



# CHAPTER 14

## GENERALIZATION

# LEARNING OBJECTIVES

- ✓ Discuss the issues created by generalizing research results to other populations, including potential problems using college students as research participants
- ✓ Discuss issues to consider regarding generalization of research results to other cultures and ethnic groups
- ✓ Describe the potential problem of generalizing to other experimenters and suggest possible solutions
- ✓ Discuss the importance of replications, distinguishing between exact replications and conceptual replications
- ✓ Distinguish between narrative literature reviews and meta-analyses

# GENERALIZING TO OTHER POPULATIONS

- ✓ **Internal validity:** The ability to infer a causal relationship between variables
- ✓ **External validity:** How well findings generalized to other populations
  - ✓ Participants may be randomly assigned to experimental conditions, but...
    - ✓ Participants are rarely randomly selected from the general population.
  - ✓ Participants are usually selected because they are available
    - ✓ the most available population consists of **college students**
    - ✓ Usually first- and second-year students enrolled in an intro psych course

# GENERALIZING TO OTHER POPULATIONS

## ✓ **College students**

- ✓ Arnett (2008) found that **67%** of the articles in the 2007 volume of the *Journal of Personality and Social Psychology* used college student samples.
- ✓ Samples with only college students pose many potential problems:
  - ✓ Highly restricted population
  - ✓ Young, with social and political attitudes in flux
  - ✓ High cognitive skills
  - ✓ More similar to each other than adults are similar to other adults in the general population

# GENERALIZING TO OTHER POPULATIONS

## ✓ **Volunteers**

- ✓ Research indicates that volunteers differ in various ways from non-volunteers.
- ✓ In their comprehensive study on the topic, Rosenthal and Rosnow (1975) reported that volunteers tend to be more
  - ✓ highly educated,
  - ✓ higher socioeconomic status,
  - ✓ more in need of approval,
  - ✓ more social.



# GENERALIZING TO OTHER POPULATIONS

## ✓ **Online research**

- ✓ The Pew Research Center's Internet and American Life Project (Pew Internet, 2010) found that in general internet users:
  - ✓ Live in an urban/suburban area
  - ✓ Are college educated
  - ✓ Younger
  - ✓ Have a higher income
- ✓ Volunteers for online surveys, may not generalize well to a population of interest

# GENERALIZING TO OTHER POPULATIONS

## ✓ **Gender**

- ✓ Sometimes, researchers use only males or only females
- ✓ or they end up with a very disproportionate ratio of males to females
  - ✓ simply because this is convenient or the procedures seem better suited to a particular gender.
- ✓ Researchers should be aware of possible gender differences and include both males and females in research investigations

# GENERALIZING TO OTHER POPULATIONS

## ✓ **Locale**

- ✓ Participants in one locale may differ from another
  - ✓ For example students may differ at
    - ✓ UCLA
    - ✓ a nearby state university
    - ✓ a community college
  - ✓ Or
    - ✓ Starbucks
    - ✓ customers at a Laundromat
    - ✓ outside a courthouse
    - ✓ Disneyland



# GENERALIZING TO OTHER POPULATIONS

## ✓ **Animals**

- ✓ Most research with animals is conducted to help with the survival of endangered species
- ✓ Some is to increase our understanding of our bonds with animals.
- ✓ Some for furthering medical science helping to save lives

# GENERALIZING TO OTHER POPULATIONS

## ✓ **In defense of college students**

- ✓ College student bodies:
  - ✓ increasingly diverse
  - ✓ increasingly representative of the society as a whole
  - ✓ Have the ability and motivation to pursue a college degree
  - ✓ can provide fast and easy to access to a highly diverse population

# GENERALIZING TO OTHER POPULATIONS

## ✓ **Cultural Research**

- ✓ Identifies similarities and differences that exist in:
  - ✓ Personality
  - ✓ psychological characteristics
  - ✓ Ways individuals from different cultures respond to the same environments

# DIFFERENCES AMONG EXPERIMENTORS

- ✓ A warm, friendly experimenter may produce different results from a cold, unfriendly experimenter
- ✓ Participants may behave differently with male and female experimenters
- ✓ It's been shown that rabbits learn faster when trained by experienced experimenters.
- ✓ Unfortunately, most research uses only one experimenter
  - ✓ Experimenter's influence on subjects needs to be constant throughout the experiment
    - ✓ Personality
    - ✓ Gender
    - ✓ Experience
- ✓ Solution is to use two or more experimenters

# PRETESTS AND GENERALIZATION

- ✓ Advantages of a pretest
  - ✓ Confirms that the groups are equivalent
  - ✓ Helps assess mortality effects
- ✓ Disadvantages of a pretest
  - ✓ Limits the ability to generalize to populations that did not receive a pre-test
    - ✓ **Solomon four-group design**
      - ✓ In the **Solomon four-group design**, half of the participants are given the pretest; the other half receive the posttest only.
      - ✓ This helps to test whether pretesting is affecting the study's outcomes

