

National Board for Education Sciences

2009 Annual Report

August 2008 through June 2009

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OVERVIEW OF THE NATIONAL BOARD FOR EDUCATION SCIENCES

Background

On November 5, 2002, Congress passed the Education Sciences Reform Act of 2002 (ESRA), establishing the Institute of Education Sciences (IES, or the Institute) and its board of directors, the National Board for Education Sciences (NBES, or the Board). The Institute reports to Congress yearly on the condition of education in the United States. The Institute provides thorough and objective evaluations of federal programs, sponsors research relevant and useful to educators and others (such as policymakers), and serves as a trusted source of unbiased information on what works in education.

NBES consists of appointed and ex officio members who are highly qualified to appraise education research, statistics, and evaluations (see appendix A). The 15 appointed members of the Board are nominated by the President and confirmed by the Senate. Members Beth Ann Bryan, Caroline Hoxby, Gerald (Jerry) Lee, and Joseph Torgesen completed their respective terms in November 2008. Board chair Robert C. Granger finished his term in January 2009. NBES currently serves under the leadership of the elected chair, Eric A. Hanushek, and vice chair, Jonathan Baron. Currently, the Board is operating with nine member vacancies. During this reporting period, the Board met in September 2008 and January 2009. A meeting scheduled for May 2009 was canceled due to lack of a quorum.

From November 2002 to November 2008, Grover J. (Russ) Whitehurst served as the first IES director. His leadership helped to transform how education research is planned and funded in the U.S. Department of Education. In November 2008, Dr. Whitehurst published his third and final biennial report to Congress, *Rigor and Relevance Redux*. The report included a detailed account of the activities of IES and its four National Education Centers, as well as a summary of all IES grants and contracts in excess of \$100,000 during the biennium. (The full report is available at <http://ies.ed.gov/director/pdf/20096010.pdf>.)

On June 1, 2009, IES welcomed John Q. Easton as Director of IES. Dr. Easton was appointed by President Barack Obama to a 6-year term. The Board looks forward to working with Dr. Easton to accomplish the vision and goals of the Institute.

MAJOR INSTITUTE OF EDUCATION SCIENCES UPDATES

American Recovery and Reinvestment Act of 2009 (ARRA)

The addition of \$100 billion in federal funding for education, and a mandate to save or create jobs and reform schools, has made 2009 an unprecedented year for the U.S. Department of Education. As Secretary of Education Arne Duncan has said, “This is a once-in-a-lifetime opportunity to do something special, to drive change, to make our schools better. I want all of us to work hard enough and smart enough to take full advantage of this, because it’ll never happen again.”

ARRA has provided the Institute of Education Sciences (IES, or the Institute) with an additional \$245 million in grant funds for state education agencies to further the development and implementation of statewide longitudinal data systems through the National Center for Education Statistics.

Scientific Peer Review Process

Between June 2008 and June 2009, the Standards and Review Office (SRO) handled the processing and scientific peer review of the Institute’s fiscal year (FY) 2009 research activities, research and development center, and research training program grant competitions. Across those competitions, 917 applications were scientifically reviewed by 19 review panels comprising 350 external reviewers. In addition, the SRO managed the external scientific peer review of 38 applications for the Institute’s FY 2009 Statewide Longitudinal Data System grant competition.

Fourth Annual IES Research Conference

The Institute held its fourth education research conference June 7–9, 2009, in Washington, DC. More than 1,000 grant and contract awardees, policymakers, leaders in the field of education research, and IES staff attended. Conference participants had the opportunity to hear about the new direction of education at the federal level from Secretary of Education Arne Duncan and Cecilia E. Rouse, Member of the President’s Council of Economic Advisers. Attendees also heard thoughtful opening remarks from National Board for Education Sciences vice chair Jonathan Baron and the inaugural public address of newly confirmed IES Director John Q. Easton. The conference featured 21 panel and open-forum sessions and nearly 500 poster sessions presenting IES-supported research. This year’s research conference represented a milestone in the Institute’s effort to build a national community of education researchers, with conference attendance having grown from approximately 500 in 2006 to more than 1,000 in 2009.

INSTITUTE OF EDUCATION SCIENCES CENTERS

National Center for Education Statistics (NCES)

NCES is the primary federal entity for collecting, analyzing, and disseminating statistical data related to education in the United States and in other nations. NCES consists of four divisions: Early Childhood, International, and Crosscutting Studies; Assessment; Elementary/Secondary and Libraries Studies; and Postsecondary Studies.

