

# Making the Grade: Psychological Science at the Institute of Education Sciences

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Before I came to Washington, DC, to head the U.S. Department of Education's Institute of Education Sciences (IES) nine months ago, I spent my entire career analyzing data, researching reform and school improvement efforts, and working with members of Chicago's education community to make those findings useful. My experiences convinced me of this: Effective education research must be guided by the voices and interests of practitioners and policymakers.

If researchers want their work to be relevant, they need to spend time in schools talking with administrators and teachers about the challenges they face; they need to collaborate with researchers outside their expertise. It is this commitment — supporting top-notch education research that matters to schools and improves educational outcomes for children — that will drive our work at the Institute of Education Sciences over the next six years.

IES has done a fabulous job since its inception in increasing the scientific rigor of education by demanding stronger methodologies and a greater capacity to make causal inferences, as well as by training researchers across the nation in these rigorous standards.

We will continue to build on these rigorous standards and maintain our independence, but we will also bring a new focus to our agency as we strive for usability and relevance. One of the key ways to do that is to truly engage practitioners and policymakers in our work at the ground level — not when it's done and we want it to be translated, or we want it to be applied, but as we envision it and as we plan it.

As we push toward relevancy, I want to shift the conversation away from disseminating research findings to facilitating the use of research. The key to this difference is a commitment on the part of

researchers to assist in school improvement efforts. That means we're not just dropping research findings on schools and saying, "Here's good stuff that you need to use." Rather, we invite practitioners and policy makers to the table from the beginning, so we're studying the right problems of practice, and so research is not something we're doing *to* them.

If we are going to work collaboratively with schools, then we need to develop a stronger understanding of schools as learning organizations. This represents a real shift in emphasis for IES, which has concentrated on developing and then validating programs or interventions. Yet I am not at all convinced that good schools are simply accretions of discrete programs, practices, and interventions. Instead, they are learning organizations that use data for continuous improvement, where leaders understand how to implement promising programs in a way that insures they can be embraced by staff and sustained over time. We know from six years of research here at IES how critical that implementation is in achieving positive results. So we need to dig deeper in understanding how school leaders and staffs strengthen or thwart the implementation of these programs we are studying.

We also want our work to have relevance to the leaders and policymakers who are rewriting our education laws and working on ambitious innovations that are ahead of the research curve. So we need to build stronger and more rigorous, iterative R&D processes that address problems of practice. Education researchers know how to validate fully developed concepts with rigorous methodology, but how do we build an infrastructure that brings rigorous methodology to the development end and not just to the validation end?

We're also looking to broaden our methodological base beyond randomized control trials (RCTs). In our special education research, for example, we recognize that single-case research plays an important role in studying low-incidence disabilities, so we are funding projects aimed at improving the design and analysis in these studies. My career at the Consortium on Chicago School Research made me a big proponent of mixed-methods studies. I am convinced that introducing a qualitative component to some of our work will help us understand some of the complex questions around school organization and implementation hurdles that RCTs alone cannot answer.

These goals are ambitious, so it may take a few years before we see these come to fruition. Yet we already have some promising work underway at IES among researchers who are working at the intersection of psychological science and student learning. The Cognition and Student Learning researchers we support are taking what is sometimes called a microgenetic look at instruction to identify very specific ways in which information can be presented to students to better focus attention on key features, to increase engagement, to minimize misconceptions, to improve memory and recall, to enhance application of information to new problems, and in general, to facilitate learning.

IES funded its first Cognition and Student Learning grants in special education last year, and we anticipate funding a special education research and development center that will enhance our understanding of the cognitive underpinnings of math disabilities and help develop instructional approaches for students with math disabilities. Our R&D Center on Cognition and Science Instruction used cognitive principles to revise curriculum and teacher professional development for two widely-used science curricula and is currently carrying out a randomized field trial to test the revisions in more than 100 schools. By revising how instruction is carried out and leveraging what basic science tells us about how learning occurs, IES hopes to learn whether attending to the details of the instructional process can

produce improvements in student learning.

Moving forward, one way I hope to build the capacity for change is by asking more from a new generation of researchers, particularly through our pre-and post-doctoral training programs. We will continue to seek candidates who are prepared to conduct rigorous studies grounded in the best science. But we also want to push these young researchers to start asking more of the relevant questions that really matter to schools. We want to find researchers who are interested in advancing knowledge for the benefit of their discipline, but at the same time are eager to engage schools and practitioners and build long-term collaborations with school leaders that lead to lasting, meaningful improvement in student outcomes.