Evaluating the Efficacy of the Center for Education at the National Academies

Report to the Center for Education

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TABLE OF CONTENTS

Executive Summary

The Center for Education (CFE), a relatively new unit at the National Academies, was established in 1999 as an umbrella organization for standing boards and committees dealing with education within the Academies. One of the provisions of a 2001 National Science Foundation grant that provided five years of core support to the Center was the requirement that CFE evaluate its strategic plans, management and operations, and the impact of its activities and products. With the guidance of its board, CFE in collaboration with NSF created a framework to guide an external evaluation of the Center. This document constitutes an assessment of CFE by a team of researchers at the University of Chicago who conducted an independent, external evaluation of the Center. Using an integrative approach that combined both formative and summative elements (Stufflebeam, 2000, 2001), the evaluation was designed to: (1) identify how the CFE work portfolio has developed over time; (2) assess the impacts and influence of specific focal projects (activities) and products; (3) document the value added of CFE as an organizational entity; and (4) recommend how insights obtained through the evaluation be used to enhance CFE's ability to achieve its mission.

The evidence for this evaluation was derived from a mix of data collection and analytic methods, including: content analyses of internal documents; quantitative citation analyses of CFE focal products; content analyses of peer-reviewed publications citing CFE reports; internet research and analyses of proprietary World Wide Web (web) site usage statistics; and in-depth personal interviews with 73 CFE staff members, study directors, committee chairs and members, workshop participants, National Academies members, members of sponsoring organizations, and stakeholders, including policymakers, researchers, and media representatives.

The Center for Education

The Center for Education evolved from the vision of Bruce Alberts, former President of the National Academy of Sciences, who believed that the establishment of a Center would bring needed leadership and coherence to ongoing work in education at the National Academies. Prior to the establishment of CFE, education activities were organized by coordinating bodies, which appeared to be sufficient when relatively little work in education at the Academies was occurring. In the 1970s and 1980s education was not viewed as a bona fide target of scientific inquiry; however, the Academies did engage in significant work on psychological testing with applications to educational testing. This emphasis on testing was expanded in the 1980s with projects on performance assessment in the workplace, including issues of training, education, and the measurement of the cognitive capacity of individuals. Another interest of the Academies at the time was in the content area of mathematics education as exemplified by the creation of the Mathematical Sciences Education Board in 1986.

Under Alberts' leadership, activities in education greatly expanded, and several new initiatives were undertaken. Alberts endorsed the idea that there is a science of education and that the Academies had an important leadership role in formulating what that meant, paying particular attention to the quality of science and mathematics education, K-12. In essence,

Alberts' vision and active role in educational activities became one of the catalysts for the establishment of CFE, the other being the National Science Foundation (NSF). NSF was also interested in supporting the continued development of a knowledge base in mathematics and science education, and scientific research focused on teaching and learning.

In 2000, the newly-established CFE created a strategic planning committee to define its mission and critical priorities. Five major organizational objectives emerged from this process:

1. **To promote evidence-based decision making** in education policy and practice.
2. **To enhance capacity** for educational improvement.
3. **To anticipate and respond to stakeholder needs** through objective, independent, and interdisciplinary attention to education problems and the search for viable solutions.
4. **To foster synergy** across fields on education problems.
5. **To advance equity** in all aspects of education and in all CFE studies.

These objectives became the cornerstone for a proposal to the NSF resulting in five years of core support to the CFE beginning in June of 2001.

Organizationally, CFE activities are currently overseen by a standing board that meets twice a year and coordinates the activities of four constituent boards: The Board on Science Education, the Board on Testing and Assessment, the Mathematical Sciences Education Board, and the Teacher Advisory Council. The Center also provides direct oversight on activities falling outside the mission of its standing boards. CFE's executive office oversees the activities of the Center, including 10-15 active project committees, the ongoing work of its standing boards, and several new development initiatives. Martin Orland is the current director of CFE; he was preceded by Michael Feuer, who now heads the Academies' Division of Behavioral and Social Sciences and Education.

Evaluating CFE's Portfolio

Converging evidence indicates that CFE is fulfilling an important role both within the National Academies and in the field of educational research, policy, and practice. Alberts' vision of an entity within the National Academies that would provide leadership, collaboration, and coordination among various units undertaking education-related projects is actively being pursued.

The Center is having success in coordinating the efforts of various boards within the Academies, and many of the activities undertaken by CFE are monitored by multiple boards. The number of education activities with multiple oversight increased from 3 (13%) of the projects still active when CFE received core funding to 12 (29%) of the projects CFE initiated between July 2001 and June 2005. CFE projects target a wide variety of audiences, including policymakers, researchers, and practitioners. Over three-fourths of CFE projects target multiple audiences, indicating that the Center is addressing its objective to "foster synergy across fields."

