

**THE NATIONAL ACADEMIES
NATIONAL RESEARCH COUNCIL
CENTER FOR EDUCATION**

COMMITTEE ON SCIENTIFIC PRINCIPLES OF EDUCATION RESEARCH

**PROJECT BRIEF
3/19/2001**

Context

As the demand grows for a strong evidential base to inform policy and practice in the current reform environment, education research has come into the political spotlight. Indeed, questions about the nature of evidence in education have spilled over from a relatively contained debate among researchers into broad policy and practice communities. Several federal education laws and bills (e.g., Reading Excellence Act, Comprehensive School Reform Demonstration Act, a House GOP bill to reauthorize the Office of Educational Research and Improvement) codify these sentiments. These bills use such language as “scientifically valid,” “research-based,” and “standards of quality” for research designs and statistical analyses, with various definitions. These ideas also figure prominently in President Bush’s blueprint for the federal role in K-12 education. One of the four key priorities in the Administration’s *No Child Left Behind* is a “focus on what works,” tying federal support to education programs and practices that are “research based.”

As enthusiasm for education research has grown, debates about the scientific quality of education research have become heated. The issues involved are complicated and controversial. Systematic inquiry into teaching, learning, and schooling in the U.S. dates back to the 19th century. This research has generated bodies of scientific knowledge that have had profound implications for education (e.g., advances in understanding of how people learn, how young children acquire early reading skills, and how to design and evaluate educational and psychological measurements). However, the highly contextualized nature of education and the wide range of disciplinary perspectives that bear on it have rendered the identification of reducible, generalizable principles that typify other scientific disciplines difficult and slow to achieve. Indeed, the very question of whether there is, or could be, a scientific basis for education research is itself at issue.

Project Charge and Frame

At the request of the National Education Research Policy and Priorities Board¹, the National Research Council’s Center for Education has empanelled an interdisciplinary committee of experts (see committee roster) to explore the scientific underpinnings of education research, its generation, accumulation, and use. The Committee’s work is part of a larger federal effort to improve the utility and quality of education research and is designed to contribute to, and learn from, related initiatives (e.g., RAND study panels in

¹ See <http://www.ed.gov/offices/OERI/NERPPB/>

reading and mathematics², NRC Strategic Education Research Program,³ and the Education Quality Institute).

Three framing questions will be addressed in this study:

- **What are the principles of scientific quality in educational research projects and programs?**

To address this question, the committee will consider the nature of science, the nature of social science, and how the purposes, norms of inquiry, methods, and traditions of scientific work translate in the study of education. The committee will consider what scientific quality means both in individual research projects as well as in programs of research, to better understand how knowledge can be organized, synthesized, and generalized.

- **How can research-based knowledge in education cumulate?**

The apparently inconclusive evidence on “education effects” generated from different studies has fueled the frustration of many in the policy and practice communities who seek credible evidence to inform their work. Closely related to the first question, the Committee will pay particular attention to the mechanisms that support the accumulation of knowledge from scientifically-based education research—the organization and synthesis of knowledge generated from multiple investigations. The role of the professional research community, the practitioner community, and the federal government will be considered in this context.

- **How can a federal research agency promote and protect scientific quality in its education research projects and programs?**

Given its ideas about scientific quality in education research, and what influences the accumulation of scientifically-based knowledge, the committee will then consider the key design principles necessary for a federal agency to ensure the scientific integrity of the work it supports. Internal infrastructure mechanisms like peer review systems as well as external forces like political influence will be considered. Further, how the federal role can build the capacity of the field to do high quality work will be addressed.

Timeline and Deliverables

The schedule for the project follows:

2000	October	Contract awarded and project begins
	November	Study committee appointed
	December	First meeting (DC)

² See www.rand.org/multi/achievementforall

³ See <http://books.nap.edu/books/0309064899/html/>

2001	January	Second meeting (Stanford)
	March	Workshop/third meeting (DC)
	March/April	Workshop deliverables submitted
	April	Fourth meeting (CA)
	May	Fifth meeting with NAS/NAE members (CA)
	July	Final meeting (MA)
	July/August	Committee report into review
	September	Committee report released in pre-publication format
	September-December	Final publication release and dissemination