BACS2042 Research Methods

Validity

Valid Research
Honest
Careful
Rigorous
Complete
Logical
Repeatable

Theory

What we think

Cause Construct

Cause-effect construct

Effect Construct

Observation

Program

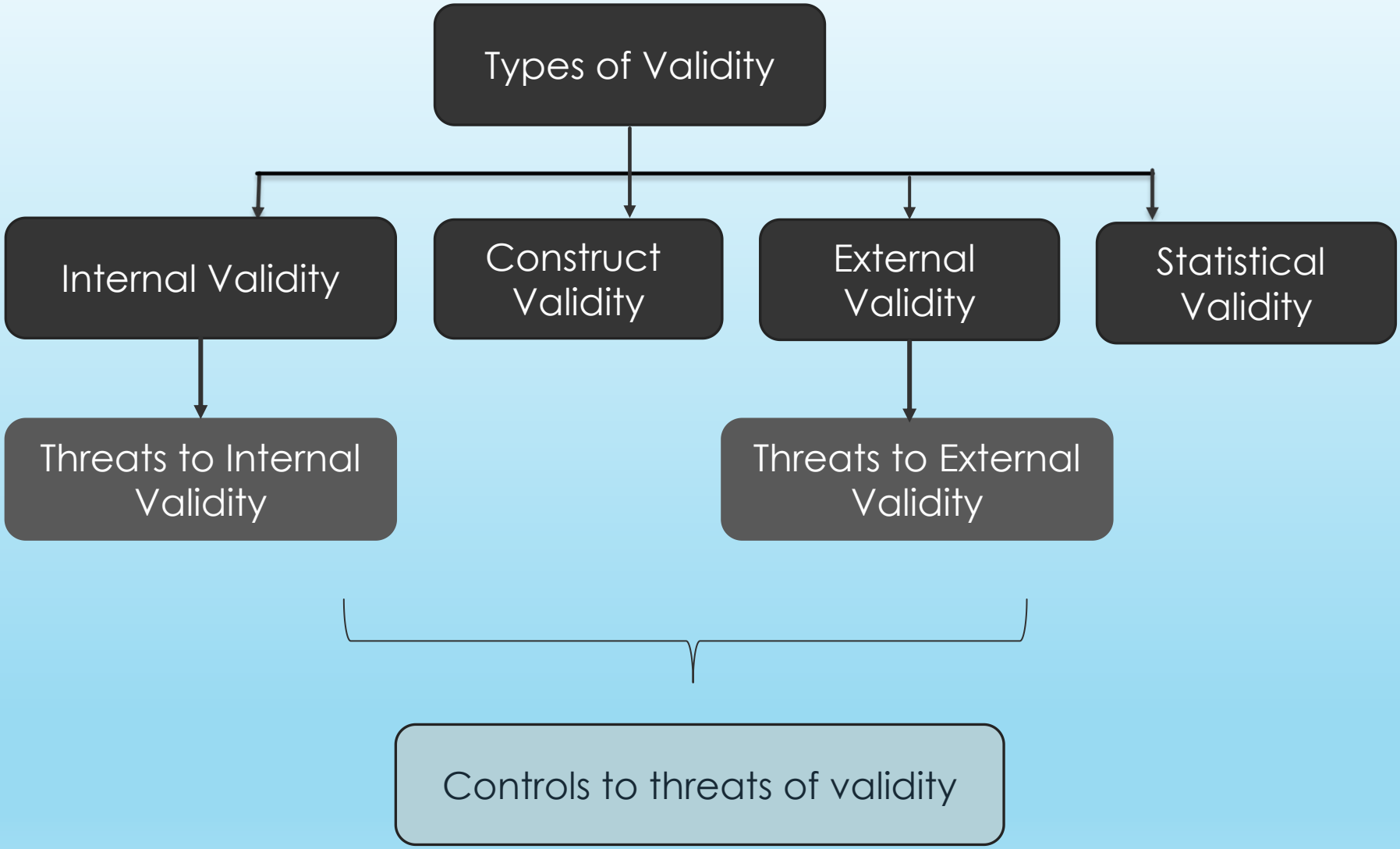
What we do

Outcome relationship

What we test

Observations

What we see


Types of Validity
Internal Validity
Construct Validity
External Validity
Statistical Validity
Threats to Internal Validity
Threats to External Validity
Controls to threats of validity

