

Chapter 1: Why the Social Researcher Uses Statistics

Chapter-at-a-Glance Grid

Detailed Outline	Print Supplements	Media Supplements
The Nature of Social Research p. 1 Variables and Constants • Unit of Observation • Aggregates • Hypothesis • Dependent and Independent Variables • Research Methods	Test Bank Handout 1.1	Companion Website: www.mysockit.com
Why Test Hypotheses p. 3 Reality vs. Perceptions		
The Stages of Social Research p. 4 Identify Problem • Develop Instruments • Collect data • Analyze Data • Analyze Results	Test Bank	
Using Series of Numbers to Do Social Research p. 5 Levels of Measurement • Nominal • Ordinal • Interval/Ratio • Different Ways to Measure the Same Variable • Discrete and Continuous Variables	Test Bank Handout 1.1	Overview of Statistical Thinking: http://faculty1.coloradocollege.edu/~mduncombe/web/levels.htm This Web site gives an overview of the levels of measurement discussed in chapter 1.
The Function of Statistics p. 12 Description or Decision Making • Rounding Off	Test Bank	
Summary p. 18		
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Learning Objectives

- Recognize the importance of social research and its dependence on statistics
- Recognize the steps of hypothesis testing
- Recognize various levels of measurement of each variable
- Recognize dependent and independent variables clearly

Detailed Lecture Outlines

The Nature of Social Research – Using past experiences, either our own or those of others, to make predictions for future situations, we are acting as researchers on an informal basis. Social scientists observe and make predictions for society and social behaviors.

- **Variables and Constants** – Aspects such as gender of mother (female!) are constants among population, whereas aspects such as age of mother are variable either across population or over time.
- **Unit of Observation** – Data on individuals or aggregate data such as cities or households.

- **Hypothesis** – Statement of relationship between two or more variables.
- **Dependent and Independent Variables** – Independent variables are usually the “cause,” whereas the dependent variables are the “consequence.”
- **Research Methods** – Experiment; survey; participant observation; secondary analysis.

Why Test Hypotheses? The social reality of some matters is likely to be different from commonly held perceptions, so hypothesis testing helps us to empirically test the validity of relationships.

The Five Stages of Social Research:

1. Identify problem
2. Develop instruments
3. Collect data
4. Analyze data
5. Analyze results

Using Series of Numbers to Do Social Research – Data helps with performing statistical analysis and testing hypotheses.

- Three major levels of measurement – nominal, ordinal, and interval/ratio
- Same variable can be measured using different levels depending on the hypothesis
- Variables can be discrete or continuous

The Function of Statistics – Statistics functions as a tool of description or decision making.

- Data can be described and analyzed through frequency distributions, graphs, or by the basic descriptive statistics.
- Rounding Off – We usually round off the final answer to two decimal places and do not round off while calculating the intermediate steps.

Summary (page 18)

In the first chapter we linked our everyday predictions about the course of future events with the experiences of social researchers who use statistics as an aid in testing their hypotheses about the nature of social reality. Almost daily, ordinary people take educated guesses about the future events in their lives. Unlike haphazard and biased everyday observations, however, researchers seek to collect *systematic* evidence in support of their ideas. Depending on the particular level of measurement, series of numbers are often employed by social researchers to categorize (nominal level), rank (ordinal level), or score (interval/ratio level) their data. Finally, social researchers are able to take advantage of two major functions of statistics in the data-analysis stage of social research: description (that is, reducing quantitative data to a smaller number of more convenient descriptive terms) and decision making (that is, drawing inferences from samples to populations).

Key Terms

Hypothesis
Variable
Experiment
Measurement

Level of measurement
Nominal
Ordinal
Interval/Ratio

Lecture Launchers and/or Discussion Topics

The textbook has some examples on current events or relevant social events that might interest the students. However, it is important to pick a topic other than those from the textbook in order to better inform students as to the relevance of statistics. Pick a newspaper article at random and illustrate to students how social research is relevant.

Demonstrations and/or Activities

Pick any current health issue, such as depression or cancer, and try to get students to determine what the independent variables might be for such an issue. Clearly demonstrate how the outcome is the dependent variable, whereas the inputs are all independent variables in such cases.

HANDOUT 1.1 DETERMINING LEVELS OF MEASUREMENT

Taken from Chapter 1, the following handout can be used as a quiz, an in-class assignment, or for discussion. The features that you might point out are as follows:

- Nominal variables classify or categorize; they include dichotomies, those variables with only two choices or reorganized into two categories.
- Ordinal variables rank or order the variable attributes in a logical or meaningful way.
- Interval variables assign a score that is at an equal distance, or “interval,” from those scores adjacent to them. This allows a greater number of mathematical operations.

Handout 1.1

Name: _____ Date: _____ Class: _____

LEVELS OF MEASUREMENT

1. Suppose you were interviewing people about their views on gun control. You ask the respondents the following question: How much do you agree or disagree with this statement: “The United States needs stiffer laws controlling the purchase and ownership of guns.” The respondents are then asked to rank their feelings on the following scale: strongly agree, somewhat agree, neither agree or disagree, somewhat disagree, or strongly disagree. What level of measurement would you be using?
 - a. ratio
 - b. ordinal
 - c. nominal
 - d. interval

2. The jersey numbers associated with players on a baseball team are examples of scores on a(n) _____.
 - a. nominal scale
 - b. ratio scale
 - c. interval scale
 - d. ordinal scale

3. Compared to the ordinal level of measurement, the interval level _____.
 - a. not only indicates the order of categories, but also the exact distance between them
 - b. does not provide labeling of each score
 - c. starts from a true zero point
 - d. only categorizes

4. Statistics can be used to _____.
 - a. reduce data to more easily understood descriptive terms
 - b. generalize results
 - c. determine when an observed difference between two or more groups is the result of chance, or when it is the result of “real” differences between groups
 - d. all of the above

5. Sociologists use measurement to _____.
 - a. classify or categorize data
 - b. order data
 - c. assign a score
 - d. all of the above