Variables & Control

Experimental Psychology
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Variables

- **Situational**
  - Characteristics of situation or environment
  - Ex. # of words in memory test, room lighting

- **Response**
  - Responses or behaviors of individuals
  - Ex. Reaction times, memory performance

- **Participant/Subject**
  - Characteristics of individuals (individual differences)
  - Ex. Gender, intelligence, personality traits

- **Mediating**
  - Psychological effects that modify relationships between variables
  - Ex. Diffusion or responsibility,
Operational Definition

• The operations or techniques the researcher uses to measure or manipulate it.
  – Ex. How do you measure/define happiness?
Relationships Between Variables

Reduction of Uncertainty = Goal of Research
(Non)Experimental Methods

• Nonexperimental
  – Observations, public records, most survey research
  – Correlational

• Experimental
  – Direct manipulation of independent variables and control of other (extraneous) variables.
  – Cause-And-Effect; Third (Mediating/Extraneous) Variable Problem
  – Confounding Variables
  – Randomization & Control
Independent Variables

- Manipulated by the experimenter
- “Cause”

- Physiological
- Experience
- Stimulus or Environmental
- Subject/Participant or Historical
Dependent Variables

- Measured by the experimenter
- “Effect”
- Correctness
- Rate or Frequency
- Degree or Amount
- Latency or Duration
Causality

1. Temporal Precedence

2. Covariation Between Variables

3. Eliminate Plausible Alternatives
Choosing a Method

• Artificiality of Experiments
  – Ecological Validity
  – Field Study

• Ethical and Practical Considerations
  • Ex post facto

• Description and Prediction of Behavior
Validity

- Construct Validity
  - Adequacy of operational definition of variables
    - True theoretical meaning
Other Types of Validity

• Internal Validity
  – Ability to draw conclusions about causal relationships.

• External Validity
  – Extent to which results can be generalized to other populations and contexts.

• Conclusion Validity
  – Extent to which conclusions about relationships between variables are correct or “reasonable.”