

USING FORMATIVE EVIDENCE AND FORMAL COLLABORATION TO EVALUATE AND IMPROVE THE EFFICACY OF AN MSP/RETA PROJECT

Jay Labov and Janet Garton¹
Center for Education, National Research Council
Washington, DC

Nancy Shapiro and Patricia Maloney
University System of Maryland
Adelphi, MD

Overview

The National Research Council and the National Science Resources Center have been awarded a three-year MSP/RETA grant for *Facilitating Mathematics and Science Partnerships*. The primary objective of this project is to provide a series of workshops that will assist the NSF's Mathematics and Science Partnership (MSP) Comprehensive and Targeted grant awardees, future applicants, and members of the staff of NSF and the Department of Education in improving K-16 STEM education programs through the MSP initiative. The content of these workshops has focused on recent education reports published by the National Academies that are directly relevant to the work being conducted by the leaders and participants of the MSP projects. As a result of feedback from participants through a formative evaluation process utilizing an external evaluator, the workshops have changed over time to more actively engage participants and model how the principles of learning might be best applied to adults. Data on workshop participants and formative evaluations provided by an external evaluator through June 2004 are presented below.

As part of the NRC's commitment to develop a summative evaluation, in addition to a formative evaluation for this project, our RETA project is collaborating with a University System of Maryland's (USM) MSP project that is looking broadly at how the knowledge and understandings gleaned from the MSP projects become embedded in the culture of higher education. The USM's CASHÉ (Change and Sustainability in Higher Education) project is examining institutional change in higher education that has come about as a result of the MSP national effort (see description below). Current plans for conducting this summative evaluation are detailed below.

An important goal of our joint presentation will be to solicit input from symposium participants about additional questions that should be investigated in this collaborative project.

¹ To whom requests for information should be directed. E-mail: jagarton@nas.edu;
Telephone: (202) 334-2722

Description of the NRC/NSRC Project

The Center for Education² (National Academies) and the National Science Resources Center (National Academies and Smithsonian Institution)³ have developed a series of workshops to help MSP grantees and future applicants improve K-16 STEM programs. The content of the workshops builds on recent NRC and other recent seminal research and reports on K-12 and higher education in a variety of topics. By the conclusion of the workshop series in October, 2005, MSP grantees will have had the opportunity to explore the research literature, and its implications and applications, on

- Improving Student Learning and Achievement in Mathematics And Science (3 workshops)
- Assessing Student Learning (2 workshops)
- Teacher Education (both pre- and inservice) (2 workshops)
- Challenging Courses And Curricula (2 workshops)
- The Role of Faculty and Institutions of Higher Education In Partnerships With K-12 Schools And Districts (2 workshops), and
- “Making the Transition: What Do We Want to Sustain from MSPs and How Do We Do That?” (1 workshop)

Through interactive presentations and close interactions with experts (including many members of the committees that have authored NRC reports or boards that oversee science and mathematics education within the NRC) on specific topics, breakout and extended concurrent sessions, and facilitated discussions, participants have multiple opportunities to gain a deeper understanding of the research evidence contained in these reports and the implications and applications of that research to education policy and practice. Workshop participants also have opportunities to learn about emerging effective practices in K-16 mathematics and science education programs that are based on this evidence, and teams are given time to discuss among themselves and with workshop presenters how to adapt these findings to their overall project designs and implementation work (see Appendix 1 for a sample workshop agenda and Appendix 2 for examples of discussion questions that MSP teams are asked to consider during and after workshops).

A total of 12 workshops are being offered during the period of the award from NSF. All participants receive either CD-ROMS containing a compendium of up to 22 NRC reports that are related to the topic(s) being considered at a particular workshop, or NRC books. They also receive an electronic briefing book prior to arriving for a workshop.

The project is also producing an electronic *Proceedings* for each of the workshop topics described above. These reports will provide nearly verbatim transcripts of all plenary presentations and discussions, PowerPoint presentations of speakers, and other resources (e.g., workshop agendas, participant lists, biosketches of speakers and steering committee

² Additional information about the Center for Education is available at <http://www7.nationalacademies.org/cfe..>

³ Additional information about the National Science Resources Center is available at <http://www.nsrconline.org/>

members, and handouts and references that were distributed during the workshops). Readers will navigate through each *Proceedings* through an extensive series of hyperlinks. The first two *Proceedings* on Improving Student Learning and Assessment of Learning will be posted shortly on MSPNet.

Formative Evaluation of the Project

To assess the effectiveness of program activities and their impact on the MSP projects, the members of the steering committee for the project, NRC and NSRC staff, and an external evaluator (Study Group, Inc., North Carolina) have developed and undertaken an ongoing process of formative evaluations of this initiative. These evaluations have been focused on data obtained from workshop participants through focus groups that have met several times during our earlier workshops as well as web surveys and telephone interviews conducted by the external evaluator with selected participants up to several months after they had attended a workshop. In all cases, the identities of those who volunteered for the focus groups or subsequent activities were not revealed to the project's steering committee or staff.

The steering committee typically met after the first workshop on a particular topic to debrief on the workshop in question and to plan for the next workshop(s) on the topic and for upcoming workshops on new topics (since workshops were offered approximately every other month, with workshops on the same topic separated by 4-6 months, planning and review of workshops was an ongoing process). For many of these meetings, the external evaluator met with the committee to provide initial findings and recommendations from a focus group and then provided a more substantive report several weeks later. The external evaluator also participated in several conference calls that members of the steering committee held between workshops.

The evaluator also joined many of the conference calls that were scheduled several weeks before each workshop in 2003 and 2004 so that the presenters and facilitators could share (and often modify) their ideas for presentations. She would provide an overview of her findings from previous workshops; this feedback was very useful in alerting the presenters and facilitators to features of presentations that participants both found useful or disliked. This process also helped clarify and connect the presentations to provide more cohesive workshops.

