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EYES WIDE OPEN: THE CHALLENGES OF CHANGING THE REPLICATION CULTURE

So we are all in agreement,
we will say we hate PowerPoint
but continue to use it



Question



The current situation around internal replication is fraught with challenges, and replication studies often end in conflict between original authors and replication researchers.

What, if anything, can a third party do to improve the situation?

Outline



- Three types of challenges for replication
- What roles might journals play in addressing these?
- How did the 3ie replication program attempt to address these challenges?
- Were these successes or failures?

Three challenges



- Definitions and objectives
- Incentives
 - Original authors
 - Replication researchers
- Replication ethics

1. Definitions and objectives

Why do we do 'replication'?

- Scientific process
- Research process
- Policy-informing process

Scientific process



- Validating a fact of ‘nature’ or a consistent process or relationship
- Replicating experiments to see if the fact, process, or relationship holds
- Here, the process generally requires ‘external’ replication

“Is this finding *true*?”

Research process



- Validating the empirical results of a study
- Requires ‘internal’ replication—reanalyzing the same data with the same methods
 - Can we reproduce the authors’ results with the authors’ research tools and products?
 - Can we reproduce the authors’ results with the original data and the methods as described by the authors?
 - Can we figure out how the authors produced their results?

Research process



- Most consider these pure replication, although not all agree on all three

“Are these results *right*?”

Policy-informing process



- Validating the implications and recommendations of a study
- Requires internal replication but broader scope—reanalyzing the same data with the same *research question*
 - Are the results robust to different assumptions and methodological choices?
 - Is the theory of change analysis complete?

“Are these findings *meaningful*?”

We have limited resources so I'm going to suggest we only fund projects that work really well.



The validation of assumptions and methodological choices can be considered part of all three

- Scientific: if results reflect ‘nature’, the same question analyzed with the same data should yield generally the same result
- Research: if there are some genuinely accepted ‘rights’ and ‘wrongs’ in terms of assumptions and methods, testing against these can be part of validating research results

2. Incentives



- Original authors
 - Why would they want to be ‘replicated’?
 - Why wouldn’t they want it?
- Replication researchers
 - Why would they want to do replication research?
 - Why wouldn’t they want to?

Original authors



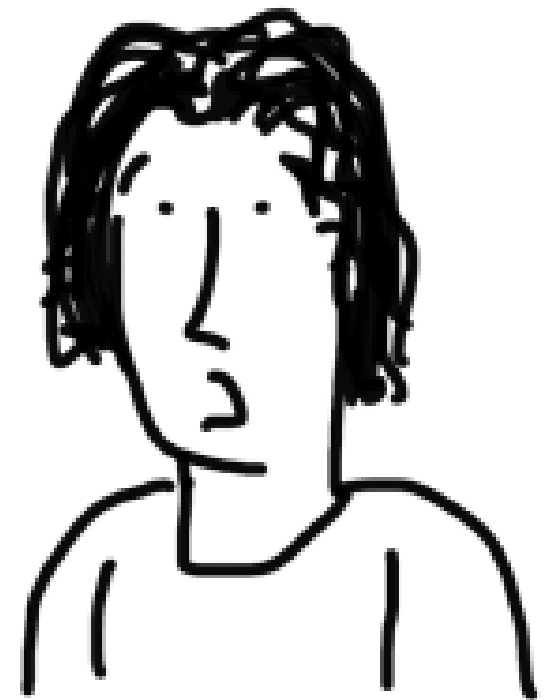
- Why yes?
 - Building knowledge, improving information
 - Credibility, influence
 - Citations, publicity
- Why no?
 - Time and effort
 - Reputation – “failure”
 - Pure replication cannot be completed
 - Pure replication yields different results
 - Extensions yield different results

- Why?
 - Individual learning
 - Building knowledge, improving information for policy-making
 - Publicity
- Why not?
 - Uncertain/low return on investment
 - Reputation

Congratulations everyone!
Thanks to our program
unemployment is down.



But those numbers
were collected before
our program was even
launched.



3. Replication ethics



We can think of the original authors as being the research subjects of replication research

- Responsibilities of each side to share information
 - Informed ‘consent’?
 - What constitutes a complete ‘replication file’?
- Responsibility of RR to identify source of errors
- Rights of the RRs to make replication results public
- Rights of the OAs to review and/or respond
- What are the implications of wrong replications?

What can journals do?



