NOTEWORTHY, PHILOSOPHY

HOW DESIGN CHOICES SHAPE RESEARCH RESULTS

31.10.2019

A new study examines the question how design choices shape research results: Justin F. Landy et al. Crowdsourcing hypothesis tests: Making transparent how design choices shape research results. Psychological Bulletin (in press)

The institutional background of most research is a research group that shares a hypothesis. The group hypothesis usually determines the methods. Methods and study design determine results. Due to this relationship there is a high risk even in replication studies that they just replicate systematic errors. It is therefore not unexpected that many scientific hypotheses only die with their proponents. To what extent are research results influenced by subjective decisions?

Fifteen research teams independently designed studies to answer five original research questions related to moral judgments, negotiations, and implicit cognition. Participants from two separate large samples (total N > 15,000) were then randomly assigned to complete one version of each study. Effect sizes varied dramatically across different sets of materials designed to test the same hypothesis: materials from different teams rendered statistically significant effects in opposite directions for four out of five hypotheses, with the narrowest range in estimates being d = -0.37 to +0.26. Meta-analysis and a Bayesian perspective on the results revealed overall support for two hypotheses, and a lack of support for three hypotheses. Overall, practically none of the variability in effect sizes was attributable to the skill of the research team in designing materials, while considerable variability was attributable to the hypothesis being tested.

So it is all about the hypothesis … something that we already know from the early Genome Analysis Workshops where the same dataset had been distributed to different groups.