PROGRAM HIGHLIGHTS

Longitudinal Studies NCES has initiated its next installment of the assessment of early childhood development and learning, the Early Childhood Longitudinal Study of the Kindergarten Class of 2010-2011 (ECLS-K:2011). The ECLS-K:2011 is designed to provide comprehensive and reliable data that can be used to describe and to better understand children's development and experiences in the elementary grades, and how early experiences relate to later development, learning, and experiences in school. It will go beyond NCES's previous early childhood longitudinal studies by collecting data annually from kindergarten through fifth grade. One of the major drawbacks to analyzing child development and performance gains in the previous kindergarten studies was the lack of information on some key grades (e.g., second and fourth). The first data collection is scheduled for fall 2010 with a nationally representative sample of 21,000 entering kindergartners in 900 schools.

Statewide Longitudinal Data System Grant Program (SLDS) The SLDS is designed to aid state education agencies in developing and implementing longitudinal data systems to enhance the ability of states to efficiently and accurately manage, analyze, and use education data, including individual student records. These data systems will help states, districts, schools, and teachers make data-driven decisions to improve student learning, as well as facilitate research to increase student achievement and close achievement gaps. All 50 states, five territories, and the District of Columbia are eligible to apply for the cooperative agreement grants. Previously, awards totaling \$118.8 million went to 27 states for the design, development, and implementation of K-12 statewide education data systems. New awards were made in 2009 to 27 states, including 15 that had not previously been grant recipients, bringing the total amount awarded to \$265.2 million. Key programmatic features introduced in the new awards include inclusion of pre-K through postsecondary education, system interoperability across states, and student-teacher record linkages. The American Recovery and Reinvestment Act of 2009 (ARRA) reinforces the commitment to SLDS as an important tool for education improvement by authorizing an additional \$245 million for a fourth grant competition. NCES provides guidance and technical assistance to all of these state efforts.

National Assessment of Educational Progress (NAEP) NCES prepared *Achievement Gaps: How Black and White Students in Public Schools Perform in Mathematics and Reading on the National Assessment of Educational Progress*, a report detailing the size of the achievement gaps between Black and White students at both the national and state levels, and how those achievement gaps have changed over time. This is the first NAEP report focusing exclusively on Black and White achievement gaps, and the first containing state-level trends in these gaps. The analysis focuses on public school students at the fourth- and eighth-grade levels in both reading and mathematics, using NAEP scores as a common yardstick. State gap trends are presented since 1992 for reading, and since 1990 for mathematics.

National Center for Education Research (NCER)

NCER supports rigorous research that contributes to the solution of significant education problems in the United States. Through its research initiatives and the National Research and Development Centers (R&D Centers), NCER engages in research activities that result in the provision of high-quality education for all children, improvement in student academic achievement, reduction in the achievement gap between high-performing and low-performing students, and increased access to and opportunity for postsecondary education. NCER research examines the effectiveness of education programs, practices, and policies, including the application of technology to instruction and assessment. The goal of NCER research programs is to provide scientific evidence of what works, for whom, and under what conditions.

PROGRAM HIGHLIGHTS

New Awards Fiscal year (FY) 2009 was a banner year for NCER. The Center hit a milestone, awarding 100 new grants across its research and research training competitions, with an overall funding rate of 16 percent. By comparison, NCER awarded only about one-fourth as many grants in FY 2002, when the overall funding rate was 9 percent.

Evaluation of State and Local Education Programs and Policies NCER recognizes that evidence-based choices for all of the daily decisions that education decisionmakers and practitioners must make do not yet exist. Furthermore, education leaders cannot always wait for scientists to provide answers. One solution to this dilemma is for the education system to integrate rigorous evaluation into the core of its activities. However, states and districts generally do not have the resources to conduct such activities. In FY 2009, NCER held the first competition for its research program on the Evaluation of State and Local Education Programs and Policies. For this program, NCER expects state or local education agencies to partner with researchers to evaluate the effects of

a program that the state or district plans to implement, or a program that has already been implemented but is not yet universal. Five projects were awarded this year to evaluate programs that state or local education leaders are implementing and are invested in learning if they work. Two of the projects will evaluate the effects of state prekindergarten programs—one in Tennessee and the other in New Jersey. The focus of a third project is on Indiana's interim diagnostic assessment system—a system through which kindergarten through eighth-grade students take three formative assessments each year. The evaluation will determine whether using the diagnostic assessment system improves student achievement in reading, mathematics, science, and social studies. The fourth project involves charter schools in Colorado that use the Core Knowledge curriculum; its purpose is to evaluate the impact on achievement in the primary grades. The fifth project will evaluate the effects of ninth-grade academies on academic performance and engagement throughout high schools in the Broward County School District in Florida.

