

## Measurement Validity

- Measurement error → bad data → worthless results
- Is the IV properly manipulated?
- Is the DV properly measured?
- Are the values we have for **every** measure/behavior correct?
- Observational, Self-report or Trace?
- Primary or Archival data?

### Every Measure/Behavior is either...

	Constant	Variable
Measured	1	2
Manipulated	3	4

**IV** → **causes** **DV**

- **Temporal Precedence**
- **Reliable statistical relationship**
- **No alternative hypotheses/confounds**

## Statistical Conclusion Validity

- IV & DV can't be causally related if not statistically related
- **Statistical significance tests**
- **Programmatic Research** – novel RH tests, replication & convergence

### Every Measure/Behavior Plays a "Role" in a Study

Causal Variable (IV)      4 -- Ongoing Eq  
 Effect Variable (DV)      2 -- Ongoing Eq

**Control Constant**      1 -- Initial Eq      3 -- Ongoing Eq  
**Control Variable**      2 -- Initial Eq      4 -- Ongoing Eq  
**Confounding Variable**      2 -- Initial Eq      4 -- Ongoing Eq

Measure/behavior types & their "roles" in a design

## External Validity

### Population -- Participant Sampling

Target population	↪	Complete or Purposive
Sampling Frame	↪	Researcher-selected or Self-selected
Selected Sample	↪	Simple or Stratified
Data Sample	↪	Attrition

### Setting

- Laboratory, Structured or Field ?

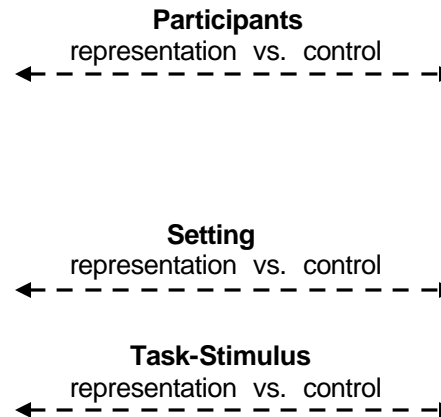
### Task/Stimulus

- Familiar/Representative or Unfamiliar/Control ?

### Societal/Temporal

- Relationships among variables change over time in a society

Choices we make influence Internal and External Validity !!



## Internal Validity

	Design	
	BG	WG
True Experiment	☺	☺
Non-experiment	☹	☹

### Initial Equivalence – Participant Assignment

- RA of individual participants by the researcher before manipulation of the IV -- best but not a guarantee
- Without proper RA all subject variables are potential confounds
- Subject constants can't be confounding variables
- Subject variables that are equivalent across IV conditions are control variables
- Subject variables that are nonequivalent across IV conditions are confounding variables – even if RA was used (remember RA doesn't always work)

### Ongoing Equivalence – Procedural Standardization

- Only the IV is different across IV conditions
- Procedural constants can not be confounding variables
- Procedural variables that are equivalent across IV conditions are control variables
- Procedural variables that are nonequivalent across IV conditions are confounding variables
- Ongoing equivalence is harder to maintain in field settings
- Ongoing equivalence is harder to maintain during longer procedures