



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** refers to the ability to infer that there is a causal relationship between variables.
- ✓ **External validity:** Extent to which findings may be generalized to other populations
 - ✓ Even though a researcher may randomly assign participants **to** experimental conditions, rarely are participants randomly selected **from** the general population.
 - ✓ The individuals who participate in psychological research are usually selected because they are available, and the most available population consists of **college students**
 - ✓ Usually first- and second-year students enrolled in the intro psych course to satisfy a general education requirement.

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 student 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**

- ✓ Some 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.
- ✓ By asking for volunteers for an online survey, researchers are sampling from a particular demographic that may not generalize well to the population of interest

GENERALIZING TO OTHER POPULATIONS

✓ **Gender**

- ✓ Sometimes, researchers use only males or only females (or 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 at UCLA may differ from students at a nearby state university, who in turn may differ from students at a community college.
 - ✓ Starbucks customers may differ from customers at your local Laundromat

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"The police called, we're taking you out of the clinical trial and putting you in a criminal trial."

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 nonhuman animals.
- ✓ Because animals such as mice and rats share some physiological and genetic similarities with humans, animal experimentation can be tremendously helpful for furthering medical science.

GENERALIZING TO OTHER POPULATIONS

✓ **In defense of college students**

- ✓ In some instances, a relationship between variables would not be found with other types of subjects as with college students
- ✓ College student bodies are increasingly diverse and increasingly representative of the society as a whole
 - ✓ college students will always be characterized as having the ability and motivation to pursue a college degree
 - ✓ they can provide fast and easy access to a highly diverse population

GENERALIZING TO OTHER POPULATIONS

✓ **Culture**

- ✓ Observers of current psychological research have been critical of the types of samples employed in behavioral research
- ✓ Cultural research identifies similarities and differences that exist in:
 - ✓ Personality
 - ✓ Other psychological characteristics
 - ✓ Ways individuals from different cultures respond to the same environments

GENERALIZING ACROSS RESEARCH METHODS

- ✓ A warm, friendly experimenter will almost certainly produce different results from a cold, unfriendly experimenter.
- ✓ Participants also may behave differently with male and female experimenters.
- ✓ It has even 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

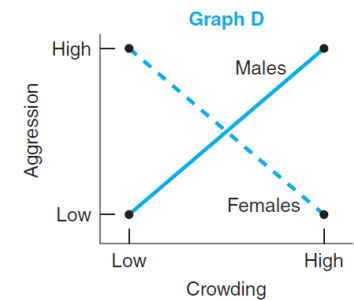
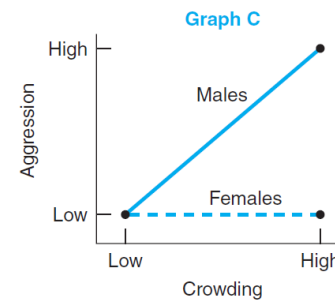
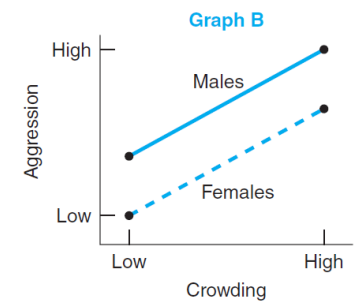
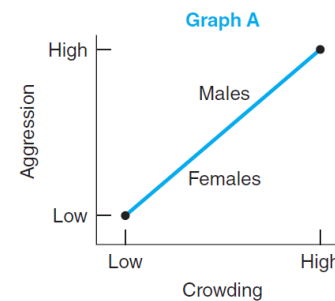
- ✓ Allows the experimenter to study the impact of independent variables under highly controlled conditions
- ✓ Responses to laboratory artificiality criticisms include:
 - ✓ Generalization to real-life settings is not relevant when the purpose of study is to investigate causal relationships
 - ✓ It 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.
 - ✓ Using a census, or a random sample will always produce better external validity than using a non-random sample.
- ✓ Generalization as a statistical interaction
 - ✓ An interaction occurs when:
 - ✓ A relationship between variables exists under one condition but not another
 - ✓ Nature of the relationship is different in one condition than in another
 - ✓ Existence of 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.
- ✓ Thus, if one questions the generalizability of a study that used only males, one is 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:

- ✓ is an attempt to replicate precisely the procedures of a study to see whether the same results are obtained.
- ✓ Researcher who obtains an unexpected finding frequently attempts a replication to confirm the finding is reliable

Conceptual replication:

- ✓ is the use of 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.
 - ✓ It allows comparisons of the effect sizes in different types of studies to allow tests of hypotheses
 - ✓ It also allows statistical, quantitative conclusions from those tests.

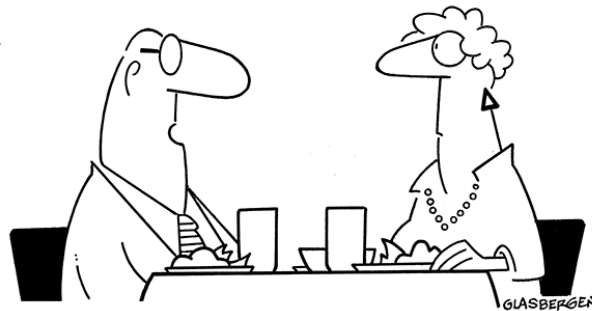
USING RESEARCH TO IMPROVE LIVES

- ✓ 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."**

EXTRA CREDIT LABS AVAILABLE

1. Generalizations (5pts)
2. Is it a Correlation or is it an Experiment? (5pts)

