Overview: Research Process

1. **Problem formulation** (including research questions, lit review)

2. **Methodology**
    - Operationalization and measurement
    - Study population and sampling
    - Research design
    - Data collection
    - Data analysis plan

3. **Implementation** – Data collection

4. **Data analysis**

5. **Dissemination**

MEASUREMENT

1. **Ways to measure**
2. **Evaluating measures**
3. **Errors in measures**
4. **Sensitivity to diversity**
5. **Avoid measurement errors**
6. **Using existing scale**

1. Ways of measuring

1) Operational definition

- From concepts to indicators

- Conceptualization

  ↓

(Nominal definition)

  ↓

Operational definition

  ↓

Ways to measure

1. Ways of measuring

2) More than one indicator?

- Item
- Scale (Index): composite/cumulative measures
  - Likert scale

1. Ways of measuring

3) Techniques of measuring

- ■ Verbal report
- ■ Observation
- ■ Archival records

- ❖ *Triangulation*

1. Ways of measuring

4) Influence of operational definition

- Different operational definitions
  →different results

- e.g., racism, spirituality

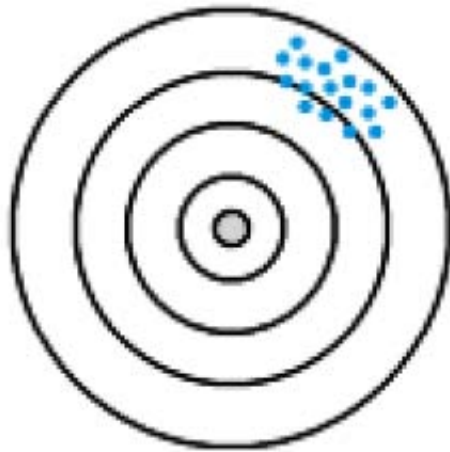# 2. Evaluating measures

1) Validity

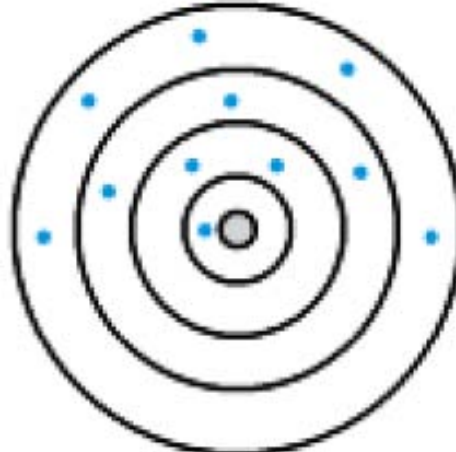   ○   Accuracy

2) Reliability

     ○   Consistency or stability
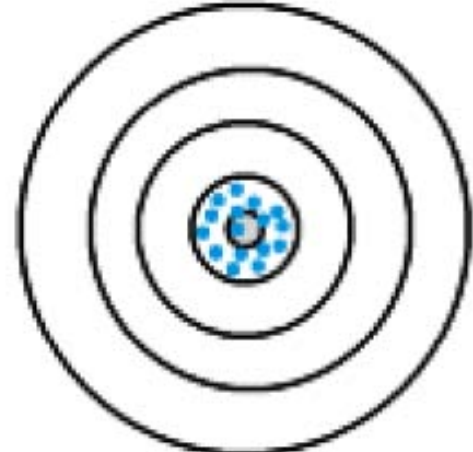
2. Evaluating measures

3) Relationship between reliability and validity

Reliable, not valid   Neither reliable nor valid   Both reliable and valid

3. Errors in measurement

1) Random errors

- o Errors by chance

- o Neither consistent nor patterned

- o Related to *reliability*

3. Errors in measurement

2) Systematic errors

- o Consistent and patterned errors
- o Related to *validity*
- o Bias
    - Predisposing way of asking question
    - Social desirability
    - Cultural bias

4. Sensitivity to diversity in measurement

- Refine measurement, if necessary
- Use culturally sensitive measures
  - Use key informants
  - Translation-back translation
  - Pilot testing

5. Avoiding measurement errors

- Use unbiased wording
- Use understandable terms
- Obtain collegial feedback
- Pilot testing
- Triangulation
- Training interviewer/observer

6. Using existing scale

- Popular way to operationally define variables
- Save time and money
- Always consider the quality of existing scale

NEXT

week 7: Sampling

week 8: Exam 1 (wk 2-6)