

The replication crisis is good for science

April 8 2019, by Eric Loken



Credit: AI-generated image ([disclaimer](#))

Science is in the midst of a crisis: A surprising fraction of published studies fail to replicate when the procedures are repeated.

For example, take the study, published in 2007, that claimed that tricky math problems requiring careful thought [are easier to solve when presented in a fuzzy font](#). When researchers found in a small study that using a fuzzy font improved performance accuracy, it supported a claim

that encountering perceptual challenges could induce people to reflect more carefully.

However, [16 attempts to replicate the result failed](#), definitively demonstrating that the original claim was erroneous. Plotted together on a graph, the studies formed a perfect bell curve centered around zero effect. As is frequently the case with failures to replicate, of the 17 total attempts, the original had both the smallest sample size and the most extreme result.

The Reproducibility Project, a collaboration of 270 psychologists, has [attempted to replicate 100 psychology studies](#), while [a 2018 report](#) examined studies published in the prestigious scholarly journals Nature and Science between 2010 and 2015. These efforts find that about two-thirds of studies do replicate to some degree, but that the strength of the findings is often weaker than originally claimed.

Is this bad for [science](#)? It's certainly uncomfortable for many scientists whose work gets undercut, and the rate of failures may currently be unacceptably high. But, as a psychologist and a statistician, I believe confronting the [replication](#) crisis is good for science as a whole.

Practicing good science

First, these replication attempts are examples of good science operating as it should. They are focused applications of the [scientific method](#), careful experimentation and observation in the pursuit of reproducible results.

Many people incorrectly assume that, due to the "p

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