Internal Validity

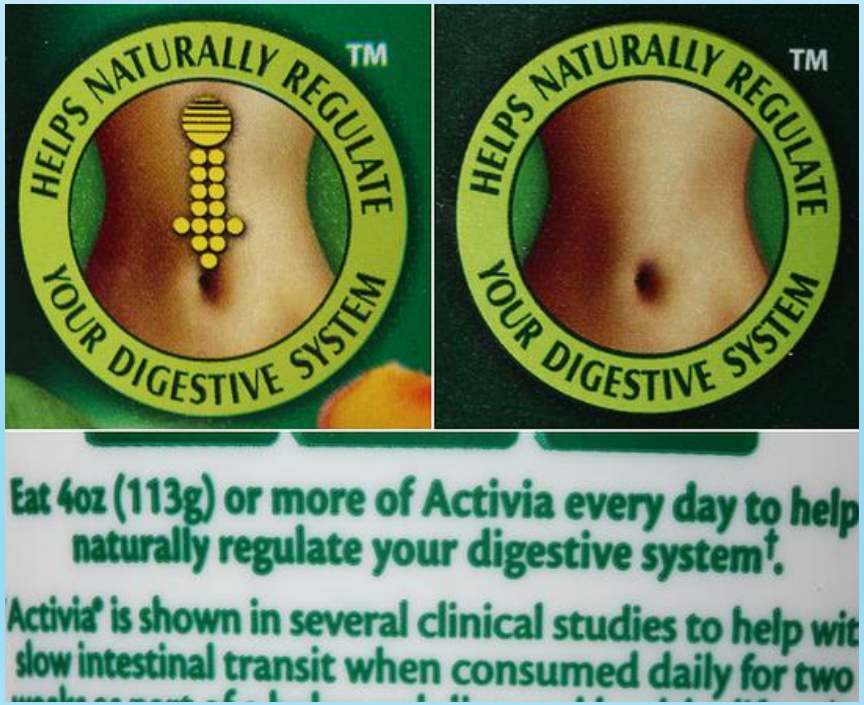
Internal
Construct
External
Statistical

- Confident that changes in Dependent Variable (DV) are caused by the Independent Variable (IV)

Internal Validity

Internal
Construct
External
Statistical

Promotion



Internal Validity

- Internal
- Construct
- External
- Statistical

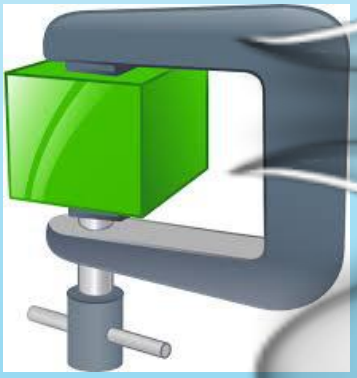
Low income group → smokers

- Social status
- Profession
- Ethnicity
- Education
- Parental smoking
- Exposure to targeted advertising

Extraneous Variable (Confounding Variable)?

Construct Validity

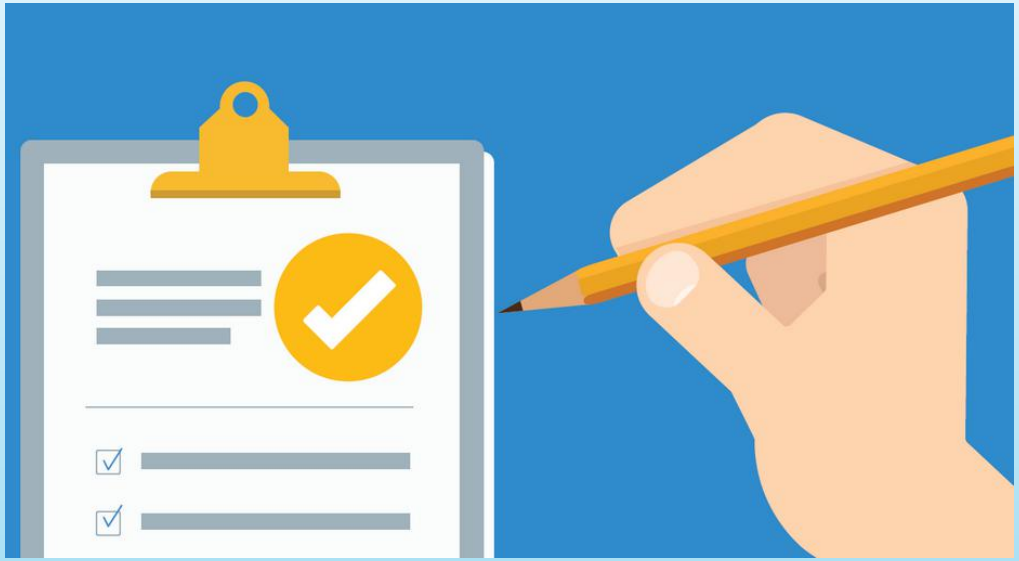
Internal
Construct
External
Statistical



How well the RESULT support the theory/principle

Can the evidence be explained in more than ONE way?