# GENERALIZING FROM LABORATORY SETTINGS

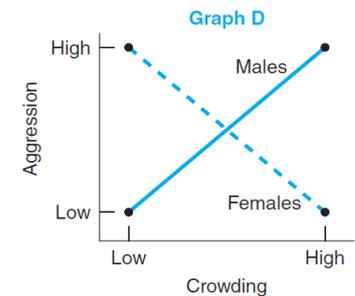
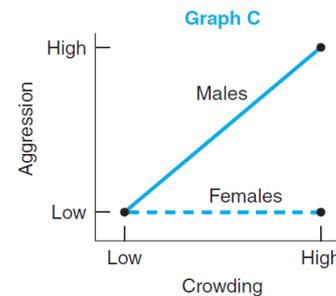
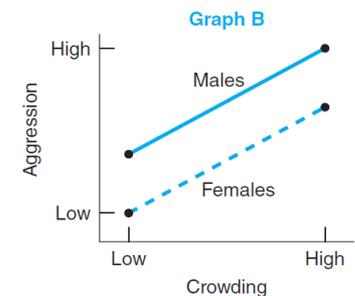
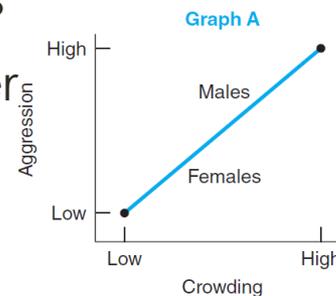
- ✓ Allows the experimenter to study the impact of IVs under highly controlled conditions
- ✓ Responses to laboratory artificiality criticisms include:
  - ✓ Generalization to real-life settings is not relevant when the purpose of study is to investigate causal relationships
  - ✓ It helps to examine the results of field experiments
  - ✓ Adds another layer of investigation to a phenomenon of interest

# SUPPORTING GOOD EXTERNAL VALIDITY

- ✓ The key way that external validity can be supported is related to a study's methodology.
- ✓ A random sample will produce better external validity than a non-random sample
- ✓ Interaction effects can be determined by including other variables in the research design

# OUTCOMES OF A HYPOTHETICAL EXPERIMENT ON CROWDING AND AGGRESSION

- ✓ An interaction occurs when a relationship between variables exists under one condition but not another
  - ✓ Or when the nature of the relationship is different in one condition than in another.
- ✓ Therefore, if you question the generalizability of a study that used only males,
  - ✓ you are suggesting that there is an interaction between gender and the independent variable.



# SUPPORTING GOOD EXTERNAL VALIDITY

- ✓ **Replication** of research is a way of overcoming any problems of generalization that occur in a single study. There are two types:

## **Exact replication:**

- ✓ An attempt to replicate precisely the procedures of a study
- ✓ Researchers who obtain an unexpected finding frequently attempt a replication to confirm the finding is reliable

## **Conceptual replication:**

- ✓ Using different procedures to replicate a research finding
  - ✓ In a conceptual replication, researchers attempt to understand the relationships among abstract conceptual variables by using new, or different, operational definitions of those variables.

# EVALUATING GENERALIZATIONS

- ✓ **In a Literature review**, a reviewer reads a number of studies that address a particular topic and then writes a paper that summarizes and evaluates the literature.
- ✓ It provides information that:
  - ✓ Summarizes what has been found
  - ✓ Informs the reader of findings that are:
    - ✓ Strongly supported
    - ✓ Weakly supported
  - ✓ Exposes inconsistent findings and areas lacking proper research
  - ✓ Discusses future directions for research

# EVALUATING GENERALIZATIONS

- ✓ **Meta-analysis:** Method for determining the reliability of a finding by examining the results from different studies
- ✓ In a meta-analysis, the researcher combines the actual results from several studies.
  - ✓ Comparisons of the effect sizes
  - ✓ Uses statistical conclusions from those tests

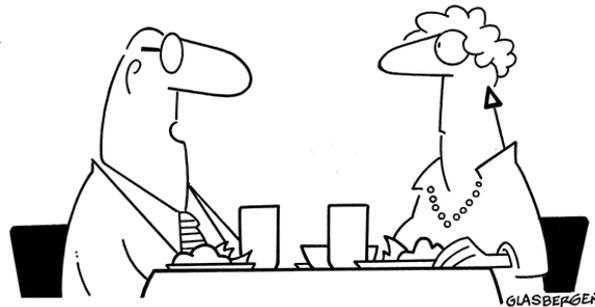
# USING RESEARCH TO IMPROVE LIVES

- ✓ The impact of psychological research can be seen in several areas
  - ✓ Health
    - ✓ Like programs to promote health-related behaviors related to stress, heart disease, and sexually transmitted diseases
  - ✓ Law and criminal justice
    - ✓ For example: providing data on the effects of 6- versus 12-person juries and showing how law enforcement personnel can improve the accuracy of eyewitness identification
  - ✓ Education
    - ✓ Such as providing methods for encouraging academic performance or reducing conflict among different ethnic groups

# USING RESEARCH TO IMPROVE LIVES

- ✓ Other areas include:
  - ✓ Work environments
    - ✓ It has helped workers with more control and improving the ways that people interact with computers and other machines in the workplace
- ✓ Psychologists also often use the Internet to provide information to the public

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**"I was in a good mood once, but  
I couldn't find any practical use for it."**