Constructs and Variables

DSC 500: Research Methods

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• Concepts and Constructs
• Variables
  • Uses
  • Types

“This is really, really hard to grasp. Now would be an excellent time to pay attention.” (Kwan and Wolf)
• Concepts
  • What is a concept?

> “... expresses an abstraction formed by generalization from particulars.”
  (Kerlinger)

examples:
  • Scientific: weight, mass, energy, force, etc.
  • Emotions: happiness, sadness, fear, anxiety, etc.
 Constructs

What is a construct?

A concept

“It has the added meaning, however, of having been deliberately and consciously invented or adopted for a special scientific purpose.”
(Kerlinger)

Examples:

Intelligence

• Concept: used theoretically
• Construct: “defined and specified [so] that it can be measured and observed”
(Kerlinger)
• Variables
  • What is a variable?

  > “A variable is a symbol to which numerals or values are assigned.” (Kerlinger)
  > Often a term requiring an operational definition

  examples:
  • Weight, energy, intelligence, driver reaction time, stopping distance, age range, etc.
• **Variables**
  • Uses
  • Types
• Variables
  • Uses

> Independent - presumed cause of the dependant variable (number of LEDs)
> Dependent - presumed effect of the independent variable (driver reaction time)
• Variables
  • Types

  > Attribute - cannot be manipulated by researcher
    > All human characteristics (e.g. intelligence, sex, attitude, etc.)
    > Therefore, the inanimate collections of humans (e.g. organizations, populations, etc.) are also attribute variables
  > Active - can (not must) be manipulated by the researcher
• Variables
  • Types & uses

> Attribute variables can be used as either independent or dependant variables (driver reaction time - an attribute - is used in this case as a dependent variable)
• **Variables**
  - Types & uses

  > Attribute variables can be used as either *independent* or *dependant* variables (driver reaction time - an attribute - is used in this case as an *independent* variable)

  > Active variables can be used *only* as *independent* variables
• Variables
  • Types (cont’.d)

  > Continuous - can be measured over a range and reflect a rank order (e.g. height, weight, velocity, etc.)
  > Categorical - all-or-none (e.g. sex, age range, blood type, etc.)
• Variables
  • Types (cont’d)

> Intervening variables - ‘in-the-head’ variable, cannot be seen, heard, felt (Kerlinger)
  > Examples: hostility, anxiety, etc.
  > In this case, age is an intervening variable

> Latent variables - essentially the same as intervening variables (perhaps a more broadly used term)
• **Concepts**
  • Abstract idea

• **Constructs**
  • Concepts invented for a scientific purpose

• **Variables**
  
  • **Uses**
    • Independent
    • Dependent

  • **Types**
    • Attribute
    • Active
    • Latent (intervening)
    • Continuous
    • Categorical
Thank you!