Construct Validity



Do you like the aroma of coffee?

Construct Validity

- Internal
- **Construct**
- External
- Statistical

- Women are stronger than men.

Construct Validity

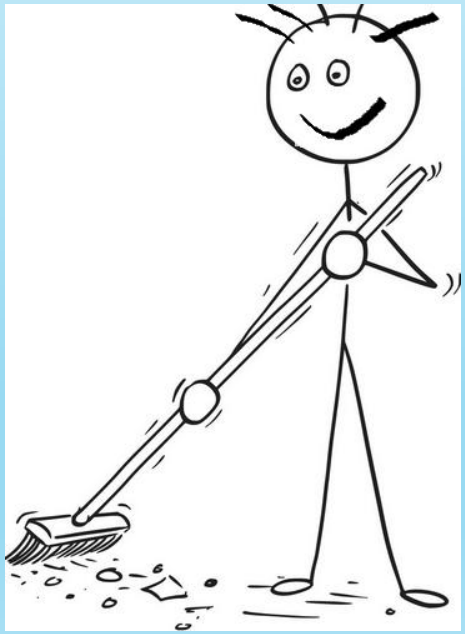
- Internal
- **Construct**
- External
- Statistical

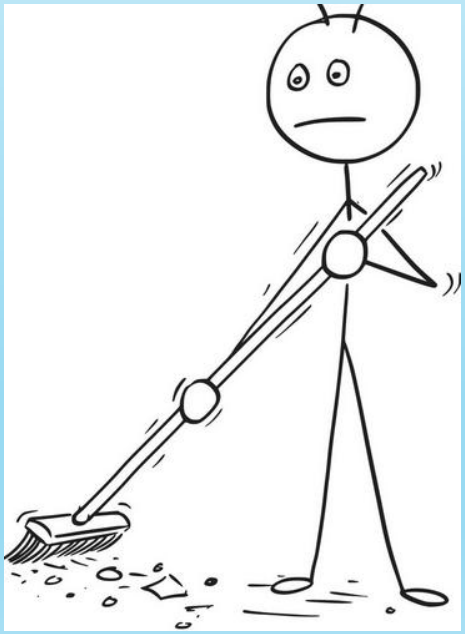
Chair lifting experiment

External Validity or Generalizability

- Internal
- Construct
- **External**
- Statistical

- To what extent would the results found in the lab setting be transferable or generalizable to the actual organizational or field settings?





External Validity or Generalizability

- Internal
- Construct
- **External**
- Statistical

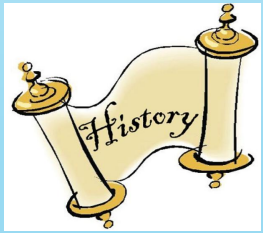
Statistical Validity

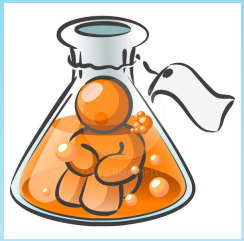
- Internal
- Construct
- External
- **Statistical**

- Definition: extent to which data are shown to be the result of cause-effect relationships rather than accident (by chance)
- A measure is statistically valid when we can demonstrate that they did not arise by chance.
- To establish statistical validity:
  - Appropriate sampling
  - Appropriate measurement techniques

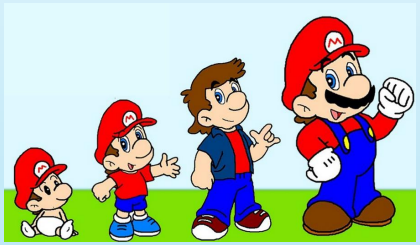
Threats to Internal Validity

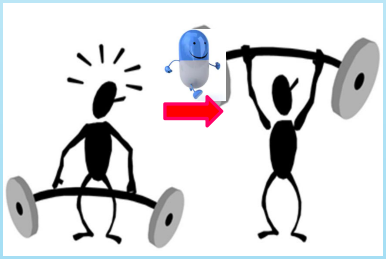
Threats (Internal)	
1. Mortality	Loss of subjects during study.
2. Diffusion	When information "leaks" from one subject or group to another and thus modifies behavior.
3. Experimenter effects	Inadvertent or intentional action of the experimenter that might compromise the study
4. History	Changes in the dependent variable that are due to historical or time-based events
5. Instrumentation	Any change or change in calibration of the instruments.

