# Research methods: What everyone needs to know about research designs and how to present them

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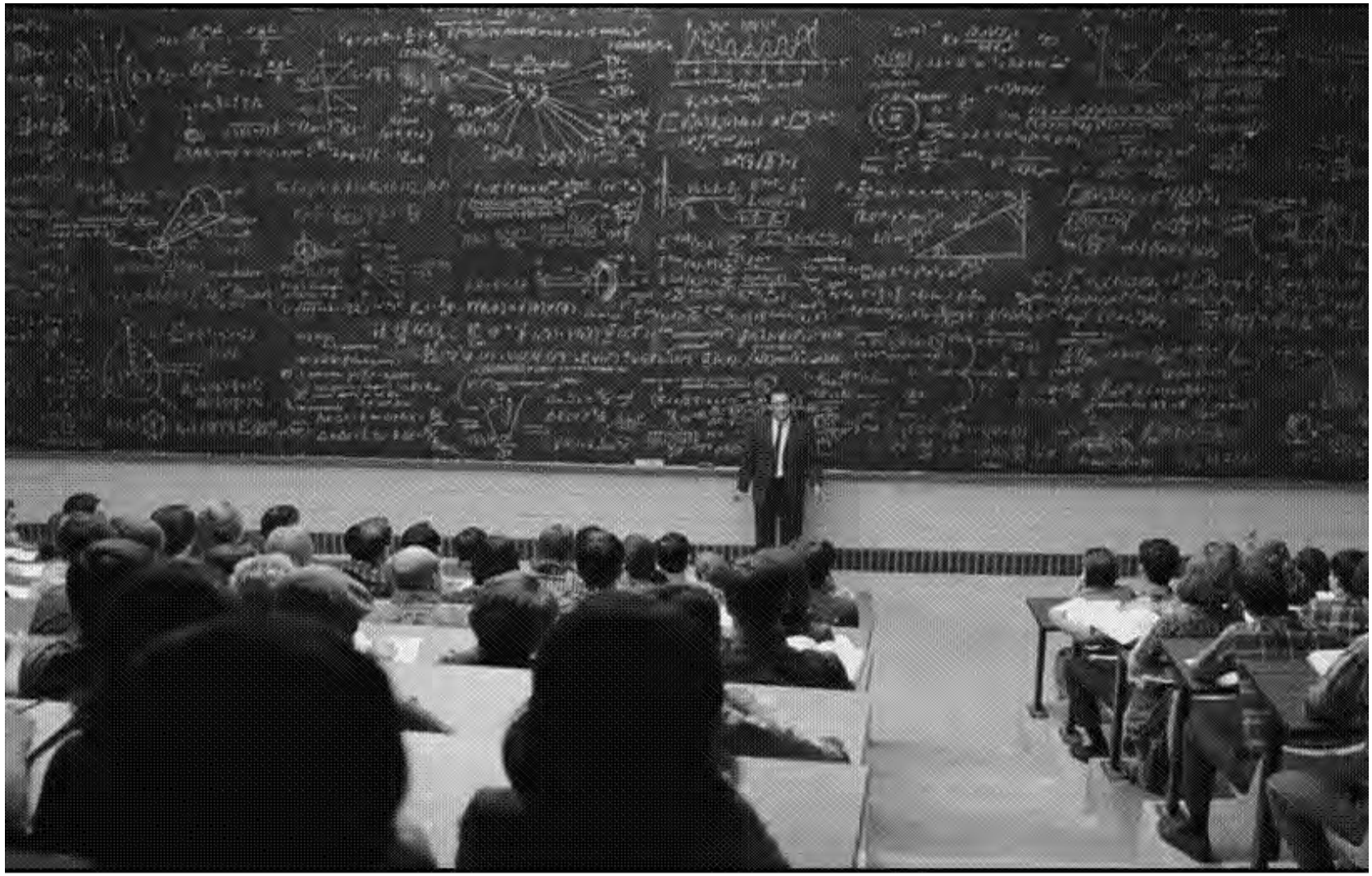
# Aims of session

- Review principles of research design relevant for psychoanalytic researchers
- Develop practical problem-solving outlook with regard to research methods
- Consider research as a process that involves developing a persuasive case
- Help you to present your research more effectively and persuasively