Postsecondary Education Research Since 2007, NCER has supported research that focuses on increasing at-risk students' access to, persistence in, and completion of postsecondary education. One line of research addresses strategies for improving high school students' preparation for and interest in postsecondary education. For example, NCER-funded researchers are evaluating mentoring and counseling programs in California and Vermont that are intended to motivate students who otherwise would not be considering college to apply; both programs provide assistance with the application process. Researchers in the National Center for Postsecondary Research (NCPR), one of the 13 national R&D Centers funded by NCER, are examining the effects of dual enrollment programs (i.e., simultaneous enrollment in high school and college courses) on student outcomes in Florida. Another line of research concerns programs intended to help students who have graduated from high school but are not well prepared for postsecondary work. In fall 2000, about 28 percent of freshmen entering college, and 42 percent of those entering community college, took a remedial course. Last year, both NCPR and other NCER-funded researchers reported that current remediation courses do not contribute to students' completion of a degree. Currently, a team of NCPR researchers is working with the Texas Higher Education Coordinating Board to evaluate a Texas summer bridge program that is intended to provide intensive developmental education services to students with weak academic skills during the summer before they begin college. NCER's postsecondary education research portfolio is growing and will yield findings that address important policy-relevant issues.

**National Center for
Special Education
Research (NCSER)**

In December 2004, Congress reauthorized the Individuals with Disabilities Education Act (IDEA) and, in doing so, authorized NCSER. NCSER sponsors a comprehensive program of special education research designed to expand knowledge and understanding about infants, toddlers, and children with disabilities. NCSER is also charged with improving services provided under IDEA and with evaluating IDEA's implementation and effectiveness.

PROGRAM HIGHLIGHTS

Advancing Science in Special Education Since its first research grant competition in FY 2006, NCSER has awarded more than 130 research grants. The funded projects cover a broad range of issues related to educating students with disabilities, including visual and hearing impairments, autism spectrum disorder, behavioral disorders, and learning disabilities. NCSER is beginning to build substantial research portfolios to address the needs of young children with disabilities and the needs of children with emotional and behavioral disorders.

NCSER has invested more than \$60 million in research to improve outcomes for infants, toddlers, and young children with (or at risk for developing) disabilities. With more than 30 individual grants and one R&D Center, these projects cover a wide range of disabilities, including low-incidence disabilities such as deafness as well as high-incidence disabilities such as language impairments. As the projects mature, NCSER will make a strong contribution to advancing knowledge in early intervention and early childhood special education.

With 25 grants totaling more than \$52 million, NCSER has made a considerable investment in improving social and behavioral outcomes for students with (or at risk for developing) disabilities. NCSER researchers have found that early intervention programs can improve students' classroom behavior, social skills, and academic engaged time. NCSER is also advancing the behavioral assessment field through grants that support the development of measures for screening and progress monitoring for behavioral and emotional problems.

Research and Development Centers NCSER's first two special education R&D Centers began operation this year. The National R&D Center on Serious Behavior Disorders at the Secondary Level is developing and evaluating a package of interventions designed to reduce the significant behavioral and academic challenges experienced by high school students with serious emotional and behavior disorders. The Center for Response to Intervention in Early Childhood is conducting a focused research program to develop and evaluate intensive interventions for preschool language and early literacy skills, and to develop and validate an assessment system linked to these interventions.

In March 2009, NCSER announced a competition for two additional R&D Centers. The first center will conduct a research program that identifies the academic growth trajectories of students with disabilities. The research program will also develop and test methods for use in accountability systems to practically and accurately measure academic growth for students with disabilities. The focus of the second center is on improving instruction for students with difficulties in mathematics. This center will examine underlying cognitive processes that impede performance in students with mathematics difficulties for the purpose of identifying possible targets for intervention. It will also develop and test innovative instructional approaches or other interventions for students with mathematics difficulties, utilizing cognitive research on mathematics disabilities and mathematics processing.

**National Center for
Education Evaluation
and Regional
Assistance (NCEE)**

The mission of NCEE under the Education Sciences Reform Act of 2002 (ESRA) is to

- conduct evaluations of federal education programs administered by the Secretary;
- provide research-based technical assistance to educators and policymakers;
- support synthesis and wide dissemination of the results of evaluation and research; and
- encourage the use of scientifically valid education research and evaluation throughout the United States.

ESRA further requires that NCEE evaluations “adhere to the highest possible standards of quality for conducting scientifically valid education evaluation,” where “scientifically valid” is used to describe evaluations that “employ experimental designs using random assignment, when feasible, and other research methodologies that allow for the strongest possible causal inferences when random assignment is not feasible,” and that there be rigorous peer review. In accordance with this requirement, all reports from NCEE evaluations are peer reviewed by the IES Standards and Review Office. ESRA also required that the Commissioner of NCEE establish an external peer review for all Regional Educational Laboratory (REL) program research reports to ensure that they meet IES standards for research and evaluation before being released. Accordingly, study reports from REL randomized controlled trials (RCTs) are required to pass the NCEE external peer review process and also undergo review from the IES Standards and Review Office.

