Generalizing Results

Psychology 280 Lecture
5/9/2006

Generalizability of Research

- Research studies take samples from a limited portion of the entire population (sampling must be representative).
- Generalizability refers to whether your research results can be applied to the entire population of interest, and requires:
  - Internal validity: Are the procedures of the study sound or are they flawed? The extent to which you can make causal statements?
  - External validity: Does the experimental situation resemble the situation found in the real world?

Characteristics of Good Psychological Research

<table>
<thead>
<tr>
<th>A THEORETICAL FRAMEWORK</th>
<th>A STANDARDIZED PROCEDURE</th>
<th>GENERALIZABILITY</th>
<th>OBJECTIVE MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic way of organizing and explaining observations</td>
<td>Procedure that is the same for all subjects except where variation is introduced to test a hypothesis</td>
<td>Sample that is representative of the population</td>
<td>Measures that are reliable (that produce consistent results)</td>
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<tr>
<td>Hypothesis that flows from the theory or from an important question</td>
<td>Procedure that is sensible and relevant to circumstances outside the laboratory</td>
<td>Measures that are valid (that assess the dimensions they purport to assess)</td>
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Generalizability of Research (con’t)

- Can we generalize from this study to:
  - The larger population our sample is taken from?
  - Other settings (places and times...)?
  - Other forms of the independent variable – other conditions?
  - Other forms of the outcome variable – other, “real world” effects?

Generalizability of Research (con’t)

- It is important to consider characteristics of the sample when generalizing.
- A convenience sample is common and most of the time perfectly acceptable.
  - Participants in psychological research are usually selected because they are available.
  - Participants are rarely randomly selected from the general population.
  - Lack of random sampling can LIMIT external validity

Generalizability of Research (con’t)

Issues with Sample Characteristics:
- Volunteers
  - Not randomly selected from population
- Bias by demographics/settings
  - College students
  - Gender
  - Locale
  - Time considerations
  - Cultural considerations

Generalizability of Research (con’t)

- Does your experimental condition or manipulation create the process or state you think it does?
  - Mood, information given/cover story, realism of social context or setting created
- Is the strength of your IV realistic for the same real-world situation
  - Too much, too little?
  - Manipulation check important step
Generalizability of Research (con’t)

- Construct validity
  - Does your DV measurement reflect reality outside of the experimental setting?
  - Use of standardized measures/accepted scales in of the constructs
  - Ensuring your DV is reliable and valid

Experimenter Issues

- Characteristics of the experimenter
  - Personality, gender, practice, etc.
  - Interaction of experimenter’s characteristics and participant’s characteristics
  - An experimenter that has an influence over the subjects’ behavior might not find results that generalize to other experimenters.
    - This is dependent on experimenter-subject interactions (not the "fault" of one or the other).
    - How can these effects be reduced or eliminated?

Pretests and Generalizations

- Pretests and generalizability
- Pretests and mortality
- Pretests and explaining an interaction of the pretest and the independent variable
  - Solomon four group design can solve this – Chapter 8

Generalizing from Laboratory Settings

- Lab versus field experiment
  - Lab experiments and field experiments differ in the "realities" they create (external validity).
- Artificiality concerns
  - Lab studies are not automatically artificial
  - Field studies are not automatically realistic
- Need to assess the "reality" of the experiment
Generalizing from Laboratory Settings (con’t)

• The “reality” of an experiment can be further described as mundane or experimental realism:
  
  • **Mundane realism** refers to whether the experiment bears similarity to events that occur in the real world
  
  • **Experimental realism** refers to whether the experiment has an impact on the participants
    • Does it involve them?
    • Does it make them take the experiment seriously?

Issues Generalizing Other Research

• If you suspect the generalizability of another researchers’ study is poor, what could you do to demonstrate this?

  Replicate the study!

Exact Versus Conceptual Replication

• Exact replications – an attempt to replicate precisely the procedures of a study to see whether the same results are obtained
  
  • Builds on findings of a previous study
  
  • When results are the same, confidence increases

Exact Versus Conceptual Replication

• Conceptual replications use different procedures to replicate a research finding
  
  • To repeat an experiment with different variables in order to observe the same effect in a previous study
    • Same IV is manipulated in a different way
    • The DV may be measured differently too
  
  • More important to external validity than exact replications
**Replication Issues**

- What might you expect if one researcher has difficulty replicating the results of another?
  - 1) Methodological differences
  - 2) Experimenter effects
  - 3) Poor external validity in the design, among other possibilities.

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**Evaluating Generalizations Via Literature Reviews and Meta-Analysis**

- Literature review provides information that
  1. Summarizes what has been found
  2. Tells the reader what findings are strongly or weakly supported
  3. Points out inconsistent findings and areas in which research is lacking
  4. Discusses future directions for research
  5. Author provides descriptions of findings and draws conclusions about the literature
     - Subjective impressions of the reviewer

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**Evaluating Generalizations Via Literature Reviews and Meta-Analysis (con’t)**

- Narrative literature reviews
  - Meta-analysis
  - Researcher combines the actual results of a number of studies
  - Set of statistical procedures that use effect sizes to compare a given finding across many studies
  - Statistical, quantitative conclusions can be drawn

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**The End**