- Objectives and definitions
 - Research process, validate results of submitted studies before publication
 - Still question of whether just re-run the code or re-run the study in order to validate
- Incentives
 - Publish replication studies, both supporting and questioning
 - Require complete replication files

What can journals do?



- Ethics
 - Quality assure replication studies
 - Notify OAs
 - Have OAs as referees
 - Give OAs right of reply

Not much role on ethics, however, until replication study completed and submitted

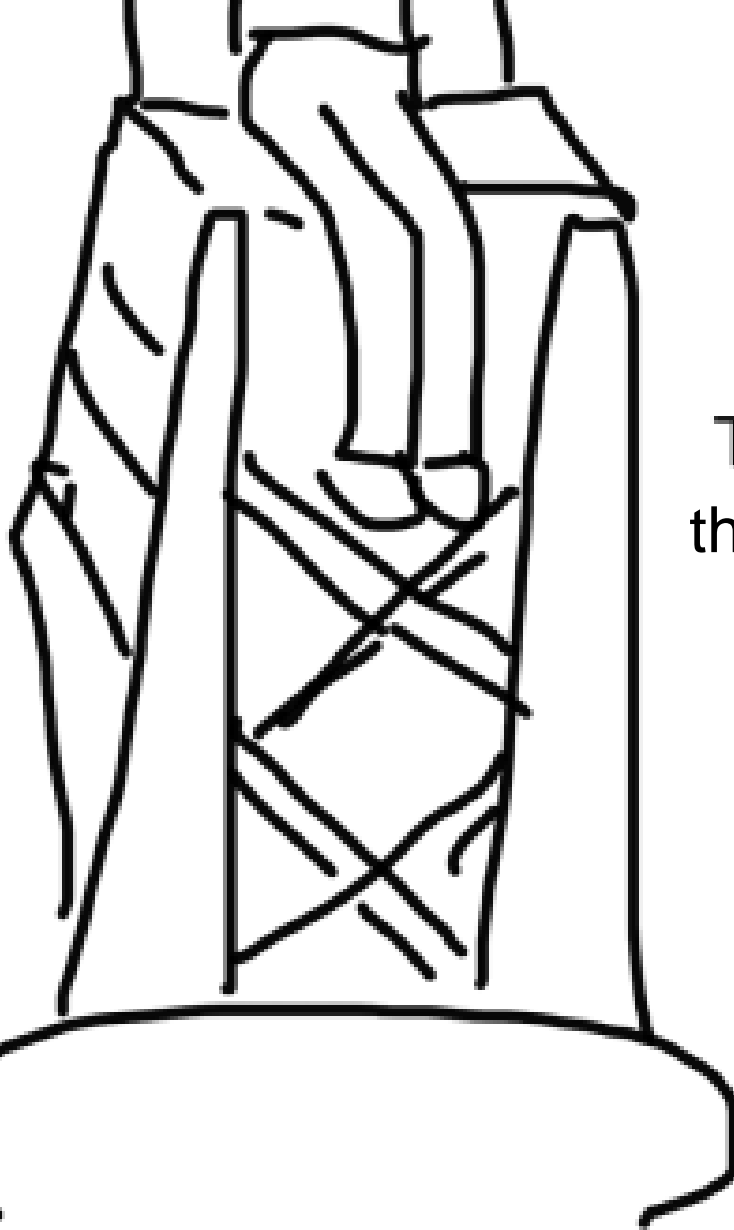
What can journals do?



Bigger problem seems to be that journals themselves do not have the right incentives.

Thanks for meeting with me.

Who is the person in the lifeguard chair?



That's
3ie

Try to pretend they're not here.



3ie: definitions and objectives?



- Defined objective as policy-informing
- Defined types of analysis within a study
- Require pure (re-run study, not re-run code; require diagnostics for use of “error”)

3ie: incentives?



- Candidate studies list
- Replication paper series
- External review
- Tone and language edits
- Separate discussion of pure from other
- Replication grants
- Data preparation and release grants

- Replication plan posting
- Notification and communications policy
 - Notify of study
 - Share preprint immediately
 - Four weeks notice with paper or slides for public sharing
 - Original author reply posting concurrently
- External peer review

Did we succeed or fail?

Human limitations



- NOMR
- Innate desire to find something wrong

May 29, 2015

Washington DC

#3ierepcon 

REPLICATION CONSULTATION

I want to become more active on social media to better connect with my students.



It is nice to stay in touch after the lectures.



No, I'm talking about during the lectures.

