

EXPLORING THE ETHICAL DILEMMAS REGARDING REPLICATION OF EMPIRICAL RESEARCH IN TRANSLATION AND INTERPRETING STUDIES

CHRISTIAN OLALLA-SOLER



INDEX

1. Research questions
2. Replication
 1. In soft-science disciplines
 2. In empirical Translation and Interpreting Studies
3. Methods
4. Results
 1. Reasons to replicate empirical research in TIS
 2. Reasons not to replicate empirical research in TIS
 3. Occurrence and negative impact of questionable research practices (QRPs) in empirical TIS
 4. Mechanisms to foster replicability in empirical TIS
5. Discussion

1. RESEARCH QUESTIONS

1. Are empirical TIS facing a replication crisis?
2. Why do researchers replicate empirical studies in TIS?
3. Why do researchers not replicate empirical studies in TIS?
4. What questionable research practices occur in empirical TIS and how negative are they?
5. How can replication in empirical TIS be fostered?

2. REPLICATION

- "The repetition of the methods that led to a reported finding" (Schmidt 2009).
- "Non-reproducible single occurrences are of no significance to science" (Popper 1959, 64).
- Kuhn's (1962) cycle of scientific revolutions: pre-science, normal science, *crisis*, revolutionary science.

2.1. REPLICATION IN SOFT-SCIENCE DISCIPLINES

- Replication in the so-called "soft-science disciplines" (Hedges 1987):
 - Exact replication: "an attempt to conduct a study [...] in a manner as close to the original as possible. An exact replicator seeks to use the same materials, the same manipulations, the same dependent variables, and the same kind of participants [...]." (Crandall and Sherman 2016, 93).
 - Constructive replication: "follow-up studies that include an exact or close replication of an original study in an exact/close replication condition, but also include new elements in a constructive replication condition. [...]
Epistemologically, constructive replications thus seek not 'only' to provide additional evidence for or against an existing finding but also to refine or extend findings." (Hüffmeier, Mazei, and Schultze 2016, 86).
 - Conceptual replication: "an attempt to test the same fundamental idea or hypothesis behind the original study, but the operationalizations of the phenomenon, the independent and dependent variables, the type and design of the study, and the participant population may all differ substantially." (Crandall and Sherman 2016, 93).

2.1. REPLICATION IN SOFT-SCIENCE DISCIPLINES

- Ioannidis (2005) demonstrated that most published research findings are false, but replication enhances the likelihood that a published finding is true (Moonesinghe, Khoury, and Janssens 2007).
- Open Science Collaboration (2015) conducted exact replications of 100 empirical studies. While 87% of the original studies had statistically significant results, only 36% of the replications did.
- A sample of 1,576 scientists from both hard and soft-science disciplines completed a survey from *Nature* about replication (Baker and Penny 2016). More than 70% of the participants had failed to find another scientist's original effects.
- In a survey completed by 1,138 psychology researchers (Fiedler and Schwarz 2016), 47% of the respondents admitted to having used questionable research practices at least once.
- Replication crisis in soft-science disciplines?

2.2. REPLICATION IN EMPIRICAL TIS

- TIS as an interdisciplinary area of research (Saldanha and O'Brien 2014).
- In TIS, Hale and Napier (2013) distinguish between positivistic and phenomenological research philosophies.
- Replication is applicable (and possibly relevant) to methods based on a positivistic research philosophy.
- Replication is regarded as a necessity for the development of TIS in most of the empirical research handbooks written in our discipline (Tymoczko 2002; Neunzig and Tanqueiro 2007; Hale and Napier 2013; Saldanha and O'Brien 2014).
- Many authors have highlighted the need to improve replicability in empirical TIS (Li 2004), while others have identified a lack of replication and called for more replication to take place (Gile 1991; Hurtado Albir and Alves 2009; Alves, Pagano, and da Silva 2011; O'Brien 2011; House 2013).

3. METHODS

- Survey to gather data on the practices and attitudes toward replication of empirical studies in TIS.
- Survey in two languages (EN and ES).
- Survey was online one month and a half.
- It included single-answer and multiple-choice questions, Likert scales, and open-ended questions distributed in 4 sections.
- Participants:
 - 52 participants (+5 discarded)
 - 73% of the respondents conducted research in translation, 13.5% in interpreting, and 13.5% in both.

3. METHODS - LIMITATIONS

- Survey completion rate: 61%
- Low number of participants who conducted research in interpreting.
- The topic of the survey was probably not appealing for researchers who had not replicated. Positive view toward replication in the results?

