures are more effective than no treatment at all.

Both lectures and simulation are extremely effective.

Cause ⟶ Effect relationship can be established because of

(1) controls for age, etc., through either randomization or matching of groups, and,

(2) because of an additional control group.

Types of Research Design

- Qualitative
  - Non-quantitative
  - Not necessarily informal data collection (cf. Saks)
  - Examples
    - Interview/focus group transcripts
    - Some kinds of observational/archival data
    - Critical incidents methodology
  - Helps in
    - Formulating hypotheses
    - Deeper/richer understanding of phenomena
    - Interpret organization-specific results

Types of Research Design

- **Meta Analysis**
  - **Statistically combines results of existing research to estimate overall size of relation between variables**
  - **Helps in**
    - **Developing theory**
    - **Identifying research needs,**
    - **Establishing validity/effectiveness of HR tools**
  - **Can replace large-scale research studies**
  - **Better than literature reviews**

Types of Research Design Examples

- **Identify the type of research design for each study description in Aamodt Exercise 1-1 (handout)**

Types of Research Design Examples

Guns & Crime Article

- What are the two hypotheses re: the relation between gun ownership and crime?
- What are different ways to measure gun ownership?
- Identify the experimental and correlational methods used to test the hypotheses

Types of Research Design

- ***Types of research design***
- **How to choose a research design**
- **Issues in research design**

How to Choose a Research Design

- Does it adequately test the hypothesis?
- Does it identify & control extraneous factors?
- Are results generalizable?
- Can the hypothesis be rejected or retained via statistical means?
- Is the design efficient in using available resources?

How to Choose a Research Design

- Does it adequately test the hypotheses?
  - Hypotheses determine participants, variables measured & data analysis methods
    - Example hypotheses tested in student projects
      - Discussion of Requirements of proposal

How to Choose a Research Design

- Does it identify and control extraneous factors?
  - Eliminate alternative explanations for results to increase confidence in cause-effect conclusion (internal validity)
  - Control depends on type of design
    - Correlational design has less control
      - Extraneous variables are measured and effects are statistically controlled

Controlling Extraneous Variables in Experimental Designs

- **Random Assignment**
  - **Distributing extraneous variable across groups randomly**
- **Matching Groups**
  - **Spreading the extraneous variable across groups via systematic assignment**
  - **Less effective than random assignment (p.148 Sekaran)**
- **Control Group**
  - **Group that receives no manipulation**

How to Choose a Research Design

- Are results generalizable?
  - Replicate to other samples and other contexts
    - Random selection of participants
    - Features of field experiments enhancing external validity
      - Realistic nature of setting and/or task
      - Manipulation of treatment
      - Use of control group
      - Nature of samples used
      - Lack of control over confounding variables due to non-random assignment or inability for matching

How to Choose a Research Design

- **Can the hypothesis be rejected or retained via statistical means? (*statistical conclusion validity*)**
  - **Need reliable measures**
  - **Need large enough sample to detect true effect & avoid Type 1 & 2 errors (see over)**
    - **What is a null hypothesis?**
      - **No effect proposed**
    - **What is an alternative hypothesis?**
      - **What is a directional hypothesis?**

Types of Decisions based on Statistics

		Reality	
		Effect does not exist	Effect Exists
Conclusion	Effect does not Exist	Correct Decision	**Type 2 Error**
	Effect Exists	**Type 1 Error**	Correct Decision

How to Choose a Research Design

- Is the design efficient in using available resources?
  - Optimal balance between research design, time, resources and researcher expertise

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- **Issues in research design**

Issues in Research Design

- Research context
- Nature & size of sample
- Data sources

Issues in Research Design

- Research Context
  - One or several organizational contexts
  - Laboratory vs. field setting– depends on
    - Goal of establishing nature of phenomenon (or process) that exists in most contexts
    - Generalizability of results
    - Control required of extraneous/nuisance variables

Issues in Research Design

- Nature of sample
  - Random vs. stratified
  - Convenience sample
  - Student vs. field based sample
- Size of sample determines
  - Generalizability of results
  - Ability to detect a true effect

Issues in Research Design

- Data Sources: Self report
  - Common method variance
    - Similar response format
    - Consistency bias of participants
    - Unreliability of measures
  - Social desirability
    - Alternative methods to questionnaire (e.g., interviews, behavioral, archival)
    - Multiple times of data collection
    - Alternative sources (e.g., supervisor, peer)
    - Measure of individual's susceptibility to social desirability

Issues in Research Design

- Data Sources: Self report
  - Response shift bias
    - Alpha =real (condition) change
    - Beta = change in frame of reference (change in standards)
      - Cross cultural difference in uses of ends vs. middle of response scale
    - Gamma=change in meaning of construct/variable
      - Cross cultural differences in meaning of term

Issues in Research Design

- Data Sources: Alternatives
  - Co-workers (e.g., subordinates, supervisors, peers)
  - Archival
  - Biological
  - Trace
  - Objective term

Research Methods & Design Outline *RECAP*

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