Some main applications of CFA / SEM

- Scale formation (week 1 & 2)
- Test an hypothesized factor structure (week 2)
- Investigate correlations at latent level (week 2)
- Test if a scale is fair/biased between groups (week 3)
- Compare groups on means and variance–covariance structure (week 3)
- Test causal hypotheses between observed and latent variables (SEM 2)
What’s missing from these pictures?
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Yerkes argued that his tests measured “native intellectual ability”, in other words, innate intelligence which was unaffected by culture and educational opportunities.

http://www.holah.karoo.net/gouldstudy.htm
In response to research studying IQ differences between Dutch majority and minority groups:

*Again, the subtest with the largest cultural component (Learning Names) shows the largest between-group difference. That is, the Learning Names subtest contains several Dutch names from various fairy tales, which may be unfamiliar to children of Moroccan or Turkish descent.*

Plenty of research investigating group differences in sum-scores, without taking measurement into account
  - Sometimes even followed up by e.g., evolutionary theories on why groups differ
Many pressing research questions can be answered with measurement invariance testing
  - E.g., should students with dyslexia get more time on exams?
CFA allow for fine-grained and fair group comparison, without requiring estimated latent variable scores (e.g., sum-scores)!
Before we can do this, we need to extend CFA with meanstructure and multi-group analysis.