



# INTRODUCTION TO RESEARCH

**Class 2**

**Psyc 3510**

# CONSTRUCTS AND OPERATIONAL DEFINITIONS

- **Constructs are hypothetical attributes or mechanisms that help explain and predict behavior in a theory.**



# CONSTRUCTS AND OPERATIONAL DEFINITIONS

- **An operational definition is a procedure for measuring and defining a construct.**



# CONSTRUCTS AND OPERATIONAL DEFINITIONS

- Problems with operational definitions
  - **Components left out**
  - **Extra components included**



# CONSTRUCTS AND OPERATIONAL DEFINITIONS

- Operationalize:
  - Rain
  - Adolescence
  - Depression



# CONSTRUCTS AND OPERATIONAL DEFINITIONS

- Group Activity
  - In groups of three, write an operational definition for the given construct
  - Have a nearby group try to guess your construct using ONLY your operational definition.



## VALIDITY

- **Validity: Measurement procedure is actually measuring what you claim it is measuring.**



## VALIDITY

- Face Validity: **Look like it measures what it measures?**





# VALIDITY

1.

- 0) I do not feel sad.
- 1) I feel sad
- 2) I am sad all the time and I can't snap out of it.
- 3) I am so sad and unhappy that I can't stand it.

2.

- 0) I am not particularly discouraged about the future.
- 1) I feel discouraged about the future.
- 2) I feel I have nothing to look forward to.
- 3) I feel the future is hopeless and that things cannot improve.

3.

- 0) I do not feel like a failure.
- 1) I feel I have failed more than the average person.
- 2) As I look back on my life, all I can see is a lot of failures.
- 3) I feel I am a complete failure as a person.



## VALIDITY

- **Concurrent Validity: scores obtained from measure are directly related to scores from an established variable**



# VALIDITY

- Consistency of Relationship: **Demonstrated through correlations**
  - **Positive** relationship
  - **Negative** relationship



## VALIDITY

- **Predicative Validity: Scores from measure accurately predict theorized behavior**



# VALIDITY

- Construct Validity:  
**measurement procedure  
scores behave as behavior is  
theorized to behave.**



# VALIDITY

- Convergent Validity:
  - **Create two different methods**
  - **Show methods are positively related (converge)**



# VALIDITY

- Divergent Validity:
  - **Create convergent score for second construct**
  - **Demonstrate no relationship between target construct and second construct.**



# RELIABILITY

- **Reliability: measurement produces identical results when measuring the same individual under the same conditions.**





## RELIABILITY

- **Measurement score = Actual score + Error**



# RELIABILITY

- Test-retest reliability:  
**measurement produces same  
score on subsequent tests**



# RELIABILITY

- Parallel-forms reliability:  
**Different versions of same measurement produce same scores**



## RELIABILITY

- Inter-rater reliability: **Different raters of data produce same scores**



## RELIABILITY

- **Split-half reliability: Tests from one half of measurement produce similar scores to tests from second half of test.**



## RELIABILITY AND VALIDITY

- Measures must be **reliable** to be **valid**, but not **valid** to be **reliable**.



## MEASUREMENT EFFECTS

- **Ceiling Effect: All scores are clustered at top of scale, with no possible increases in value.**



## MEASUREMENT EFFECTS

- **Floor Effect: All scores are clustered at bottom of scale, with no possible decreases in value.**





# ETHICS OF RESEARCHING



# ETHICS IN RESEARCHING

- Research ethics: **responsibilities of researchers**



# ETHICS IN RESEARCH

- **Responsibility 1: ensure the welfare and dignity of the individuals**



# ETHICS IN RESEARCH

- **Responsibility 2: Public reports are accurate and honest**



## ETHICS IN RESEARCH

**Principle of no harm: reasonable steps to avoid foreseeable, avoidable physical or psychological harm to individuals.**



## ETHICS IN RESEARCH

- Clinical equipoise: **give the best treatment.**



# ETHICS IN RESEARCH

- Principle of Informed Consent: **participants should be given complete information about the study and their rights**
  - Right to decline
  - Right to withdraw
  - Right to confidentiality
  - Right to anonymity



# ETHICS IN RESEARCH

Problems with informed consent:

- **Information: How to present and how much to give?**





# ETHICS IN RESEARCH

- Understanding: **Do the participants understand informed consent?**



# ETHICS IN RESEARCH

- Voluntary participation: **Is it genuine?**



# ETHICS IN RESEARCH

## Use of Deception

- **Passive Deception: omitting pertinent information**



## ETHICS IN RESEARCH

- Active Deception: **purposefully presenting false information.**



# ETHICS IN RESEARCH

- Ethics with nonhuman subjects
  - **Qualified Individuals**
  - **Minimize Discomfort/Harm**
  - **Research must be justified**

