SCIENCE ASSESSMENT MEETING PROCEEDINGS
JUNE 18-19

EXECUTIVE SUMMARY

Meeting Description

On June 18-19, 2004, the Mathematics and Science Initiative (MSI), Office of the Secretary, U.S. Department of Education (ED), conducted an invitational meeting focusing on state science assessments. The meeting was held in Boston in cooperation with the Council of Chief State School Officers. This executive summary provides a brief overview of the meeting, the overarching themes that emerged from the discussions, and an outline of next steps and recommendations. The proceedings provide a more detailed account of the various perspectives presented during the course of the day. Additional information about the meeting includes proceedings, an agenda, a list of participants, and background readings. To discuss this meeting in more detail, contact Scott May at scott.may@ed.gov, 202-441-7370 (cell), 202-401-6150 (ED) or Mike Snyder at mike.snyder@ed.gov, 202-401-0245 (ED).

Attendees represented the following groups: (1) state assessment directors; (2) testing companies, including those that may be subsidiaries of or affiliated with curricula and textbook publishers; (3) cognitive researchers and psychometricians; and (4) scientists and engineers. Representatives from a number of other organizations attended as observers. There were 44 attendees at this meeting.

The objective of the meeting was to discuss the forthcoming state science assessments required by 2007-2008 under the No Child Left Behind Act (NCLB) and how to help states implement high quality tests that contribute to effective science instruction.

Participants exchanged ideas about state science assessments, what is working, barriers to improving the tests, how to overcome these barriers, and the current state of research on assessment. Participants shared their experiences with state science assessments and provided direction on ways to ensure that the state assessments required under NCLB contribute to good science learning in every state.

Overarching Themes

Throughout the meeting, several major themes emerged about state science assessments. These included:

- Many states face a significant challenge in developing statewide tests as required by NCLB, and yet this challenge provides an opportunity to incorporate state of the art assessment strategies.

- The existing system for creating statewide assessments in the United States is complex and disorganized. Each state develops its own assessment systems, and most of the work is done by a small number of private sector contractors. If greater collaboration can be fostered among state assessment directors, the research community, and test publishers, then a more efficient system is possible.

- States have adopted content standards to which the tests need to be aligned. The challenge is to determine what content is most important for science assessment to measure, given the multiple years of curriculum covered by the grade spans allowed under NCLB. Good assessment systems, characterized by an alignment to the content standards, can have a tremendous impact on what is taught in the classroom. Conversely, poorly constructed tests can misguide classroom instruction.

- Advances in our understanding of assessment from cognitive research and pyschometrics should be more widely applied in state assessment practices.

- States have different ways of developing items for the science assessment, and the process of alignment with standards is complex. The assessment process, in particular, the development of test items, may need to involve a wide range of individuals, including teachers, researchers, and content specialists. It is generally understood that there is a lot of complexity in developing high quality items, and more attention and thought need to go toward improving the item development process.

Recommendations and Next Steps

At one point in the meeting, the researchers, the state assessment officials, and the publishing company executives each met separately to provide practical suggestions about how to develop high quality science assessments. Their suggestions are summarized in the "Breakout Section" of the proceedings.

The following activities were recommended by the group as a whole to improve the quality of science assessments:

- Develop a science assessment toolkit for states that would collect useful information, syntheses of current research, and best practices. ED staff agreed to explore funding options for the development of this toolkit.

- Support professional development programs for state assessment staff and assessment development personnel at testing and publishing companies.

- Support collaboration with researchers, testing company experts, and content specialists through forums, workshops, online media, just-in-time study groups, and other strategies to be determined so that they are better able to deal with the challenges associated with developing and implementing state science assessments.

The recommendations are described in more detail in the "Strategies for Helping States" section of the proceedings.