POLI30: Inference

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Office Hours: Tentatively Monday 10:00am - 11:50am
Section Expectations

- Attendance
- Participation
- Reading
- Homework
A concept is “an idea or mental construct that represents phenomena in the real world” (p. 9).
Requirements and Definitions of Concepts

A **concept** is “an idea or mental construct that represents phenomena in the real world” (p. 9).

- **Properties** – What properties does the concept possess that are part of the “essence” of the concept?
- **Definition** – To which subjects does the concept apply, and how do we measure the properties of the concept?
Clarifying a Concept

To be valid, or even useful, a concept must be two things:

Should we define one concept in terms of another concept?
Clarifying a Concept

To be valid, or even useful, a concept must be two things:

- **Concrete** – Must be built of things that we can put our analytic “hands” on.
- **Variable** – Do some people have more of the concept, and others less?

Should we define one concept in terms of another concept?

- **How**, then, **can** we improve upon our concept of marksmanship?
After identifying the concrete, measurable attributes, we need to **define** how, and for whom those attributes describe a concept.

The concept of [ ] is defined as the extent to which [ ] exhibit the characteristic of [ ].
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How would we apply this to marksmanship?
After identifying the concrete, measurable attributes, we need to define how, and for whom those attributes describe a concept.

The concept of [concept’s label] is defined as the extent to which [the unit of analysis] exhibit the characteristic of [concept’s measurement]
Operational Definition

- Translation of an idea or a construct into something real, concrete, and measurable
- It describes explicitly how the concept is to be measured empirically
- A theory of measurement
Measurement Error

- Distortions of the linkage between a concept and its empirical measure
- Two types of measurement error:
  - **Systematic Measurement Error** – consistent, chronic distortion of an empirical measurement
  - **Random Measurement Error** – distortion caused by any factors that randomly affect measurement of the variable across the sample
Reliability and Validity

- **Reliability** – the extent to which it is a consistent measure of a concept

- **Validity** – the extent to which it records the true value of the intended characteristic and does not measure any unintended characteristics