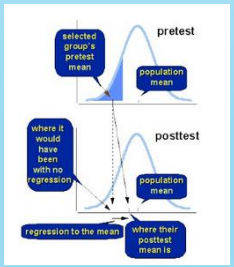




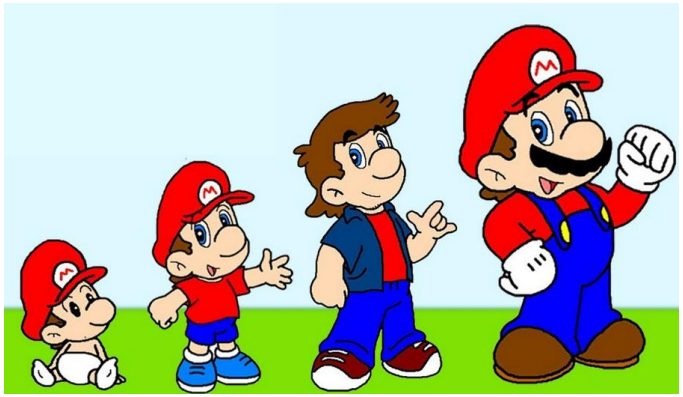
6. Learning	Changes in the dependent variable that occur due to learning done as a result of participation in the study.
7. Maturation	Changes in the dependent variable that occur during the course of study due to normal passage of time and maturation/development of the subject
8. Placebo effect	The effect that the subjects might compromise the results by behaving in a certain controlled way through knowledge of the result being sought.
9. Regression to the mean	The tendency for subjects that had extreme scores in earlier phases to be less extreme in follow-up scoring
10. Sequence effect	The impact of the experience a subject had in one situation on the next situation.



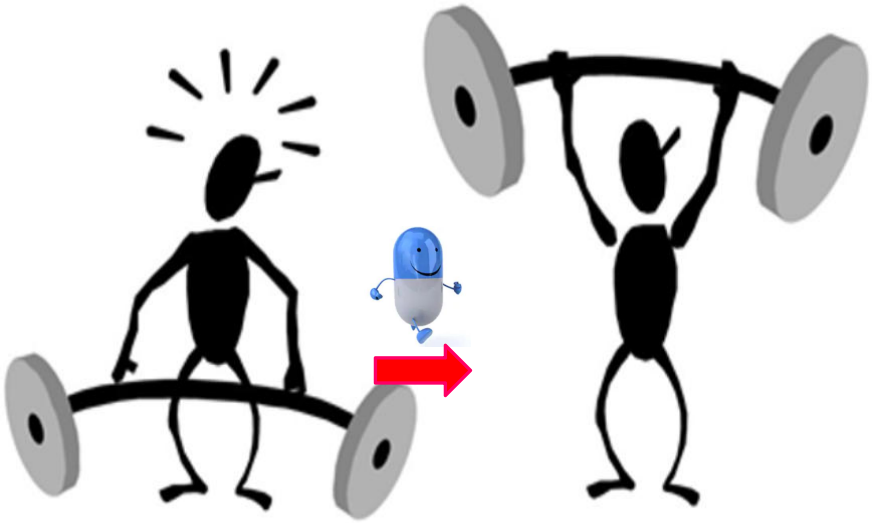




Threats to Internal Validity

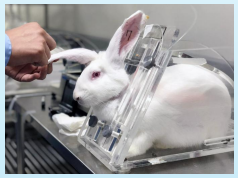


Sequencing effect



Threats to External Validity

Threats (External)	
1. Other subjects	we cannot assume that animal can be substitute for any other (human) in all situations.
2. Other times	would the same experiment conducted at another time (e.g. after 20 years) produce the same results?
3. Other settings	how the phenomenon observed in one laboratory can be related to a similar phenomenon observed in another laboratory or in the real world?




Will technology gadgets bring negative effects to children?



Controls to threats of validity:

1. Use of calibrated and proper preparation of equipment.
2. Replication
3. Single and double blind procedures
4. Automation
5. Multiple observers
6. Use of deception (within the bounds of ethics)
7. Random subject selection
8. Control of subject-to-subject communication