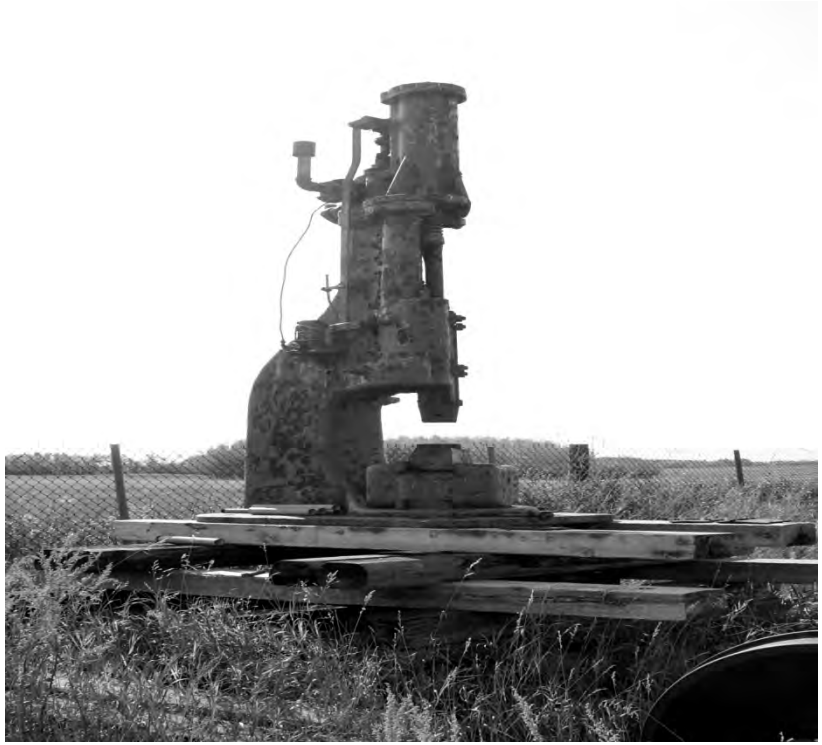
# The formula to understand women

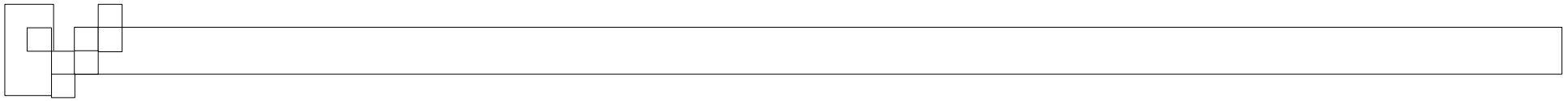


# What have I learned so far…?

- Research is not easy
- Doing psychoanalytic research is even more difficult

- Yet, I'd rather be the hammer than the nail





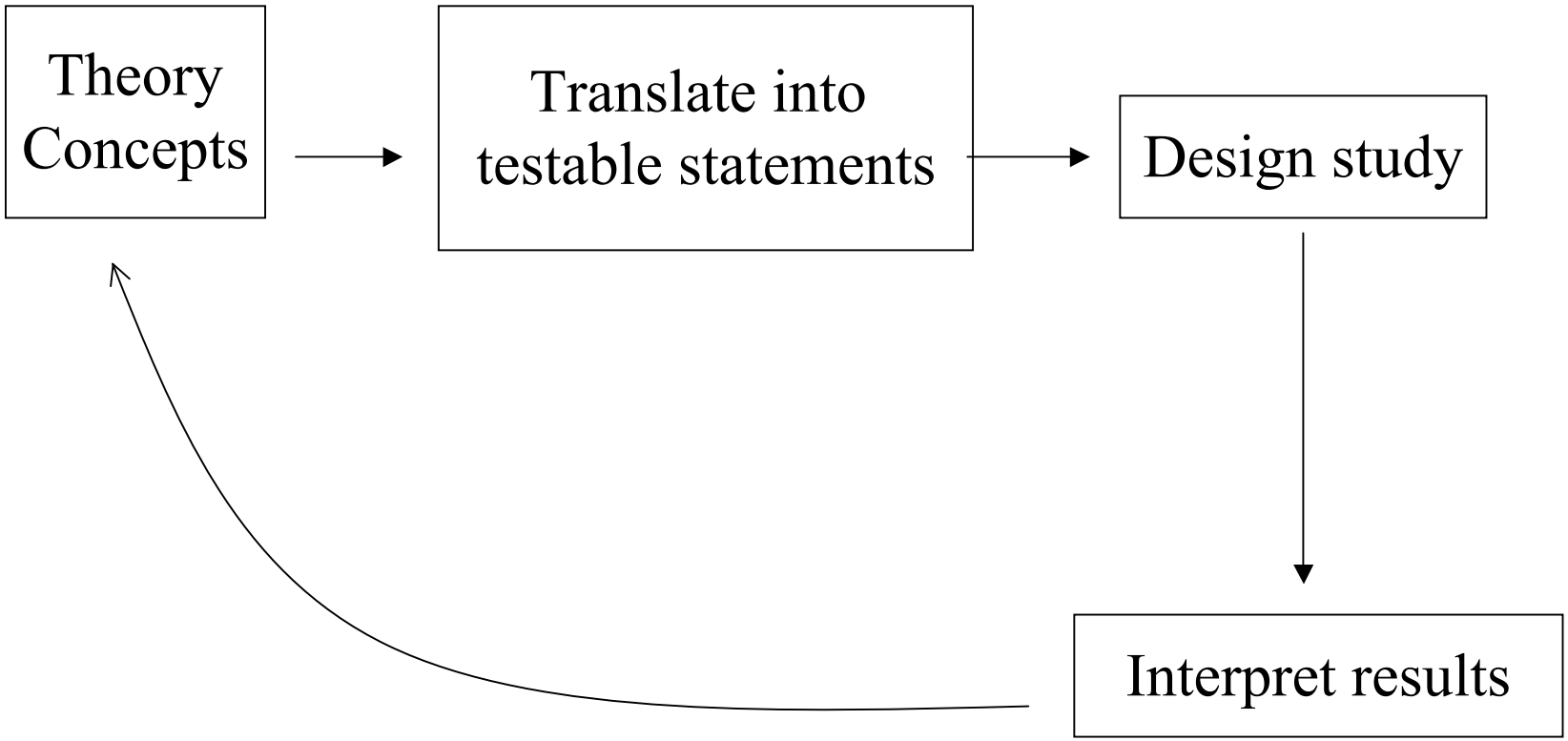
# Everything you always wanted to know but never dared to ask about… methods/design

# Pre-post study

- Take a piece of paper
- Put your name on the paper
- Describe in one sentence each:
  - Background of your study
  - Rationale: why this study?
  - Design
- Hand the paper in

# Are you at Marble Arch?

# Overview of research *process* or *research cycle* -> presentation!!



# Developing and presenting research

- Why this study? What is the rationale?
  - What is/are the question(s)?
  - What is the contribution? Does the study contribute in any meaningful way to our body of knowledge?
  - What is the significance for psychoanalysis?

# Developing and presenting research

- Need for **at least three "moves"**
  - Background = first move => What is already known?
  - Rationale = second move => "However" "Yet"
  - The present study = third move
- We **need to see these three moves** (somehow) in ALL presentations!!
- Each of these three moves **requires equal attention!!**

# Ideas for research

- Observation:
  - Systematic
  - Casual
- Literature review
- Theory
  - Theory makes testable predictions, beyond a re-description of existing knowledge. Specifies underlying (causal) processes
  - Need for conceptual research !

