



UiT The Arctic University of Norway

On the wonders of replication:

A student perspective

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- Power posing



- Power posing

Removed screen-shot from TED.com, highlighting Amy Cuddy's talk "Your body language may shape who you are" as the second most watched TED-talk (54 mill. views)

- Power posing
- Pencil in your mouth





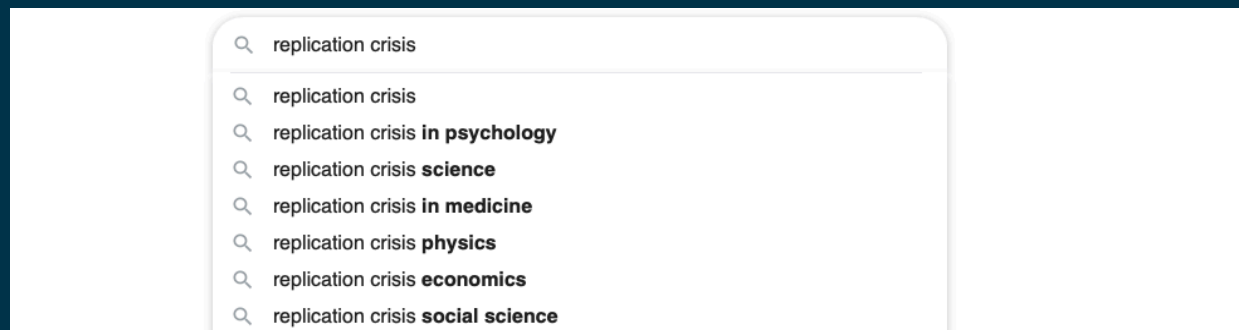
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The replication crisis *in science*



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(removed screen-shot of a DuckDuckGo.com auto-complete for searching for “replication crisis”)



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The replication crisis *in science*

- Highlights the need for solid, preregistered, direct replications
- This is beneficial for:
 - Science



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 - Students
 - Supervisors



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Background:

- Master's degree in psychology
 - Supervisor: Prof. Gerit Pfuhl - UiT
- Direct+ replication – Collaborative Replications and Education Project (CREP)
- Psychological Science Accelerator
- Accelerated CREP

UiT THE ARCTIC UNIVERSITY OF NORWAY

Rationality: Does it depend on intelligence and cognitive effort?

Kristoffer Klevjer, M.Psych. & Dr. Gerit Pfuhl, Ph.D.
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Introduction & aim

- Critical thinking / rationality is a highly valuable and vital skill in an ever increasingly complex world.
- How we can measure rationality is still up for debate, one way is the RQ-measurement, containing a mix of base rate neglect, conjunction fallacy, cognitive reflection test, and other similar items.
- Rationality is more than raw intelligence, however a certain amount is required depending on the task at hand.
- Acting rational, might also depend on the individual's willingness to exert cognitive effort. This can either be asked directly as in the need for cognition scale or measured in a demand selection task.
- This present study aims to test several of these measures in order to shed more light on their relationship.

Methods

- 40 participants, between the ages of 18-35, were recruited from a range of different study programs at UiT – The Arctic University of Norway. They were tested individually, in two test sessions of 1,5hours each, 4-8 weeks apart.

Procedure day 1

Procedure day 2

Results

- Analytical ability, showed no significant correlation with neither algorithmic ability ($r = .09, p = .58$) nor willingness to exert cognitive effort ($r = .18, p = .27$).
- Willingness to exert cognitive effort explained in total 8.2% of the variance in analytical ability.
- Algorithmic ability explained in total 2.2% of the variance in analytical ability.

Discussion

- The surprisingly weak relationship between algorithmic ability, willingness to exert cognitive effort and analytical ability might be due to the measurement method of critical thinking / analytical ability.
- We found that 38% of our participants had been exposed to at least some of the RQ-items previously. This might "prime" them into realizing they are solving questions in which their intuitions are wrong, removing the "cognitive stopping power"-requirement, which are usually associated with tests like this.
- This might reflect a need for a new way of assessing critical thinking and rationality.

References

Knights always tell the truth, knaves always lie

COSS OPEN SCIENCE

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Procedure day 1

DST, RQ + BS, N-TLX, NIC, EEERT

Procedure day 2

DST, NFC, Handgrip, N-back, N-TLX

Results

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Knights always tell the truth, knaves always lie

B is a knave!

A and C are of the same type!

What am I? A knight, a knave, or impossible to know?

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Direct replication – Easy right?



Direct replication – Easy right?

- Paper-and-pencil or computer based?
- Male or female experimenter?
- Single or group testing?
- Hand-outs or verbal instructions? Both?
- Whom did they recruit?



Collaborative Replications and Education Project

- Strict adherence to data collection protocols
 - Down to a written script of everything I said
 - Incl. a video of pilot-testing
- Protocols and procedures had to be approved prior to data collection



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Collaborative Replications and Education Project / Preregistration

- Solid method section
- Adherence to protocols
- Read and evaluate articles
- Confirmatory vs. exploratory hypotheses
- Publishing process



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Beneficial for: Supervisors



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- Students get a thorough introduction
- Increased trust in students, and their collected data



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- Students get a thorough introduction
- Increased trust in students, and their collected data
- Time-effective alternatives for bachelors students
- Direct+ replications for other levels at no cost



Beneficial for: Supervisors

- Students get a thorough introduction
- Increased trust in students, and their collected data
- Time-effective alternatives for bachelors students
- Direct+ replications for other levels at no cost
- Exchange ideas with other researchers
- Network with other researchers



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The Wonders of Replication

- It's beneficial for
 - Science
 - Students
 - Supervisors





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The Wonders of Replication: Pitch a replication project the next time a student approaches you!

- Thank you for listening!
- Questions?

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Sources and further reading:

- Powerposing (original): Carney, D. R., Cuddy, A. J. C. & Yap, A. J. (2010). Power posing: Brief nonverbal displays affect neuroendocrine levels and risk tolerance. *Psychological Science*, 21(10), 1363-1368.
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- Facial feedback (original): Strack, F., Martin, L. L. & Stepper, S. (1988). Inhibiting and facilitating conditions of the human smile: A nonobtrusive test of the facial feedback hypothesis. *Journal of Personality and Social Psychology*, 54(5), 768-777.
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