PROGRAM HIGHLIGHTS

NCEE's Evaluation Studies Division The *National Board for Education Sciences: 5-Year Report, 2003 Through 2008* noted that NCEE had 26 large evaluations completed or under way as of October 2008, and that 22 of the evaluations used randomized controlled designs to test comparisons between the treatment intervention(s) and the control condition.

In noting that only one randomized field trial was used in 16 U.S. Department of Education (ED) evaluations in FY 2000, and that during the period from 1995 through 1997, only 5 of 51 evaluations of federal programs used the randomized controlled design, the report said, "The Institute should be applauded for its efforts to greatly improve the rigor of impact evaluations of ED programs."*

Since the beginning of FY 2009 (October 2008), NCEE has released nine impact evaluation reports:

- *Effectiveness of Selected Supplemental Reading Comprehension Interventions: Impacts on a First Cohort of Fifth-Grade Students* (May 2009);
- *Evaluation of the DC Opportunity Scholarship Program: Impacts After Three Years* (March 2009);
- *Impact Evaluation of the U.S. Department of Education's Student Mentoring Program* (March 2009);
- *Achievement Effects of Four Early Elementary School Math Curricula: Findings from First-Graders in 39 Schools* (February 2009);
- *Effectiveness of Reading and Mathematics Software Products: Findings From Two Student Cohorts* (February 2009);
- *An Evaluation of Teachers Trained Through Different Routes to Certification* (February 2009);
- *Enhanced Reading Opportunities: Findings From the Second Year of Implementation* (November 2008);
- *Reading First Impact Study Final Report* (November 2008); and
- *Impacts of Comprehensive Teacher Induction: Results From the First Year of a Randomized Controlled Study* (October 2008).

The new congressionally mandated evaluation of the Teacher Incentive Fund program contained in ARRA is the latest addition to the NCEE evaluation portfolio.

* National Board for Education Sciences. (2008). *National Board for Education Sciences: 5-Year Report, 2003 Through 2008* (NBES 2009-6011). National Board for Education Sciences, Institute of Education Sciences, U.S. Department of Education. Washington, DC, p. 11.

To make the findings from these evaluation reports accessible to a broader audience, NCEE is producing “NCEE Evaluation Briefs” for distribution at NCEE conferences. Eight are currently available under the “Resources” section of the NCEE website at <http://ies.ed.gov/ncee/pubs>.

NCEE’s Knowledge Utilization Division—Dissemination, Synthesis, and Advancement of the Use of Scientifically Valid Education Research and What Works Clearinghouse (WWC) Evaluation The WWC has already received substantial attention in the report prepared by the blue-ribbon panel of leading experts in rigorous, particularly randomized, evaluations commissioned by the NBES. The NBES charge to this Expert Panel was to conduct a focused study addressing the fundamental question of whether the WWC’s evidence review process and reports are scientifically valid and provide accurate information about the strength of evidence of meaningful effects on important educational outcomes. The Expert Panel’s report was released in October 2008 and was discussed at the January 2009 NBES Board meeting. Since then, WWC has continued to expand both the range and volume of its publications to reach more audiences interested in what works evidence.

In March 2009, noted education reporter Debra Viadero wrote about the turnaround of the WWC in her report for *Education Week’s* Inside School Research blog. In an entry titled “Is ‘What Works’ Living Up to Its Name?”, Viadero wrote this:

We’re going to have to stop calling the U.S. Department of Education’s What Works Clearinghouse the “nothing works” clearinghouse. Set up in 2002 to vet research on educational programs and practices, the clearinghouse got that unfortunate nickname because so few of its early reviews turned up educational interventions that were any more effective than what educators were already doing.

This new statistic from Mathematica Policy Research Inc., the Princeton, NJ, company that operates the clearinghouse, suggests that times have changed: Of the 100-plus reports now posted on the clearinghouse Web site, 62 percent have at least one outcome that’s positive.

If you go to the Web site to see for yourself, check out the nifty new [search tools](#). They can spit out charts showing you how all the interventions in a particular topic area—say, reading or dropout prevention—stack up against one another by What Works standards. You can also customize the results by grade level, student population, or the learning outcome that interests you.

With all those new bells and whistles, the clearinghouse ought to come up with a slogan—perhaps “put what works to work for you”—to bury the “nothing works” moniker once and for all.

The WWC also creates Practice Guides that offer practical recommendations from expert panelists who are chosen because of their significant experience as researchers or practitioners in a particular area of education. These experts apply WWC review processes and standards as they cull the literature, decide on recommendations, and determine the level of evidence in support of their recommendations. These guides are especially popular and have become more so due to the dissemination events organized by the RELs. Plans are under way to extend the Practice Guides by providing WWC Practice Briefs that offer expanded examples of how to put recommendations into practice.

WWC Quick Reviews, an entirely new WWC product, were initiated in late 2008 to inform educators, policymakers, researchers—in fact, all who follow education news—about what studies reported in the national media claim and whether the studies, based on publicly available documents, appear to meet WWC evidence standards. These studies are often about interventions that may not fit into any existing WWC review area.