The Quality, Impact, and Value Added of CFE's Work

Several methods were employed to document the quality and impact of CFE's work. The evaluators worked with CFE staff to identify a small, purposeful sample of activities to explore in-depth, with particular attention to how intended audiences perceive the quality, relevance, and usefulness of its projects. CFE identified five categories of activities ("threads") representative of major substantive themes running through the Center's work as it evolved over time, and clearly linked to both issues addressed by CFE's standing boards and the program strands described in CFE's original proposal for core funding: assessing special needs populations; cognition and assessment; research in education; student learning in mathematics and science, preK-12; and research into practice.

To represent the scope of CFE activities, seventy-three in-depth interviews were conducted focusing on the *quality of the evidence* used in each activity, the *perceived strengths and weaknesses* of CFE activities, the *nature of efforts to disseminate information* about projects and products, and the *overall impact of CFE activities*. Individuals representing study directors, committee members, workshop participants, stakeholders, sponsoring organizations, and CFE staff provided their assessments and impressions of CFE activities and products.

The ability of the Center to produce synthetic studies that are held in high regard across disciplinary and ideological divides was cited as a major strength of the National Research Council (NRC) in general, and CFE in particular. Although definitions of "evidence" vary, the vast majority of respondents reported that the evidence considered by committees and used in reports was "balanced" and of "high quality." CFE was consistently recognized for a portfolio of work that builds on past activities and takes scientific principles seriously. For many of those interviewed, CFE's charge was seen as forging a "science of education" by bringing evidence-based models of learning and cognition to bear on educational issues of national importance.

Respondents indicated that CFE's central location within the NRC is one of its primary assets. CFE profits from the reputation and resources of the NRC, including an unmatched pool of expertise, a rigorous process for producing documents that are objective and authoritative, and a unique role in American society. The work of the Center was seen as maintaining the same high standards of the NRC while bringing together a diverse group of appropriate expertise for the questions being explored.

The vision of CFE as an entity within the National Academies to provide leadership, collaboration, and coordination among various units undertaking education-related projects is actively being pursued. Externally, the organization is viewed generally by committee members, stakeholders, and sponsors as the one place they can turn for objective analyses of pressing educational issues that rely on high quality standards of evidence and interpretation. The role of CFE as an independently functioning organization under the umbrella of the National Academies was viewed as critical in vetting evidence regarding key educational problems that are often highly politicized. Internally, CFE was perceived as the place to turn

to within the Academies for expertise regarding educational issues and problems facing the nation.

The Impacts and Influence of CFE Reports

The evaluation plan called for in-depth analyses of the impacts and influence of the following five committee consensus reports: *Knowing What Students Know: The Science and Design of Educational Assessment* (2001); *Adding It Up: Helping Children Learn Mathematics* (2001); *Scientific Research in Education* (2002); *Learning and Understanding: Improving Advanced Study of Mathematics and Science in U.S. High Schools* (2002); and *Understanding Others, Educating Ourselves: Getting More from International Comparative Studies in Education* (2003). A citation analysis of peer-refereed journals using the Institute of Scientific Information (ISI) Web of Knowledge Indexes and Journal Citation Reports, and content analyses of the journal articles that cite the five focal reports show that four of the five (*Adding it Up*, *Knowing What Students Know*, *Learning and Understanding* and *Scientific Research in Education)* appear to be having a broad and deep academic influence as judged by the variety and quality of the journals which cite them.

Additional analysis of journals that cited *Scientific Research in Education* was also conducted. It appears that this report is playing a central role in the general discussion of the future of educational research. On the positive side, the report is most typically used to explicate how educational research can be improved. Less frequently, authors criticize the narrowness of the reports' reliance on science as a guiding principle for research and scholarship in education. Authors taking a more neutral perspective tend to view the report as drawing attention to a lack of standards of evidence in educational research. Judging by the attention it has received in a wide range of standard academic journals, *Scientific Research in Education* appears to be having a particularly strong and deep impact within schools and colleges of education and the educational policy community.

CFE's publications are among the top selling reports of the Academies. Internal CFE documents indicate that CFE products have influenced national legislative proposals, the deliberations of panels reviewing proposals for federal research funds, accountability programs, the agendas of sponsoring agencies and major professional associations, and curriculum and practice from the local school to university levels. These impacts underscore the critically important role Center staff play in networking with CFE target audiences and with committee members who may also maintain contact with key target audiences after reports are released.