# Need for good conceptualization of assumptions and hypotheses

- Is more than a summary of previous work
- Is more than “Freud said” or “Freud already knew”
- Is more than “I have a good idea”
- Is more than “this interests me”

# Features of a good theory

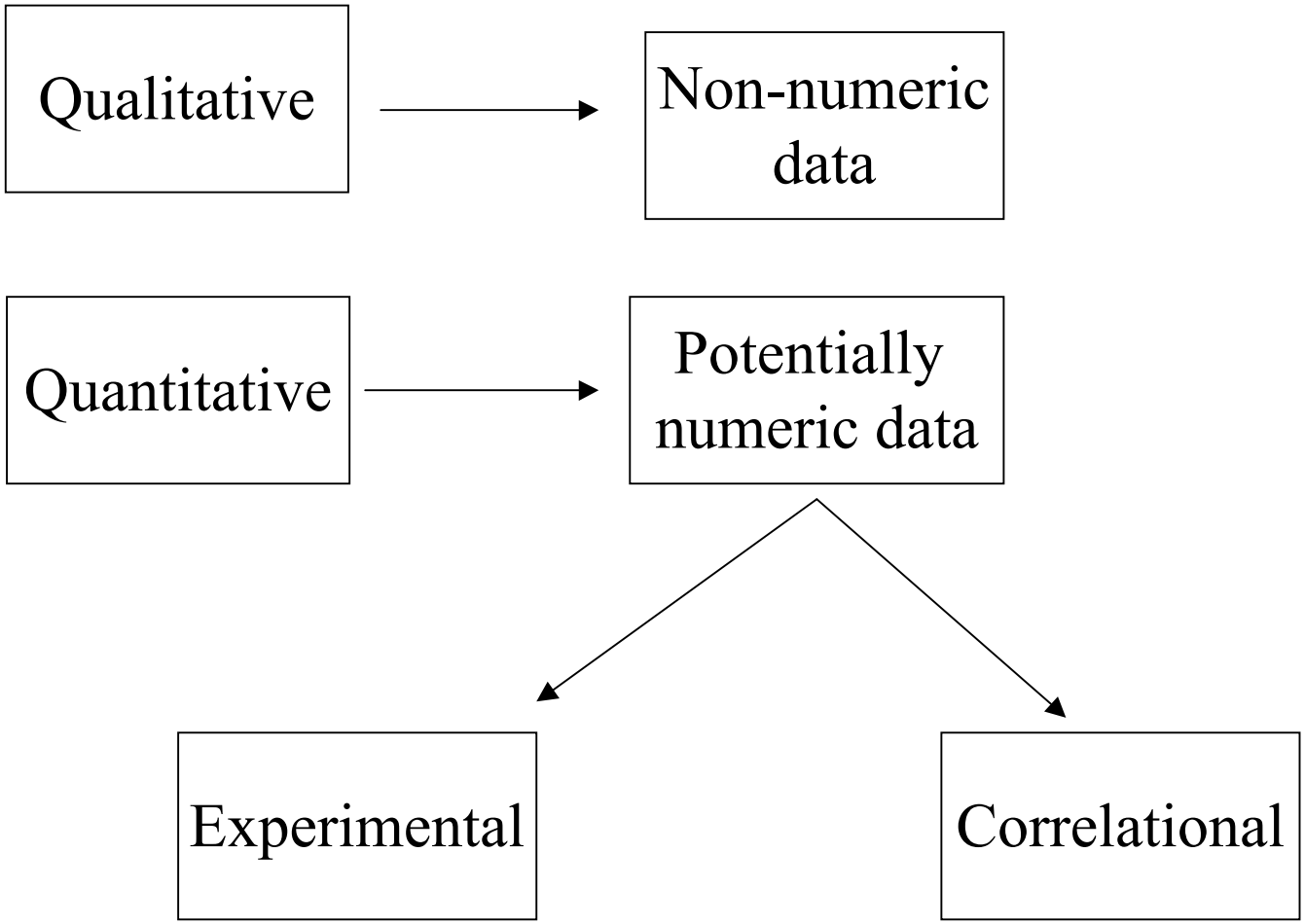
- Is embedded in existing theories
- Accounts for most of the data
- Testable, capable of being disconfirmed
- Generalises: applicable to a range of phenomena
- Predictive
- Is clinically relevant <-> ‘research about nothing very much’

# Key distinctions

- **Quantitative-qualitative-mixed?**
- Group or case study design?
- Experimental or correlational?
- Between or within subjects research design?
- Cross-sectional or longitudinal?

***-> plot your own research in this space!!!***

# Two broad strands of research*




*Luyten, P., Blatt, S. J., & Corveleyn, J. (2006). Minding the gap between positivism and hermeneutics in psychoanalytic research. J Am Psychoanal Assoc 54(2):571-610.

# Qualitative research

- Broad “umbrella” term for wide array of approaches and methods that primarily use non-numeric data
- Qualitative researcher typically is “bricoleur”: there is no/less consensus about paradigms (neo-positivism, critical theory, constructivism, etc) and methods (narrative, interview, observation, ethnography, etc)
- Origin often reaction against (neo)positivism

- “Qualitative research is an interdisciplinary, transdisciplinary, and sometimes counterdisciplinary field. It crosscuts the humanities and the social and physical sciences. Qualitative research is many things at the same time. It is multiparadigmatic in focus. Its practitioners are sensitive to the value of the multimethod approach. They are committed to the naturalistic perspective, and to the interpretive understanding of human experience. At the same time, the field is inherently political and shaped by multiple ethical and political positions (Denzin & Lincoln, 1994, p.3-4)
- Qualitative research embraces two tensions at the same time. On the one hand, it is drawn to a broad, interpretive, postmodern, feminist, and critical sensibility. On the other hand, it is drawn to more narrowly defined positivist, postpositivist, humanistic, and naturalistic conceptions of human experience and its analysis. (Denzin & Lincoln, 1994, p.4)

- Opposition is relatively unfruitful, and hinders rather than fosters science
- Good research should always strive to combine qualitative, in-depth, more idiosyncratic understanding with quantitative group studies*
- Qualitative research should/can be as rigorous or even more rigorous as quantitative research

*see for a marvellous example: Falkenstrom, F., Grant, J., Broberg, J., & Sandell, R. (2007). Self-analysis and post-termination improvement after psychoanalysis and long-term psychotherapy. *Journal of the American Psychoanalytic Association, 55(2), 629-674.*

# Good examples of rigorous qualitative research strategies

- Yin, R. K. (1990). *Case study research: design and methods.* London: Sage.
- Smith, J.A., Flowers, P., & Larkin, M. (2009). *Interpretative Phenomenological Analysis: Theory Method and Research*. London: Sage.
- Kächele, H., Schachter, J., & Thomä, H. (2009). *From psychoanalytic narrative to empirical single case research. Implications for psychoanalytic practice.* New York/London: Routledge.