4. RESULTS

- Of the 52 survey participants, 24 (46.2%) had tried to replicate an empirical study originally carried out by themselves or by somebody else.
- These 24 researchers had replicated a total of 47 empirical studies.
- The mean number of replicated studies by each researcher was 1.96 ($SD = 1.12$).
- The maximum number of replications carried out by a single researcher was 5.
- 11 (23.4%) replications obtained the same results as in the original studies.
- 14 (29.8%) replications reached the same conclusions as in the original studies.
 - Replication crisis in empirical TIS? Absence of replication

4.1. REASONS TO REPLICATE EMPIRICAL RESEARCH IN TIS

Reasons to replicate	n	%
To help consolidate previous results	5	21.7
To verify previous results	5	21.7
To compare results	3	13.0
To expand previous results	2	8.7
To establish substantial, scientific knowledge	2	8.7
To generalize previous results	1	4.3
To connect results from different studies	1	4.3
To increase the sample size of previous studies	1	4.3
To reuse previously validated instruments	1	4.3
To strengthen the discipline	1	4.3

4.2. REASONS NOT TO REPLICATE EMPIRICAL RESEARCH IN TIS

Reasons not to replicate in TIS	n	%
Participants who did not have any conscious reason	11	39.3
Participants who had a conscious reason	17	60.7
Replicating an empirical study will not produce the same academic impact as conducting an original empirical study	8	47.1
Editors and publishers are not interested in replicated studies	5	29.4
It is too time-consuming	4	23.5
I am concentrated on an original line of research and have no time/interest/wish to replicate others	4	23.5
It is not possible to replicate all conditions of the original study	3	17.6
Unsatisfactory replication could question my original findings	2	11.8
It is difficult to find all necessary information about the original research design	1	5.9
It is not relevant to TIS	1	5.9
Replication is not totally applicable within a qualitative framework	1	5.9

4.3. OCCURRENCE AND NEGATIVE IMPACT OF QRPS IN EMPIRICAL TIS

Questionable research practices in empirical TIS research	Occurrence		Negative impact	
	Mean (min. = 1; max = 5)	SD	Mean (min. = 1; max = 5)	SD
Selectively reporting studies regarding a specific finding that "worked"	3.3	0.7	3.3	1.0
Assuming that a detected effect is broader and more generalizable than it actually is	3.3	0.7	3.4	0.8
Failing to report all dependent measurements that are relevant for a finding	3.2	0.7	3.5	0.9
Overestimating the size of the detected effect	3.2	0.7	3.5	0.9
Claiming conclusive research findings solely on the basis of exploratory studies	3.1	0.9	3.6	0.9
Failing to report all conditions that are relevant for a finding	3.1	0.8	3.7	0.9
Rounding off p values (e.g., reporting a <i>p</i> value of .054 as .05)	3.0	0.9	2.8	1.1
Deciding whether to exclude data after looking at the impact of doing so regarding a specific finding	2.9	0.7	3.7	0.9
Collecting more data after checking that results were non-significant	2.9	0.6	2.6	1.3
Claiming to have predicted an unexpected result	2.8	1.0	2.7	1.2
Stopping data collection after achieving the desired result concerning a specific finding	2.7	0.8	3.3	1.2
Claiming that results are unaffected by demographic variables (e.g., gender) although one is actually not sure (or knows that they are)	2.6	0.8	3.8	1.1
Detecting some empirical effect when in fact no such effect exists in reality	2.6	0.7	4.2	0.9
Falsifying data	CC - BY-NC-ND 1.9	0.5	4.8	0.6

4.4. MECHANISMS TO FOSTER REPLICABILITY IN EMPIRICAL TIS

- Applicability and likelihood of adoption of mechanisms to enhance replicability:

Mechanisms to enhance replicability	Applicability		Likelihood of adoption	
	Mean (min. = 1; max = 3)	<i>SD</i>	Mean (min. = 1; max = 4)	<i>SD</i>
Designing more robust empirical studies	2.7	0.5	3.3	0.6
Clearly differentiating between exploratory and confirmatory studies	2.7	0.5	3.2	0.6
Reporting all decisions concerning data collection and data analysis	2.7	0.5	3.2	0.8
Making better use of statistics	2.6	0.5	3.2	0.7
Training Ph.D. students to replicate empirical studies	2.6	0.6	2.8	0.9
Conducting studies with larger samples	2.5	0.5	2.9	0.8
Uploading open data, materials, and workflow of the empirical study to repositories	2.4	0.6	2.6	0.9
Providing additional materials to those published in academic journals	2.4	0.6	2.6	0.7
Reporting effect sizes for all statistical tests	2.4	0.7	2.9	0.8
Engaging financing bodies and editors to raise awareness of the importance of replication	2.2	0.6	2.1	0.8
Pre-registering empirical studies	1.9	0.7	2.0	0.8

DISCUSSION

- Are empirical TIS facing a replication crisis?
 - Absence of replication.
- Why do researchers replicate empirical studies in TIS?
 - It's good for us!
- Why do researchers not replicate empirical studies in TIS?
 - Academic and methodological dilemmas.
- What questionable research practices occur in empirical TIS and how negative are they?
 - They seem to occur sometimes, but the worst ones occur rarely.
- How can replication in empirical TIS be fostered?
 - Understanding what replication is.
 - Being aware of the occurrence of QRPs.
 - Being open to adopting mechanisms to enhance replication.

DISCUSSION

- Do we need replication in empirical TIS?
- Is an exact replication achievable in our discipline?
- How exact should a replication be so that a result is considered reliable by the TIS community?
- Where does the TIS community want to establish the border between conceptual replications and new studies?

THANK YOU



Christian Olalla-Soler



Christian.Olalla@uab.cat



@ChristianOlalla