Intervention Reports are now produced on interventions that may have name recognition but could not be reported on by the WWC because they lacked supporting WWC-level evidence. These brief reports explain what studies were reviewed and why the studies did not meet WWC standards. WWC continues to produce Intervention Reports in the topic areas of early childhood education, beginning reading, middle school math, dropout prevention, and English language learners. WWC is launching seven new topic areas in adolescent literacy, children with emotional or behavioral disabilities, early childhood education interventions for children with disabilities, high school math, out-of-school time, students with learning disabilities, and teacher professional development.

Finally, WWC, now established as the systematic review organization that covers the education sector, is making new outreach linkages. WWC is the primary producer of IES reports of great interest to practitioners served by the REL program, and is very active in providing speakers for special REL dissemination events. WWC has established relationships with other leading experts in the field of systematic reviews. WWC is planning to increase its dissemination activities by hosting events, such as forums and webinars, and developing other events with its dissemination partners.

Regional Educational Laboratory (REL) Program Since 2005, the REL program has been refocused to meet the scientific requirements of ESRA, particularly the

- mandatory requirements for peer review of all research plans and products;
- increased transparency in monitoring regional needs and the responses by the laboratories; and

- provision of technical assistance to REL customers through published reports from short-term “fast-response” projects and through the conduct of large-scale rigorous studies.

A key issue for those participating in the RELs was the new NCEE peer review process, which applied IES scientific evidence standards to the issues confronting local and state education entities. For example, typical questions include

- What dropout prevention programs have been tried in our region and which ones are effective?
- Can we develop a list of teacher preparation programs that provide quality instruction in special education?

Such questions, to be answered without relying on personal opinions or superficial assessments, require a methodologically rigorous review of available research. To advance the central distinction between methods that adequately control for factors (some observable, many not observable) that are “causing” a particular outcome and methods that pay little attention to these factors, the laboratories were asked to carry out rigorous studies of new practices, curriculums, and teacher quality enhancement strategies in which state and local education leaders expressed strong interest. Each of the 10 laboratories typically launched 2 to 3 such 5-year studies, for a total of 25 RCTs in all. Many of the studies focused on mathematics, science, or literacy; some focused on early childhood and high school interventions.

A real benefit in having the RELs conduct rigorous studies is that it demonstrates that the laboratories can offer new evaluation resources and skills that are focused precisely on what can be learned from studies within one’s own state or neighboring jurisdictions at a time when school resources are tight.

The REL evaluations adhere to a common set of reporting standards that clearly separates the confirmatory findings from exploratory analyses that do not allow causal inference. This distinction will help others produce more reliable reports, communicating clearly the *effects*, versus the *suggested associations*, of an intervention. Peer reviewed reports from these studies are expected in 2009-2011.

Widespread dissemination of scientific research findings is integral to the mission of the REL program. To better reach the laboratories’ constituency of practitioners, a new dissemination system was established by holding REL forums. These forums provide practitioners with direct access to findings from IES-funded research and evaluation. Speakers at the events are experts who have authored IES publications, including the highly popular IES Practice Guides produced by the WWC.

- As of June 2009, 26 REL forums have been held throughout the country, with many more events scheduled within the next 6 months. These forums provide a

rich opportunity not only to stimulate discussion regarding the implications or pertinence of scientifically rigorous evidence but also to try out new approaches to bridging the gap between practitioners' terms of reference and research and evaluation experts' terms and frameworks.

- As of June 2009, 82 peer reviewed *Issues & Answers* reports (results of short-term fast-response projects) have been released, covering a wide range of critical issues including, value-added modeling, trend analyses, the alignment of state and NAEP standards, teacher preparation programs, English language learners, students with disabilities, and many other priorities.

Education Resources Information Center (ERIC) ERIC, the other knowledge utilization project dating from the 1960s, went through a highly significant and cost-effective change in 2003 to become a modern electronic library. Greater scale and efficiencies were made possible by closing 17 ERIC clearinghouses and replacing them with a single ERIC literature collection point. The overhaul allowed for expansion of the collection to include more journals (using selection criteria established by expert opinion) and rapid electronic archiving of new resources. The new ERIC uses microfiche digitization to feature archived ERIC materials from the 1966-1992 historic ERIC collection. ERIC, which can be accessed at <http://www.eric.ed.gov>, was recently commended as “a Best Free Reference Web Site” by the Reference and User Services Association of the American Library Association, which cited ERIC’s powerful search tools and other features.