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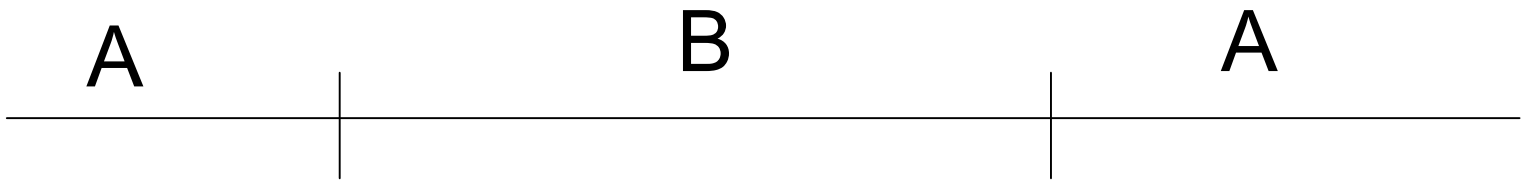
# Single & Multiple case designs

- Single case designs (N=1)
- Multiple case designs (N>1)
- Qualitative: «in-depth» study of individual cases
- Quantitative (e.g., ABA-design)



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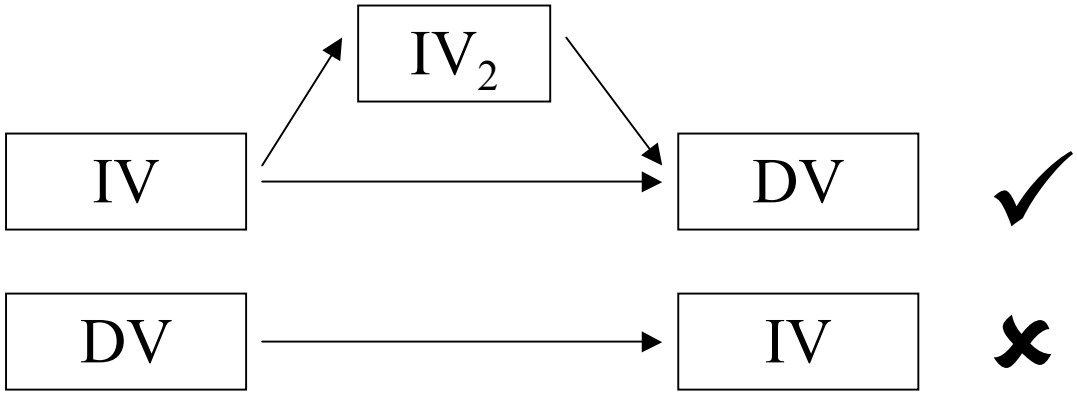
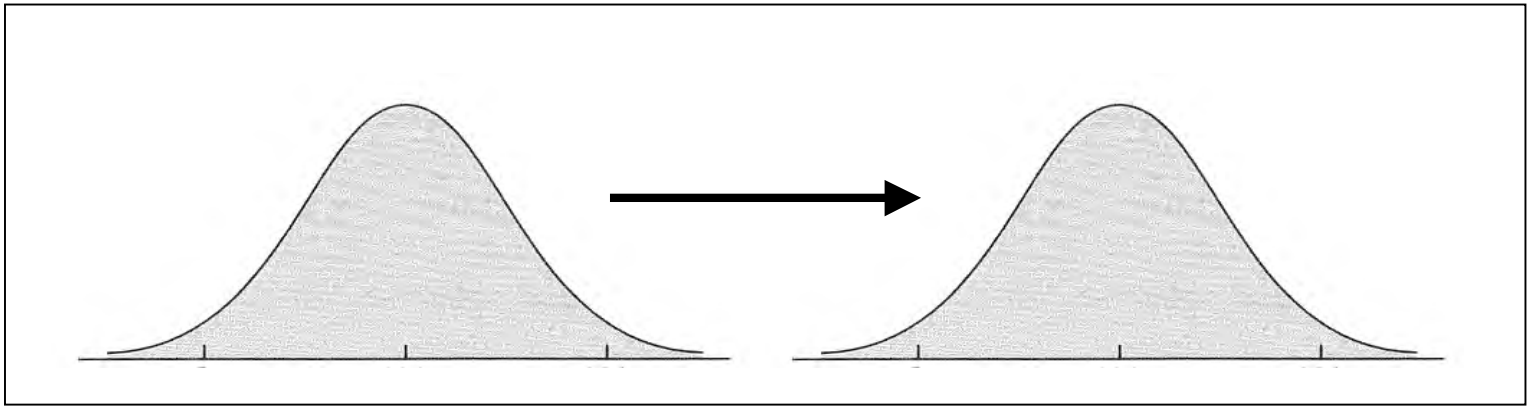
# Experimental designs

- Experimenter controls key variable(s)
  - Known as Independent Variable(s), IV
  - Observe resulting change in other variable(s), DV
  - Generally allows inferences about causation
  - Suffers less from the ‘direction of causation’ problem
  - Not immune for ‘third variable’ problem

