

Research Methods Exam 2 Study Guide

Ch. 5, 6, 7, 8

Chapter 5

Ways to Measure Variables

- Most psychological phenomenon are hard to measure
- Depression, success, attraction, stress

How can we measure?

Construct Validity-how well the scale measures the variable of interest (accuracy)

Our variables can be defined conceptually and operationally

Conceptual-the researcher's definitions of a variable (abstract)

Operational-how the variable will be measured and manipulated (specific)

There are 3 types of operationalization:

- self report
- observation
- physiological information

Self Report: people answer questions, subjectively, about how they feel about certain topics. Usually used in a questionnaire or interview. Sometimes it is more accurate to have a self report measured filled out by someone who observes behavior versus someone who engages in the behavior.

Observation-operationalizes a variable by recording observable behavioral or physical traces (physical traces allow for data to be collected "after the fact").

Physiological measures-records biological data such as brain activity, hormone level, heart rate, blood pressure, etc. Some people find physiological measures best.

Operational definitions can be...

Categorical-categories, often assigned numbers by researchers. This is not really a measurement, it is just a label for purposes of differentiating groups. The numbers are arbitrary and meaningless.

(Sometimes referred to as nominal. Nominal=Discrete categories)

Quantitative-coded with meaningful numbers

- ordinal/interval/ratio

Ordinal-usually the best is assigned to number 1. Numbers are not inherently meaningful except to indicate less versus more. The distance between the numbers may or may not reflect equal intervals. The first place team could be way out in front or barely winning.

Interval-distance between stimuli. Both the numbers and the distances between them ARE meaningful. There is NO ZERO. The distance between 1 and 3 is the same distance between 8 and 10. Example: test scores.

Ratio-has all the properties of an interval scale BUT the zero is meaningful. The zero means nothing. If you got a test of course content which you got zero right,

that does NOT mean you KNOW nothing. But if you have zero dollars that means you HAVE nothing.

Reliability of Measurement

Reliability=all the measurements are consistent

THREE TYPES OF RELIABILITY

- 1) **Test-Retest Reliability**-consistent scores every time we test.
- 2) **Interrater Reliability**-two or more independent observers will come up with the same findings.
- 3) **Internal Reliability**-people who agree with the first item should agree with the 2nd item and so on.

Correlation Coefficient- also known as r. single number to indicate how close the dots on a scatterplot are to a line drawn through them. Positive-they move together. Negative-they move opposite. Strong correlation-closer to 1 or negative 1. Weak correlation-closer to 0.

Cronbach's alpha-way to see if their measurement scales have internal validity. For this to be reliable the number must be .70 or higher.

Validity

Face Validity-simply looking if it should be a good measurement

Content Validity-must capture all parts of a defined construct. Usually subjective. Usually evaluated and scored by experts in the content area.

Convergent Validity-should correlate more strongly with other measurements of the same construct. A new measure of intelligence should correlate highly with the current standard

Divergent Validity- Should correlate less strongly with measures of other distinct constructs. A measure of depression should NOT correlate highly with a measure that has been connected to self-esteem. If it does, we have no idea if the new measure is really measuring depression, self-esteem, or a combination of both.

Relationship between reliability and validity:

A measure CAN be reliable but not valid and vice versa.

Chapter 6

Frequency Claims

Remember, we are dealing with ONE variable.

- opinions about a president
- number of homicides in a particular area within a city
- apathy of a prison population
 - data comes from surveys/polls
 - data comes through observation

Survey-used to ask about consumer products

Poll-used when asking about an opinion
(most often used interchangeably)

Choosing Question Formats

Open-ended questions-respondents can describe how they feel about a question/topic. Rich/thorough data.

Forced-choice format-opinion is given by selecting the best of two or more options. BUT what if the answer that I connect with isn't given?

Likert Scale-(tends to be the most popular) a rating scale is used to answer questions. For example: "Divorce is made too easy in the U.S. " then you select Strongly Agree/Agree/Neutral/Disagree/Strongly Disagree.

Semantic differential format-numeric scale anchored with adjectives

Writing Well-Worded Questions

What to AVOID..

Leading Questions-questions that prime participants toward a certain answer.

GOAL-word every question as neutrally as possible.

Double-Barreled Questions-questions that ask one or more thing

GOAL-ask simple yet clear questions

Double Negatives-creates unnecessary complication

Question Order-to avoid this problem, we must prepare different versions of the survey.

Encouraging Accurate Responses

Response sets-answering in a consistent way, even if it is less than accurate

Yea-Saying- saying "yes" or strongly agree with every item

Nay-Saying-saying no or disagreeing with every item

*answer-reverse word the question

Fence sitting-answering neutral, or in the middle scale for every question Answer-take away the neutral option.

Socially Desirable Responding-faking good or bad to answer in a way that makes them appear socially okay. Answer-add filler items, questions that have no meaning to hide the true purpose of the test.

Other issues with self reporting..

Sometimes participants don't recall their own behaviors/attitudes correctly.

Sometimes participants don't know how they feel about something (based on memory)

Makes behavioral observations necessary.

Chapter 7

Bivariate Correlations:

Associations between two variables

-Are the variables measured or manipulated?

Measured (manipulated variables for causal claims)

Correlation studies can include both quantitative (score on exam) and categorical (male/female) variables (but they are graphed differently)