NCEE Methods Working Group—Advancing the Application of Evaluation Methods and Establishing Scientifically Rigorous Standards in the Field In 2006, the Commissioner established the NCEE Methods Working Group to work on issues and strategies to assure that NCEE evaluations take advantage of the latest developments in evaluation methods. The group engages in discussion on newly emerging issues and identifies ways to conduct methodological investigations to resolve or adapt new techniques. Some of the issues brought to the Methods Working Group grew out of WWC deliberations and by the REL program’s RCTs. The REL RCTs essentially doubled the number of experimental studies being conducted under NCEE. The REL RCT initiative brought education researchers into close working relationships with experimental research experts. The large number of experimental NCEE evaluations also brought demands for consistent guidance and reporting requirements across the various entities responsible for the first field trials on many issues. The results of the investigations are published as commissioned, peer reviewed papers under the series title *Technical Methods Reports*. These reports are posted on the NCEE website at <http://ies.ed.gov/ncee/pubs>. They are specifically designed for use by researchers, methodologists, and evaluation specialists. To date, four reports have been released, and nine others are expected to be considered for publication in 2009-2011.

Midstream Assessment of the IES/NCEE Evaluation Program This assessment took stock of the first cohort of federal evaluation studies to follow IES scientific standards. Preliminary findings from the assessment were presented at the September 2008 NBES meeting. The assessment considered 24 evaluation studies of federal programs under NCEE. The main recommendations included in the assessment report are as follows:

- NCEE should sustain the production of scientifically rigorous evidence to help others judge the effectiveness of federal program investments.
- Congress and others will obtain important indicators of new program initiatives' potential cost-effectiveness if NCEE is asked to conduct pilot tests of the new initiatives prior to full-scale implementation, or "evidence-guided innovation."
- Dissemination of research findings has received attention through the NCEE establishment of evaluation reporting guidelines and the WWC additions, such as Quick Reviews.
- NCEE evaluations of teacher quality strategies urge more systematic work on measuring teacher quality in general.
- Infrastructure issues to improve the usefulness of NCEE evaluations are detailed below.
 - Continue efforts to make major advancements in the development and dissemination of standards of evidence.
 - Give attention to improving the consistency of outcome measures, especially across state tests.
 - Limit the use of effect size measures for establishing the rationale and design base for education evaluations and move to using metrics more directly tied to policy contexts (e.g., changes in learning growth).
 - Add estimates of resource use/costs to evaluation studies.
 - Develop and test simulation models to allow school entities to estimate impacts likely in their school contexts.
 - Avoid defaulting to using the school as the unit of assignment, or assuming that control group contamination is sufficiently large to avoid using classrooms, teachers, or students as the unit of assignment.
 - Evaluate the cost-effectiveness of conducting extensive mediator analyses and implementation/process analyses.

It should be noted that the three authors of the assessment are also drafting extended memorandums on selected topics. These memorandums will more fully inform the research and evaluation communities about the recommendations made in the

assessment report, the rationale for each recommendation, and specific examples. Included will be recommendations to introduce more policy-relevant outcome measures, to develop simulation models of likely effects in varying school contexts, and to propose an experiment to test teacher practices for their impact on student achievement.

BOARD ACTIVITIES

What Works Clearinghouse (WWC) Evaluation

In July 2008, the National Board for Education Sciences (NBES) convened an expert panel to conduct a focused study addressing the fundamental question of whether the WWC's evidence review process and reports are scientifically valid. That is, do they provide accurate information about meaningful effects on important education outcomes?

Based on analysis and investigation, the panel generally concluded that

1. WWC procedures and processes for identifying and extracting information from intervention studies are generally well documented and follow reasonable standards and practices for systematic reviews; and
2. WWC Intervention and Topic Area Reports provide succinct and meaningful summaries of the evidence on the effectiveness of specific education interventions.

The panel also provided the following recommendations:

1. *Full Review.* The panel recommends that the Institute of Education Sciences (IES) commission a full review of the WWC, including a review of the WWC's mission and of the WWC Practice Guides that the panel did not evaluate. The panel also recommends that IES consider instituting a regular review process to ensure that WWC is using the most appropriate standards in its work.
2. *Protocol Templates.* The panel recommends that the WWC review and update the protocol templates, focusing on the following issues:
 - (i) standards for crossover and assignment noncompliance, and for adjusting intention to treat effects across studies.
 - (ii) standards for documenting the program received in the control arm of randomized-control trials (or by members of the comparison group in quasi-experimental designs), and potentially incorporating

this information when making comparisons across studies and/or interventions.