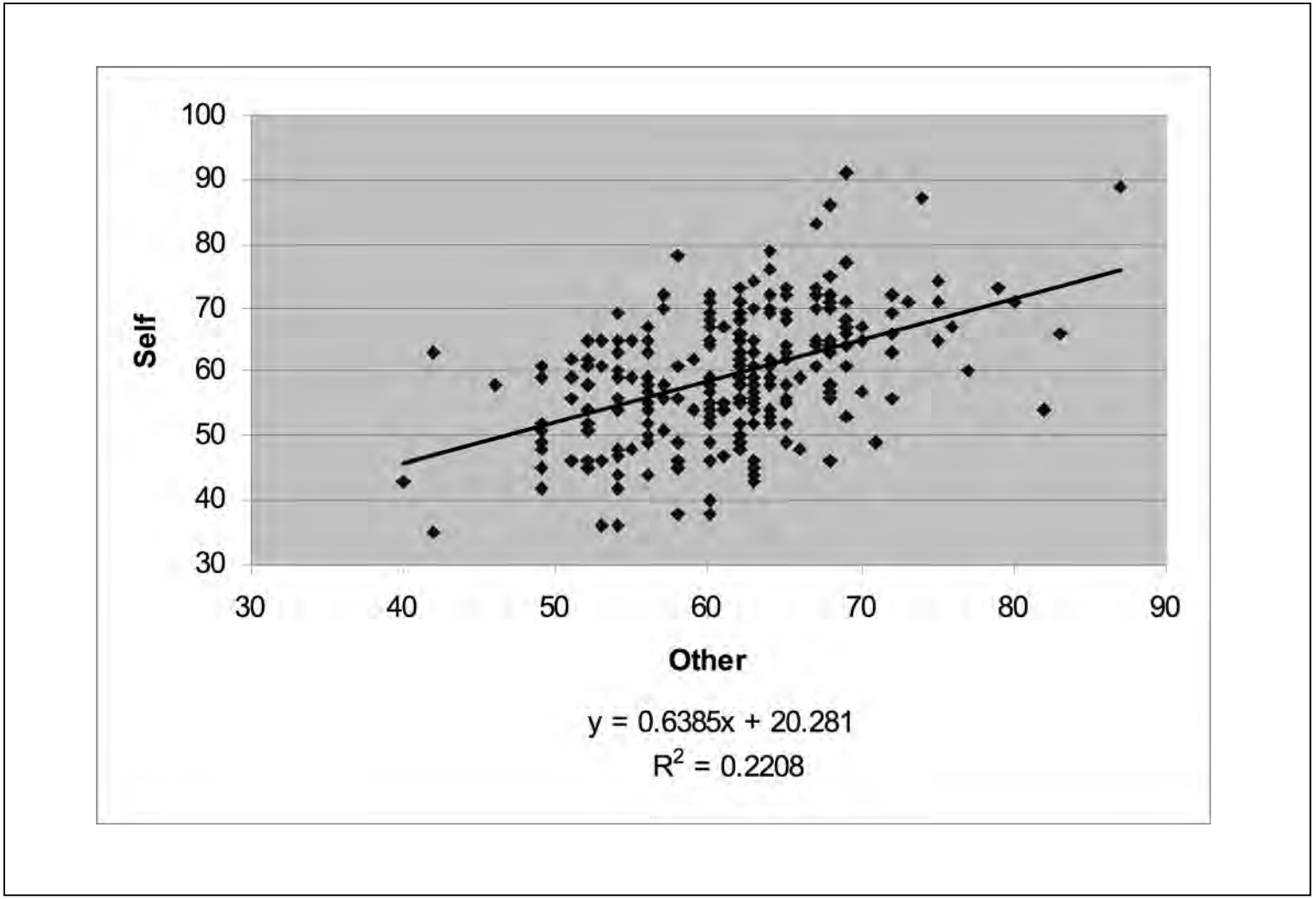


# Correlational designs

- Investigate ‘natural’ associations amongst two or more variables
- Not controlled by investigator
- Open to the ‘direction of causation’ problem as well as the third variable problem



# What is a correlation?



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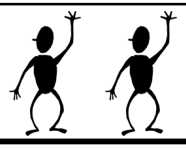
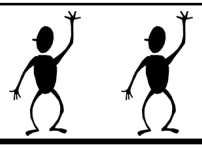
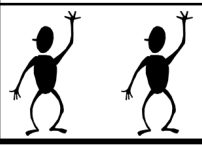
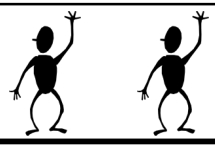
# Between and within subjects research designs

- Between subjects designs: Experimental
  - Each subject experiences only one level of each IV

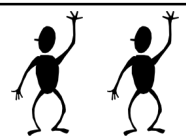
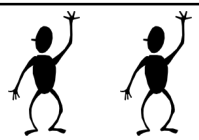
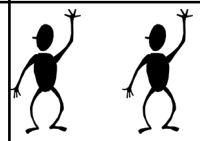
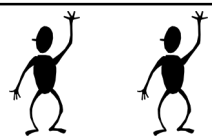
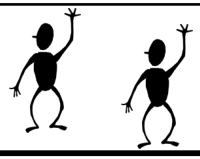
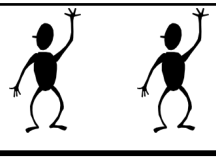
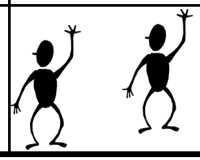
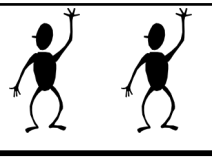
| Drug | Placebo | CBT | IPT |
|---|---|---|---|
|  |  |  |  |

