

Personality Psychology as Science: Research Methods

Research Methods

- Psychology Emphasizes Method
 - It's a *process*
- Less emphasis on *facts*
 - Avoiding *memorization*

Quality of Data

Personality psychologists' quest to understand and quantify abstract psychological phenomena

Reliability

Reliability

- Does your measurement work the same all the time?
 - Does it give the same answer regardless of...
 - Time
 - Situation
 - Can personality data ever do this?

Reliability

- Conditions that undermine reliability
 - Low precision of measurement
 - The state of the participant
 - The state of the experimenter
 - The state of the environment
- If $True\ Score = Observed\ Score + Error$
 - What is the “true score”
 - What is the error?

Reliability

- Conditions that improve reliability
 - Being careful.
 - Use a constant scripted procedure (protocol).
 - Measure something that is important.
 - Aggregation
 - Spearman-Brown Formula
(measurements settle down to average)

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Validity

Validity

- The concept of validity
 - Reliability versus validity
 - Several different kinds of validity
- Construct Validity
 - What is a “personality construct”?
 - What is construct validation?
- Where is the truth?

Quality of Data

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Reliability

Validity

Generalizability

Generalizability

- Generalizability over participants
 - Sampling bias (use of volunteer samples)
 - Gender bias
 - Shows versus no-shows
 - Cohort effect
 - Ethnic diversity

Research Methods

Research Design



Research Methods: Case Method

- Case method
 - Requirements
 - One psychologist, one interviewee, and time
 - What are its Advantages & Disadvantages?



Research Methods: Correlational Method

- Correlational (observational) method
 - Requirements ?
 - Advantages ?
 - Disadvantages ?

Research Methods: Experimental Method

- Experimental method
 - Requirements
 - Advantages
 - Disadvantages

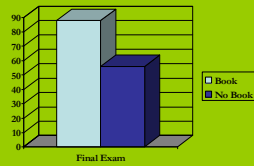
Procedure:

60 volunteer participants

30 participants randomly assigned to get a textbook

30 participants randomly assigned to receive no textbook

Measure final exam grades on a comprehensive exam



Research Methods

Which is better: correlational or experimental?



Representative Design

- Representative design
 - Generalizability can exist...
 - Over stimuli
 - Over responses
- Expensive and time-consuming method
 - Hard to get a truly representative design !

Significance

- Statistical significance: a result that probably did not occur by chance
 - It is a rule of thumb for reporting findings ($p < .05$).
 - It is a yes/no decision – it implies nothing about how strong the effect is (or is not).

Statistical Terminology: Statistical *Significance*

- Statistical significance: a result that probably did not occur by chance
 - Significance and sample size
 - $r = .35$ with 25 participants $p < .09$ (not significant)
 - $r = .35$ with 35 participants $p < .04$ (significant)
 - It does not necessarily imply that the findings are 100% certain truth

Types of Error (1, 2)

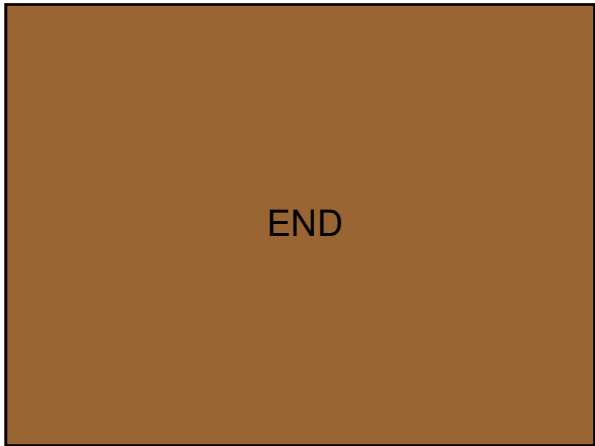
- **Type I error: False positive**
 - I go on TV reporting a result that was, in fact wrong!
- **Type II error: False negative**
 - I have a result, but I did not detect it; I missed the chance to be seen on TV

Statistical Terminology: Effect Size

- **Statistically significant =**
 - a result that probably did not occur by chance
- **Effect size:**
 - a measure of the importance of a result (0 – 1 scale)
 - E.g. measured using a correlation coefficient
 - Can convert significance statistics (t , F , χ^2) to a correlation to measure effect size

Research Ethics

- **The uses of psychological research**
 - Always for good – never for eeeevil
- **Truthfulness**
 - Don't tell lies !
- **Deception**
 - The Institutional Review Board (IRB)
 - Informed consent
 - Debriefing
 - Certain topics cannot be investigated without the use of a little deception.
 - A controversial issue



END