- (iii) revised standards for multiple comparisons. We recommend that the WWC review the treatment of multiple comparisons in light of a recent research report by Peter Schochet titled *Guidelines for Multiple Testing in Impact Evaluations*.
 - (iv) attrition standards. We recommend that the WWC reconsider the current process of setting different attrition standards in different topic areas.
 - (v) potential conflicts of interest. We recommend that the WWC establish a new protocol to keep track of potential conflicts of interest, such as cases where a study is funded or conducted by a program developer, and consider making that information available in its reports.
 - (vi) randomization. We recommend that the WWC precisely define the standards for “randomization” in a multilevel setting.
3. *Documentation of Search Process*. The panel recommends that the WWC expand the protocol templates to specify more explicit documentation of the actual search process used in each topic area, and to maintain a record of the results of the search process that can be used to guide decisionmaking on future modifications of the search process.
 4. *Reliability of Eligibility Screening*. The panel recommends that the WWC conduct regular studies of the reliability of the eligibility screening process, using two independent screeners, and use the results from these studies to refine the eligibility screening rules and screening practices.
 5. *Documentation of Screening Process*. The panel recommends that WWC reports include a QUOROM-type flow chart documenting the flow of studies through each review and the number of studies excluded at each point, and a Table of Excluded Studies that lists specific reasons for exclusion for each study.
 6. *Misalignment Adjustment*. The panel recommends that in cases where a study analysis is “misaligned,” WWC staff request that study authors re-analyze their data correctly, taking into account the unit of randomization and clustering. We recommend that the results from the process be compared to the simple ex post adjustment procedure currently specified to develop evidence on the validity of the latter.
 7. *Combining Evidence Across Multiple Studies*. We recommend that the WWC re-evaluate procedures for combining evidence across studies, with specific attention paid to the issue of how the rules for combining evidence can be

optimally tuned, given the objectives of the WWC review process and the sample sizes in typical studies for a topic area.

8. *Reporting.*

- (i) The panel recommends that published reports on the website include the topic area protocols, as well as more information on the screening process results that led to the set of eligible studies actually summarized in the Topic Area Reports.
- (ii) The panel recommends that the WWC make readily available its *Procedures and Standards Handbook*, including appendixes, as well as all other relevant documents that establish and document its policies and procedures.

9. *Practice Guides.* The panel recommends that the Practice Guides—which contain material that does not meet the high standards of evidence for other WWC products—be clearly separated from the Topic Area and Intervention Reports.

10. *Outreach and Collaboration With Other Organizations.* The panel recommends that the WWC build and maintain a relationship with national and international organizations focusing on systematic reviews, specifically with the goals of having Review Team leaders engage in the broader scientific community and bringing the latest standards and practices to the WWC. The panel also recommends that the WWC convene working groups with a mixture of researchers, including specialists in education research and systematic reviews, to address the development of new standards for the review and synthesis of studies.

The WWC evaluation report is available online at <http://ies.ed.gov/director/board/pdf/panelreport.pdf>.

**National Board for
Education Sciences
5-Year Report**

The Education Sciences Reform Act of 2002 (ESRA) stipulated that, 5 years after enactment, the Board was to submit to the Director, the Secretary, and the appropriate congressional committees a report that included any recommendations regarding actions that may be taken to enhance the ability of IES to carry out its priorities and mission. In November 2008, a 5-Year Report was published with the Board's evaluation of the Institute. The Board examined the ways in which and the extent to which the Institute has been successful in advancing the rigor of education research, improving its relevance, and facilitating evidence-based decisionmaking.

On the basis of its evaluation, the members of NBES concluded that within a relatively brief period, IES has made exceptional or substantial progress in improving the rigor and relevance of education research and the dissemination of practical information.

ADVANCING THE RIGOR OF EDUCATION RESEARCH

The Board's determination of "exceptional progress" in advancing the rigor of education research was based on the following evidence:

1. the high standards reflected in the peer review system;
2. the strong external ratings on the quality of the funded research grants; and
3. the high quality of the research designs of the evaluations contracted through the Institute's National Center for Education Evaluation and Regional Assistance (NCEE).

IMPROVING THE RELEVANCE OF EDUCATION RESEARCH

The Board's determination of "substantial progress" in improving the relevance of education research was based on the following:

1. satisfactory ratings of the relevance of funded research projects by education leaders and administrators;
2. establishment of long-term focused programs of research that address fundamental education issues in our nation (e.g., improving reading, writing, mathematics, and science achievement);
3. the work of the National Research and Development Centers in key policy areas;
4. dramatic improvements in the timeliness of the release of data from the Institute's National Center for Education Statistics (NCES);
5. high ratings of the relevance of NCES reports; and

6. increased efforts to improve the timeliness of the release of NCEE evaluation reports.

FACILITATING EVIDENCE-BASED DECISIONMAKING

The Board's determination of "substantial progress" in facilitating evidence-based decisionmaking was based upon the quality and use of the systems and programs the Institute has created (e.g., WWC, College Navigator) or revamped (e.g., Education Resources Information Center) to disseminate practical information to education leaders, practitioners, parents, and students.

