Large Scale Replication Research: Three Examples and the Issues They Raise

The importance of replications for building a valid, accurate knowledge base in any scientific discipline is constantly stressed in virtually all texts. They remain the bedrock of any science—crucial for preventing the premature dissemination of findings from just one study, distinguishing between interventions with reasonably consistent impacts and those with erratic impacts, and ultimately, for helping the field determine the circumstances or implementation conditions necessary for successful impacts from an intervention.

Yet, in many social science fields, including educational research, replication studies are quite rare. Often doctoral level advisors steer students away from conducting replication studies as dissertations, arguing that faculty committees prefer research that is newer, more cutting edge, or more innovative. Similarly, journal editors and reviewers rarely show enthusiasm for replication studies, again because they seem not nearly as exciting or as interesting as studies of new interventions. The situation is slowly changing in education, due in no small part to the recent stress on replications by the Institute of Education Sciences.

The goal of a replication study is to protect consumers of research. Unless the impact of an intervention is demonstrated in several instances, researchers risk propagating false information. In fact, a recent article by Duncan, Engel, Claessens, and Dowsett, (2012) notes that, in medicine, Ionnaides (2005) consistently found that, for a number of reasons including small sample size, replications failed to replicate the same magnitude of effects found in the original studies. Through replication studies, researchers are able to determine with greater accuracy what worked and what did not. Unfortunately, in education, studies are often cited to delineate best practices that are not validated by several studies. Even a simple replication of a study with a different group of participants would dramatically increase the confidence in findings. In this symposium, we present one example of this relatively straightforward type of replication, by Vaughn and colleagues on Collaborative Strategic Reading.

The next two studies are examples of replications that a) are substantially larger in scope and b) provide less intensive support to teachers than was the case in the original study. For the first study on Number Rockets, the replication involved far less intensive support and coaching for the mathematics interventionists. For the second, a study of the TSG professional development, the facilitators in the original study were research institute staff with strong background in reading research, whereas for the larger scale replication, facilitators were school-based literacy personnel and not necessarily highly knowledgeable in reading research. In each case, the replication condition tried to more closely represent conditions of typical current school practice. In addition, there were changes in demographics of the students in the replication studies.

Each of the three presentations will focus on not only similarities and differences in patterns of impacts, but also differences between the original study and the replication study that might have influenced the findings. Greg Duncan, who has recently extensively studied the issue of replication across disciplines, will serve as discussant.
References