Simplest design = one-way between subjects design

- Factorial: more than one IV
- Fully between subjects factorial design

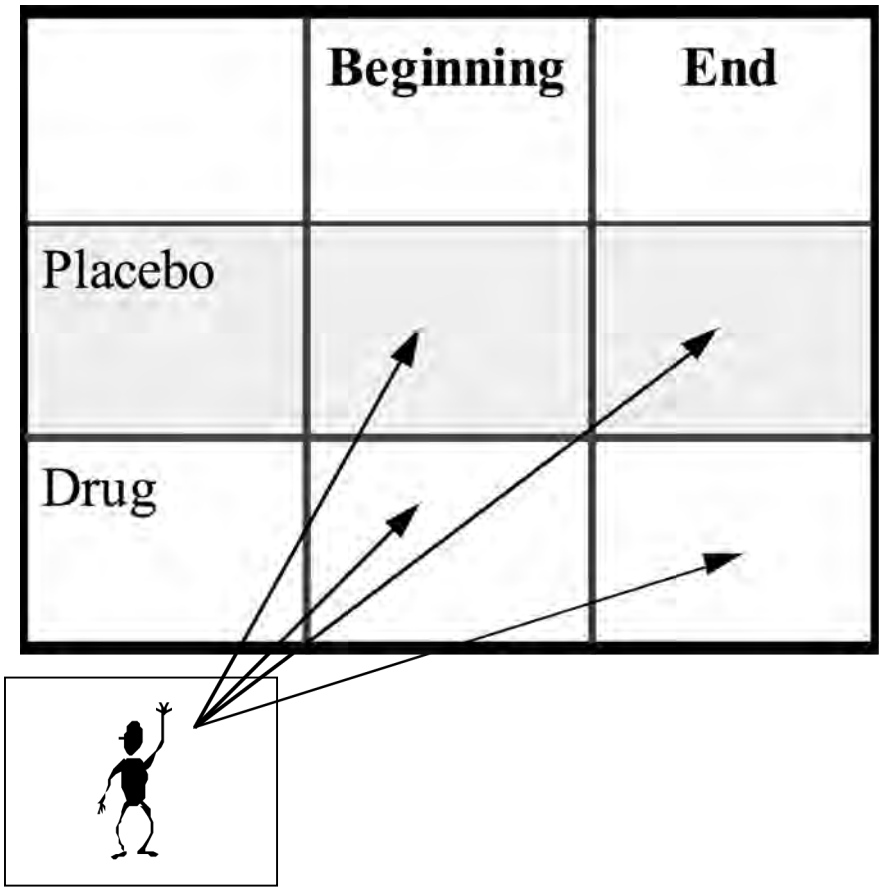
IV = treatment modality, 4 levels

IV = Treatment Length 2 levels

| | Drug | Placebo | CBT | IPT |
|---|---|---|---|---|
| 12 sessions |  |  |  |  |
| 24 sessions |  |  |  |  |

4 x 2 factorial design

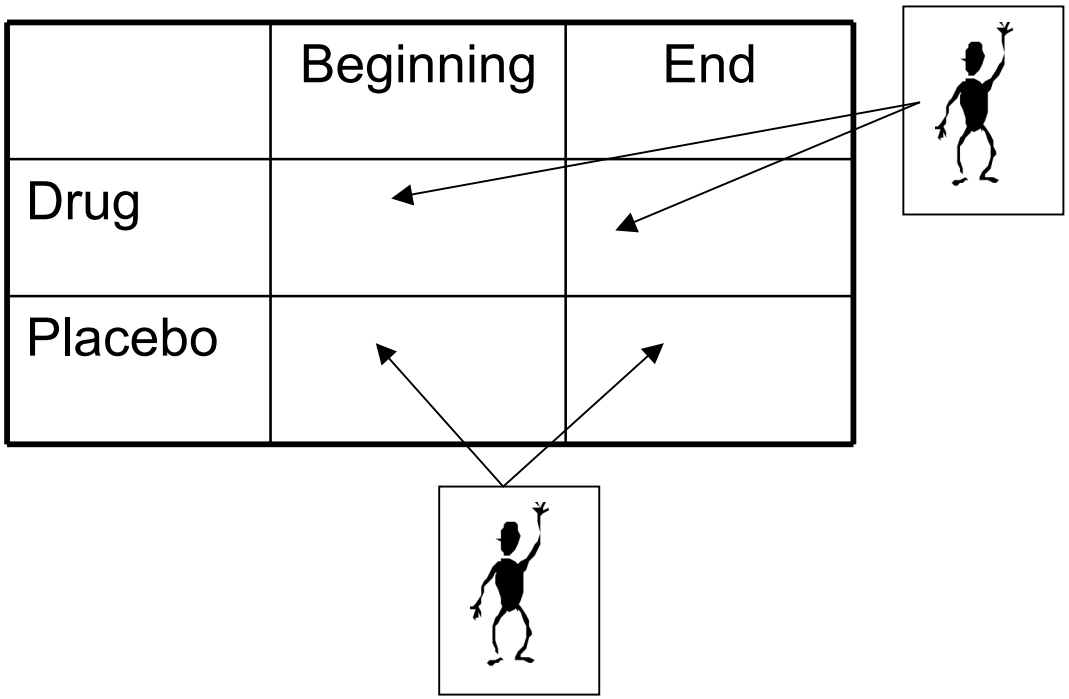
- Within subject designs: Experimental
  - Each subject experiences every level of each IV