The area most consistently identified by respondents as meriting additional attention was the dissemination process. Respondents noted that sufficient funding was not available in most grants to warrant a formal dissemination strategy for CFE products. However, when citing successful dissemination efforts, the evidence suggests that specific dissemination budget items were available. CFE generally relies on the usual NRC dissemination practices, which may be inadequate in a discipline with few lines of communication among researchers, practitioners, and policymakers. The website was mentioned as both a primary and secondary point of contact with CFE products. "Word of mouth" was also viewed as a powerful

distribution tool, but several individuals noted that one would have to be part of a knowledgeable education network or be closely connected to CFE to learn about some of the reports. Several respondents thought that more needed to be done here; others questioned whether a more active dissemination role really is the Center's job.

Recommendations

CFE is serving to enhance the quality of evidence available to examine educational issues, in part through adherence to the same high quality standards and procedures that characterize other work undertaken at the National Academies, and the National Research Council in particular. Responding to the concerns of the government is a central part of CFE's mission; however, part of that mission also should be assisting others in articulating and defining what the issues are, are likely to be, and mechanisms for resolving them. There are additional steps CFE can take to further enhance the impacts and influence of its work, and the value added of the Center. To do so, we make the following five recommendations:

1. **Protect CFE's role in promoting core principles of scientifically-based educational inquiry and producing high quality reports based on rigorous evidence.**

The Center for Education has a distinctive role in bringing high quality evidence to bear on educational issues and synthesizing that evidence into unbiased reports that are informative and useful. Given its unique role, it is imperative that the Center continue to take on a leadership function in building a "science of education" that encompasses but is not limited to collaborative, coordinating, and convening activities.

2. **Seek a mechanism whereby CFE could be endowed as an independent self-sustaining entity within the National Research Council.**

CFE would benefit greatly from an endowment that would allow it to address a priority list of the most significant questions that need to be answered about education in the U.S. This could be accomplished in consultation with those who are currently leading and administering educational organizations at all levels. An ideal funding alternative would be the establishment of an endowment within the National Academies for CFE's organizational core support. Such an endowment is critical because it would allow CFE to engage in more long-term planning activities. Second, it would make the organization less dependent on one funder thus giving it more flexibility in setting its own agenda. And third, it would allow the organization to hire and retain high quality staff and build a sound infrastructure that could efficiently tackle pressing educational issues.

3. **Create a clearer identity within the National Academies and make the Center more visible externally.**

One method to increase CFE's visibility would be to develop publications (e.g., a newsletter) to inform the public about CFE's agenda or a series of public meetings or workshops that are clearly identified with the Center. CFE could also approach the National Academies Press

with specific ideas for creating hyperlinks on the NAP website to increase the visibility of the Center in relation to its products.

4. Continue to collaborate and coordinate with units within the National Academies.

It is imperative that the Center continue its collaborative activities, institutionalizing information sharing sessions within the Academies and preparing newsletters or other documents that highlight past, ongoing, and about-to-be initiated activities that could be shared both internally as well as externally within the larger education field. Better collaboration externally might also require some internal reorganization in terms of establishing clearer lines of responsibility and tighter definitions of job roles. Several staff commented on the benefits of a more coherent infrastructure. Building a community of shared goals and clear lines of responsibility would benefit the organization. Several CFE staff are recognized for excellent service to the field in specialized areas. The challenge for the future is having a more team-oriented approach. Such an approach would involve further coordinating the work of the boards, which also, some remarked, function independently and without deep knowledge of other boards' activities.

5. Develop a coherent dissemination strategy that includes financial set-asides at the initiation of convening and consensus activities.

Dissemination is key to influencing the field and thus CFE would benefit from a larger intellectual and capital investment in communication activities. More organizational emphasis on "marketing" probably would require additional staff and a greater financial commitment from sponsors. Short of developing a full-blown marketing strategy, CFE should involve committee members more in the development and execution of dissemination plans. This would have the dual benefit of involving little extra cost and also tapping into the extensive networks that many committee members already have in place. Dissemination is not just getting the word out, it also carries the burden of ensuring that individuals use the information they obtain. It would be worthwhile to establish a committee that could address how CFE should document the use of its reports.

Research into practice is a relatively new and consequently underdeveloped area of work for CFE. In strategizing future activity in this area, CFE needs to: (a) consider the best mechanisms for disseminating research to non-academic audiences; (b) connect the research more strategically to classroom practice; and (c) recognize the importance of distilling and synthesizing key findings for practitioners. CFE should consider the development of standards for professional training for implementing research at the classroom level. The field of education appears to be searching for an evaluative body to set standards of research evidence and professional development. This is a role CFE should consider as they have no vested interest in a particular set of activities or programs.