

Study details shortage of replication in education research

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Although replicating important findings is essential for helping education research improve its usefulness to policymakers and practitioners, less than one percent of the articles published in the top education research journals are replication studies, according to new research published today in *Educational Researcher (ER)*, a peer-reviewed journal of the American Educational Research Association.

"Facts Are More Important Than Novelty: Replication in the Education Sciences," by Matthew C. Makel of Duke University and Jonathan A. Plucker of the University of Connecticut, analyzes the complete publication history of the current 100 [education](#) journals with the highest five-year "impact factor" (an indicator of how often a given journal's articles are cited in other scholarly work), finding that only 0.13 percent of published articles were replications.

Contrary to findings in medicine, but similar to psychology, the majority of education replications successfully replicated the original studies. Nearly 68 percent (67.4 percent) of the replications successfully replicated the findings of the original study, 19.5 percent had mixed results (supporting some, but not all, findings), and 13.1 percent failed to replicate any of the original findings.

However, replications were significantly less likely to be successful when there was no overlap in authorship between the original and replicating articles. Replication studies that were conducted by completely new research teams were found to be successful 54 percent

of the time. When replications were conducted by the original authors in the same publication as the original findings, 88.7 percent were successful. When replications were in a new publication, but at least one author was on both the original and replicating studies, 70.6 percent of replications were successful.

Overall, about half (48.2%) of all published replications are done by the research team that completed the original study.

The shortage of replication studies receives attention across research fields. A 2005 review of highly cited medical publications found that only 44 percent of replications produced results similar to the original study. A 2012 study by the same research team of the publication history of the top 100 psychology journals found that only 1.07 percent of publications were replications.

Although the percentage of education replications is quite small, it is increasing. Currently, about one in 500 studies are replications, an increase from one in 2,000 in 1990.

"The desire to distinguish 'truth from nonsense' is a constant struggle within science, and the education sciences are no exception," said co-author Jonathan A. Plucker. "The need to increase replication is apparent and permeates all levels of education research, to provide both confidence in our collective work and disincentives for misconduct."

"If education research wants to be relied upon in the real world, conducting independent replication is essential," said co-author Matthew C. Makel. "Replications of important research findings will lead to stronger and more accurate policy and practice recommendations."

The authors identified eight reasons, or biases, that help explain the lack of replication in the education research field. These include submission

bias, funding bias, editor/reviewer bias, journal publication policy bias, hiring bias, promotion bias, journals-analyzed bias, and "novelty equals creativity" bias. (See page 3 of the study for details about these factors.)

The authors recommend several steps for increasing the rate of replication in education research. These include revising journal editorial policies to explicitly encourage submission of replication studies, creating a new article type in journals for replications, adopting universal standards for conducting replications, and introducing replication training into graduate and undergraduate student projects.

More information: www.aera.net/LinkClick.aspx?li ... ortalid=38&mid=31214

Provided by American Educational Research Association

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