Although the Board finds that the Institute has been instrumental in improving the rigor, relevance, and accessibility of federally funded education research, much remains to be done to institutionalize the gains made and to build on them. No matter how technically sound research activities might be, if they do not address the issues and questions that are of concern to education policymakers and practitioners, the research will not be used to inform education policy and practice. The main message from the evaluation is that the Institute's leadership and staff have successfully executed the priorities and mission of IES and that, going forward, IES should maintain the direction that Congress has articulated.

The Board's 5-Year Report is available at <http://ies.ed.gov/director/board/reports/20096011/index.asp>.

NEXT STEPS

Over time, the Board has approved various resolutions (see appendix B). These resolutions serve as guidance for Congress, the Secretary, and the Director of IES. The Board will advise the Director of IES on recommendations for center commissioner appointments and for approving his research priorities, as required by law.

In addition, the Board looks forward to a prompt reauthorization of ESRA. An annotated version of ESRA, with recommendations for changes, can be found in the Board's 5-Year Report. Recommended changes include (a) clarifying ambiguous descriptions, (b) establishing processes to avoid long-term vacancies, (c) maintaining the peer review process under the Office of the Director, (d) establishing procedures to buffer the Institute further from outside influences and to maintain the integrity and independence of IES as a science agency, (e) changing the definition of "scientifically based research" to align with more recent language in other legislation, and (f) establishing the Institute as the lead agency for congressionally authorized scientific education research under various education laws.

CONCLUSION

Over the past 7 years, a new direction has been set for education research. It is important to retain the focus of the Institute of Education Sciences (IES) on funding research that meets high standards of scientific rigor while addressing questions of significance from the education field.

CHAIR'S MESSAGE

As is widely recognized, IES made great strides during its first 6 years of operation. It significantly upgraded the quality and reliability of education research and evaluation. The Institute began a new phase on June 1, 2009, when John Q. Easton became its director. The NBES looks forward to working closely with Dr. Easton so that the path of federal education research can continue its upward momentum. NBES has been handicapped by not being at full strength, which we hope will be corrected soon.

—Eric A. Hanushek

APPENDIX A

Members of the National Board for Education Sciences (as of July 1, 2009)

Mr. Jonathan Baron

Coalition for Evidence-Based Policy
Washington, DC

Dr. Carol A. D'Amico

Conexus Indiana
Indianapolis, IN

Dr. David C. Geary

University of Missouri
Columbia, MO

Mr. F. Philip Handy

Strategic Industries, LLC
Winter Park, FL

Dr. Eric A. Hanushek

Hoover Institution
Stanford University
Stanford, CA

Dr. Sally E. Shaywitz

Department of Pediatrics
Yale University School of Medicine
New Haven, CT

Ex Officio Members

Director of the Institute of Education Sciences
Each of the Commissioners of the IES National Education Centers
Director of the National Institute of Child Health and Human Development
Director of the Census Bureau
Director of the National Science Foundation
Commissioner of the Bureau of Labor Statistics

APPENDIX B

Approved National Board for Education Sciences Resolutions

1. Congress, in authorizing and funding evaluations of federal education programs, should require [program] grantees, as a condition of grant award, to participate in the evaluation if asked, including the random assignment to intervention and control groups as appropriate. (April 2005)
2. Congress and the U.S. Department of Education should ensure that individual student data can be used by researchers (with appropriate safeguards for confidentiality) in order to provide evaluations and analyses to improve our schools. (September 2006)
3. Congress should designate the Institute of Education Sciences, in statute, as the lead agency for all congressionally authorized evaluations of U.S. Department of Education programs, responsible for all operations, contracts, and reports associated with such evaluations. (September 2006)
4. Congress should allow the U.S. Department of Education to pool funds generated by the 0.5 percent evaluation set-aside from smaller programs. (September 2006)
5. The U.S. Department of Education should use its “waiver” authority to build scientifically valid knowledge about what works in K-12 education. (September 2006)
6. Congress should create, in statute, effective incentives for federal education program grantees to adopt practices or strategies meeting the highest standard of evidence of sizeable, sustained effects on important educational outcomes. (May 2007)
7. Congress should revise the statutory definition of “scientifically based research” so that it includes studies likely to produce valid conclusions about a program’s effectiveness, and excludes studies that often produce erroneous conclusions. (October 2007)
8. The Board will review and advise the IES Director on grant awards where the proposed grantee is selected out of rank order of applicant scores that result from peer review for scientific merit. (January 2008)
9. The Board commends the Secretary and the U.S. Department of Education for moving forward in developing new regulations and guidance about how to

maintain confidentiality of educational data under the Family Educational Rights and Privacy Act (FERPA) while also providing for research uses of student and school data. The Department should finalize these regulations quickly, incorporating the major clarifications that have been submitted in comments. (May 2008)

10. Congress should expand on the program of supporting statewide longitudinal data systems by requiring that states accepting funding under this program agree to make data in these systems available to qualified researchers (subject to FERPA) for the purpose of research that is intended to help improve student achievement. (May 2008)