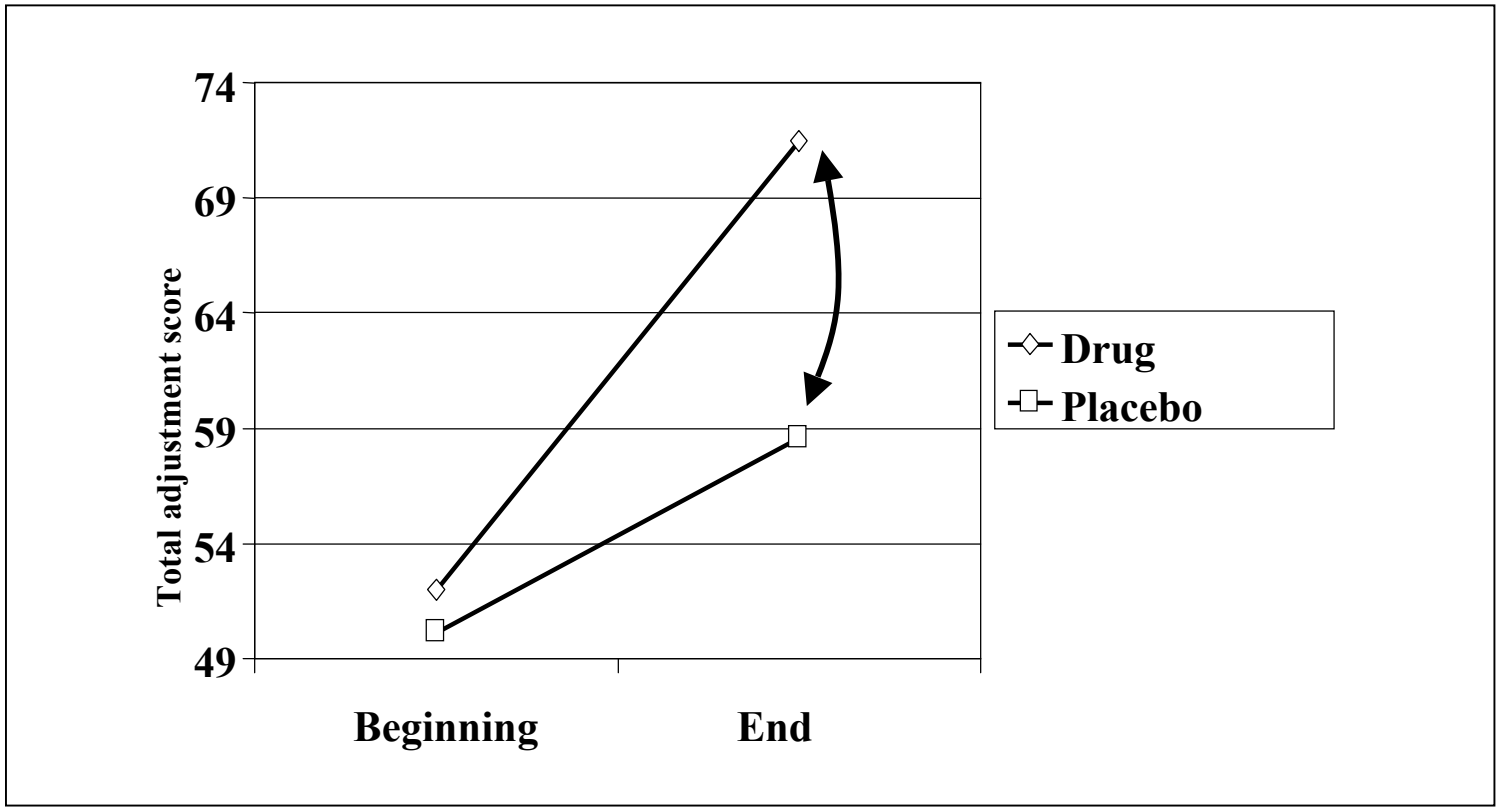

2 x 2 fully within subjects factorial design

# Mixed design: Experimental

- Can have both within and between subjects factors



# Interactions: effect of one DV varies as a function of another variable



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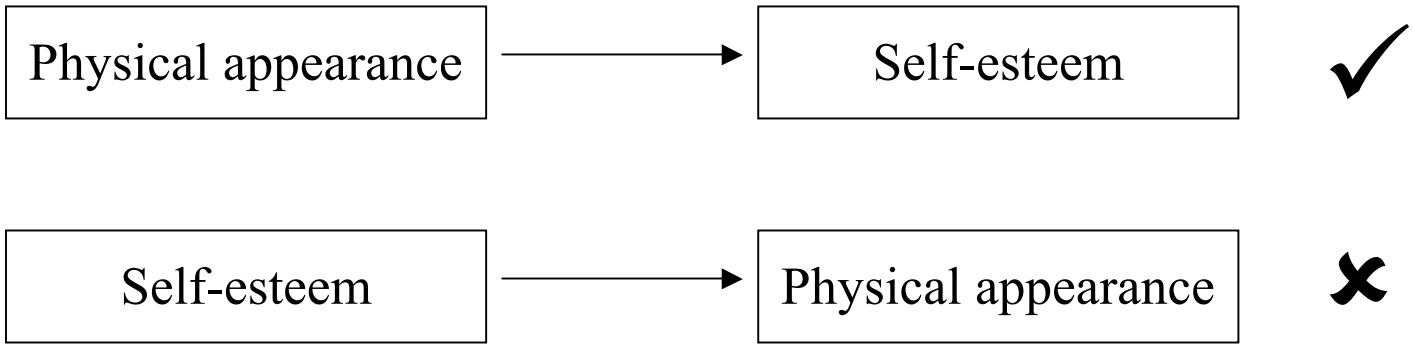
-> plot your own research in this space!!!

# Correlational cross-sectional designs

- IVs and DVs assigned by logic and theory rather than by experimenter manipulation



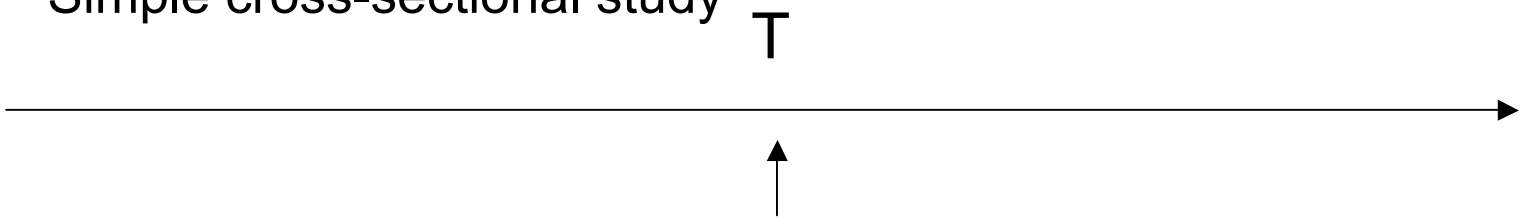

Questions about direction of causation and third variables always remain

# Correlational designs

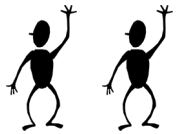
- Despite problems of interpretation some significant advantages
- May have higher external validity (more ‘naturalistic’)
- May be only ethically or practically viable alternative
- Correlational designs can be used to make quite strong statements about causation (e.g. using longitudinal designs or natural experiments)
- Advantage of longitudinal instead of cross-sectional designs: if you can, choose the former!

