

# Levels of Measurement in Quantitative Research

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# Overview

- Icebreaker
- Key terms and concepts
- Group work
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1-Ice Breaker 2-Measurement 3--challenges 4-Key Terms 5-Group Work 6-Summary

# Ice Breaker

What makes a research question reliable?

# What is a measurement?

- Measurement is the process by which we describe and ascribe meaning to the key facts, concepts, or other phenomena that we are investigating
  - This means defining your terms as clear and precise a way as possible
- Social scientist will try to measure observational terms, indirect observation, and constructs
  - Observational terms - things we can see with our eyes; for ex: if we wanted to know how many parks exist in each borough we could travel to each borough and count the parks
  - Indirect observables - observations that arise through inference. These are not as obvious as observational terms and would require us to make casual connections; for ex: asking someone their yearly income and having them answer (observation)
  - Constructs - measures that are not included in observational terms or indirect observations. Constructs are more abstract and complex.

# Specific challenges of Social Science Research

Challenges of measuring the abstract

Ethical challenges

# Conceptualization

- A concept is a ever changing fluid construct that incorporates multiple related ideas.
- Conceptualization- the process of writing out a clear definition of a concept in order to research it.
- Often times, research only focus on one dimension of a construct.
- Reification is the concrete affects of a concept

# Operationalization

- The way in which researchers turn concepts into into measurable ideas.
- Key to this is finding indicators of concepts.
- There are three main tools that help make specific and quality indicators:
  - Indexes- List of indicators that help describe a concept (Think checklist)
  - Scale- An index but different levels of response
  - Typology- Organizing things on a macro, thematic level

# Levels of measurement

**Nominal:** the data can only be categorized.

**Ordinal:** the data can be categorized and ranked.

**Interval:** the data can be categorized, ranked, and evenly spaced.

**Ratio:** the data can be categorized, ranked, evenly spaced, and has a natural zero.



# What makes a quality research question

- **Validity versus reliability**
  - Validity is all about accuracy
    - Think of it as when you see a portrait
      - Do your measures reflect accurately to the concepts you are attempting to convey?
  - Reliability is all about consistency
    - Can you reproduce your results consistently?

# Group Work: What is the Meaning of Life for Millennials in New York City?

- In Groups, define a brief meaning of life statement and pick one dimension of it to measure!
- Breakdown how you would measure this and what type of measurement it would be.
- Share back with the class.

# Summary And Questions

- Measurements
- Challenges
- Key Terms
- Group Work

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# References

DeCarlo, M. (2018). Levels of measurement in qualitative research. In *Scientific inquiry in social work*. (1st ed., pp. 220–261). Open Social Work Education