



A biased mind: Significance as a publication booster

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Introduction

- Publication bias (PB) is described as the systematic overrepresentation of significant results
- PB is rooted in the combination of predominantly selecting significant results for publication and tweaking results to significance
- Stable observation across disciplines
- RQ: What beliefs about the significance of results contribute to PB?

Data & Methods- in brief

- Zurich Survey of Academics: large-scale web-survey
- 15'778 scientists in DACH region
- Vignette experiment (hypothetical study abstract)
- Manipulation of the statistical significance of results
- Plus: qualitative open-end question with 11'250 detailed comments

Results - in brief

- Scientists expect a higher publication chance for significant results and larger sample sizes
- Significant results are also associated with higher methodological quality and scientific contribution
- No interaction between significance and sample size: insignificant results are treated the same, independent of whether the study may have had sufficient power or not
- Professors seem to be the least reactive to the significance of the results
- The qualitative results suggest that the significance of the results is not specifically rewarded when it is present but penalized when it is not

Discussion

- Significant results generally seem to improve the assessment of a scientific study in various aspects
- No clear distinction possible between whether the scientists themselves think that insignificant results should not be published or whether they just anticipate that journals would not publish them
- Initiatives to overcome the bias should focus on (1) encouraging scientists to publish more frequently findings that allegedly are of lesser value, and (2) on improving the image of negative results

Statistically *insignificant* results *lower* the expected *publication chances*, as well as the assessed *methodological quality* and *scientific contribution*.



Scan the QR Code to find out more about the Zurich Survey of Academics

Vignette design

Imagine you're asked for a review by a journal. Now you see the abstract of the manuscript. Please read it carefully.

Feeling better, doing worse? Effects of self-presentation on Facebook

The present study examines the effects of self-presentation in social media, based on self-affirmation theory. The study tests the hypothesis that positive self-presentation boosts self-esteem, and that it diminishes cognitive performance. 951 subjects were randomly divided into two groups. Those in the first group were asked to view their own Facebook profile, and the control group viewed the Facebook profile of a stranger. The self-esteem of the subjects was then measured, and they were given a mathematical problem to solve. The results show that subjects who view their own profile beforehand display a significant increase in self-esteem ($t=4.4$, $p<0.01$). They made more mistakes in the maths task than the control group. The difference was statistically significant ($t=2.8$, $p<0.005$). The statistical findings therefore support the hypothesis. Positive self-presentation leads to both increased self-esteem and a lower cognitive performance. This study therefore provides theoretical and empirical insights into research on self-presentation in online networks.

Regardless of whether you work in this field, how would you assess the methodological approach of this study?

Very unsuitable ————— Very suitable

And how would you assess the scientific contribution of this study?

Very minor ————— Very major

How likely do you think it is that the article will be accepted for publication in this scholarly journal?

Very unlikely ————— Very likely

"You've stated that it is *unlikely* that the article will be accepted. On what do you base your assessment?"

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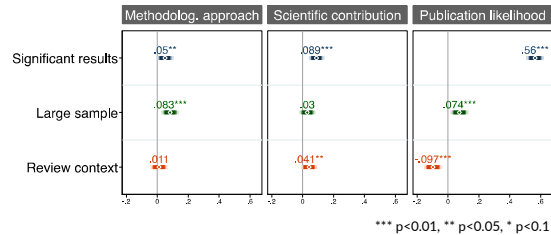
Treatment Context: $F_{\text{expert}} = \text{review}$ vs. $F_{\text{neutral}} = \text{conference}$

Treatment Sample: $N_{\text{small}} = 159$ vs. $N_{\text{large}} = 951$

Treatment Results: $R_{\text{sig}} = \text{significant}$ vs. $R_{\text{insig}} = \text{insignificant}$

Sample	N		%		
	N	%	N	%	
Male	8'790	55.7	Germany	8'182	51.8
Female	6'882	43.6	Austria	2'771	17.6
Other	91	0.6	Switzerland	4'825	30.6
Professor	3'275	20.8	Humanities	6'687	42.4
Postdoc	6'014	38.1	Life sciences	2'653	16.8
Predoc	6'489	41.1	Natural sciences	2'762	17.5
			Engineering	2'247	14.3
N = 15'778					

Quantitative results - in depth



Qualitative results - in depth

Treatment: Significant results	Treatment: Insignificant results
Assessment: Publication likely	Assessment: Publication unlikely
11.8%	24.1%
predoc = 13.9% postdoc = 11.4% prof = 8.1%	predoc = 26.7% postdoc = 23.3% prof = 20.3%
8% of them mention PB 5% of them mention PB 2.9% of them mention PB	14.4% of them mention PB 17.2% of them mention PB 12.4% of them mention PB
«Significant results. It will find a place somewhere.»	«It's a negative result. Currently, I'm not aware of any venue that accepts or invites negative results, at least in my research field.»

Comments?