# Cross-sectional: correlational

- Simple cross-sectional study

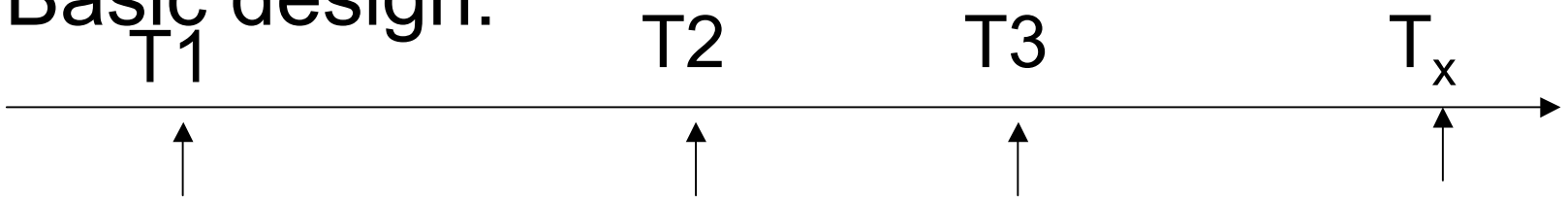



- Case control design

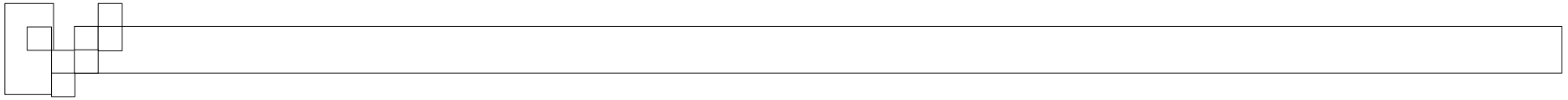
| Clinical Sample | Normal controls |
| --- | --- |
| |  |

# Longitudinal: correlational

- Basic design:




- Advantages?
  - Test of stability of study variables
  - Follow-up research (eg, how do patients evolve during/after the end of treatment?)
  - Prospective studies: prediction of future outcomes (eg treatment effects)
- Disadvantages: time and money!



# Which statistical test to use?

- Is now fairly simple
- See for instance:

http://www.graphpad.com/www/book/choose.htm

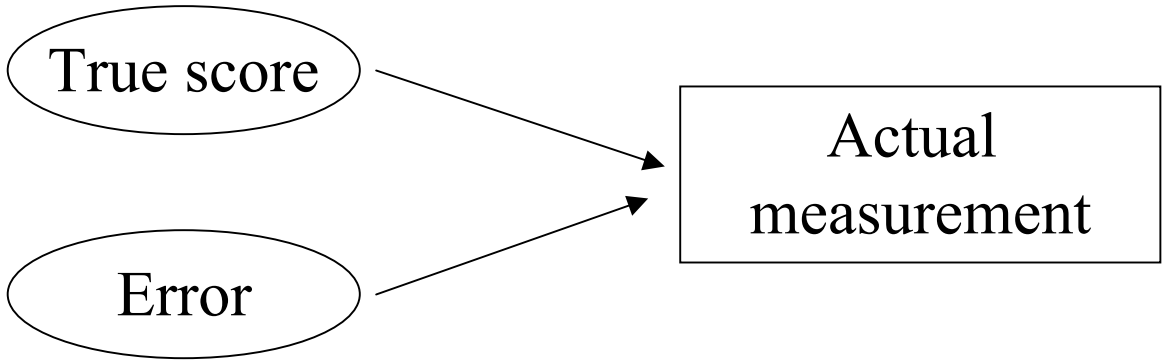
# Selecting measures

- Reliability = how much error is there in the measurements? (if we repeat it or if someone else repeats it)

- Validity = does the measure actually measure what it is supposed to?

# Reliability

- All measurements include a component of error




- Error variance in our field is quite large!!

# Examples

- **Rater error**: Inter-rater reliability: two or more raters should agree (to a reasonable extent) on scores
- **Method error**: e.g. interview and questionnaire assessments should agree within reasonable limits -> importance of multi-method approach!! (is not always the case -> e.g., see the work of Robert Bornstein, Westen & Weinberger)
- **Item error**: items of a questionnaire designed to measure the same construct should agree within reasonable limits, internal consistency

# Validity

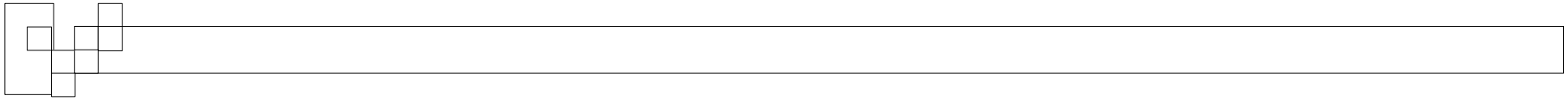
- Harder to establish
- Simple definition = does the instrument behave as it should given what it is supposed to measure?
- Influenced by theory

# Flavours of validity

- **Face validity** = does the content of the instrument seem to reasonably capture the features of interest (weak)
- **Discriminant validity** = does the measure *not* correlate with things that it ought not to?
- **Concurrent validity** = does the measure correlate with other measures of the same or similar constructs?
- **Predictive validity** = does the measure predict the things that in theory it ought to?
- **Construct validity**: construct underrepresentation or contstruct irrelevance

# And finally: statistical power…

- Make sure you have enough statistical power
- Otherwise you will… cry ☹
- Basic reference: Cohen, J. (1988). *Statistical power analysis for the behavioural sciences (2nd ed.).* Hillsdale, NJ: Erlbaum.
- For us dummies: Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155-159.



- Rules of thumb:
  - Within-between subject design: $n \geq 70$
  - Between-subject design: $n \geq 20$ in each cell

# Take home message

- Science is a process of argumentation, using reasoned debate and, most importantly, replicable data
- Good research comes from
  - A careful consideration of theory and existing evidence
  - Consideration of threats to validity and alternative explanations $\neq$ “I once had a case…”
  - Careful planning, piloting, and training
  - Investigate what interests/passionates you!!!