Finally, the external evaluator analyzed our data about individual participants and MSP projects that were participating in these workshops. These data (samples of formative data are provided in Appendix 3) allowed the workshop steering committee and project staff to better understand the reach of our project to other MSPs and to establish indirect measures of our success (e.g., the percentage of MSPs that participated in the workshops, the number of projects that sent teams to two or more workshops, aspects of workshops that participants found most useful for their own projects).

As a result of feedback from participants through this formative evaluation process, our workshops have changed significantly over time to more actively engage participants and

model how the principles of learning might be best applied to adults. For example, more recent workshops have devoted far more time to breakout and concurrent sessions and less time to plenary sessions than earlier workshops. There is a much greater emphasis on engaging participants in discussion and interactive activities. More time is now given to discussion time with workshop presenters and facilitators. Indeed, the external evaluator noted in several progress reports that people who have attended both earlier and more recent workshops have noticed the changes and expressed appreciation that the projects' overseers paid a great deal of attention to their comments and suggestions in making later workshops much more useful for them.

Summative Evaluation of the Workshop Series

Although the ongoing formative evaluation process has proven extremely helpful in improving the quality and usefulness of the workshops themselves, it is equally important for those associated with the project and the MSP directors at NSF to understand whether these workshops have had any longer lasting impact on individual MSP projects and on the initiative as a whole, and if so, how the workshops might have contributed to the work of the Comprehensive and Targeted projects.

The NRC traditionally has enjoyed good working relations with and has commanded the respect of the higher education community. Faculty in both mathematics and science, and administrators from institutions of higher education have been well represented at our workshops. Indeed, our two workshops on The Role of Faculty and Institutions of Higher Education in Partnerships with K-12 Schools and Districts was not part of our original plans for workshops but were developed after discussions with several higher education faculty who attended some of our earlier workshops.

A hallmark of the MSP initiative is its requirement that higher education faculty in mathematics and science and their institutions be active partners in a project. How these faculty have participated and contributed to MSPs is therefore of great interest to this initiative in particular, but also for planning other large-scale initiatives to improve mathematics and science education in the future.

Thus, our steering committee and outside evaluator agreed that a summative evaluation of our project's reach and influence on higher education within MSPs would be beneficial to all concerned. When the USM/MSP received a supplemental grant from NSF to examine the role of higher education in MSPs and other NSF-funded projects (see detailed description in the following section), the path was established for a collaborative effort between our two projects to focus on the contributions of higher education faculty and institutions to improving science and mathematics education within MSPs.

Description of the CASHÉ Project

The CASHÉ project (Change and Sustainability in Higher Education), housed at the University System of Maryland, is conducting a three year-study of MSP projects at institutions of higher education (IHEs) to document changes within higher education that focus on preparing the next generation of STEM professionals, preparing the workforce for the 21st century, and increasing the technological and scientific literacy of all Americans so they can exercise responsible citizenship in an increasingly technological society.

CASHÉ was established to measure one of the key features of the Mathematics Science Partnerships—that of change and sustainability—and its focus is on postsecondary teaching and learning. CASHÉ’s work will involve a close examination of selected MSPs and a survey of all projects, in order to identify evidence of meaningful changes in the way that institutions of higher education (IHEs) and faculty design and teach courses, interact with students, and learn from partnership experiences. CASHÉ will seek evidence through documentary analysis (including annual reports and other MSP materials), prior surveys and evaluators’ reports, site visits, and open-ended interviews. In the long term, the continuing participation of higher education mathematics, science and engineering faculty is critical to strengthening K-12 science and mathematics education. MSP projects work to improve the quality of the current and future STEM faculty and teachers through professional development and institutional change at all academic levels.

The CASHÉ project will focus on changes at the curricular, organizational and policy levels within higher education and seeks to identify exemplary models both within the MSP projects and in other national initiatives. An important goal of CASHÉ is to “*catch colleges and universities when they are doing something right,*” and to identify both intermediate and conclusive indicators that demonstrate or suggest how colleges and universities can successfully engage STEM faculty in activities that strengthen their roles as educators and supporters of K-16 science education.

As a starting point the project will be guided by several global questions:

- How can we identify and assess the impact that MSPs have had on the institutional culture of colleges and universities?
- How do sources of evidence of institutional change vary across different types of institutions?
- What tools and instruments exist to evaluate and identify institutional change at higher education institutions?
- Which characteristics of MSPs contribute to sustaining STEM faculty involvement with K-12 science and mathematics education? What characteristics do successful MSPs have in common with other efforts that have fostered sustainable change within higher education?

Relationship Between the NRC and CASHÉ

Although the NRC workshop program was established well before the CASHÉ project started, the goals of the two projects are closely related. The NRC workshops are organized around the key features of the MSP mission and NRC has been charged with bringing MSP projects together for the purpose of probing and sharing the knowledge gathered from research and experience and catalyzing change. CASHÉ has been charged with analyzing and documenting how well that process is working.

An important positive outcome of the NRC workshop series is the creation of a national “learning community” of scientists and mathematicians who have made science and math education a priority within their personal and professional lives. The NRC workshops offer a ready-made subset of MSP projects for close examination, projects that have taken advantage not only of the initial NSF funding, but of the considerable investment NSF has made in the collateral support for the projects through these workshops and RETAs. CASHÉ will look at this subset of MSPs and compare them to others in an attempt to evaluate the impact of the NSF investment in the learning community model of knowledge dissemination. Margaret Mead wrote: “Never doubt that a small group of thoughtful, committed citizens [read: “teachers”] can change the world; indeed, it's the only thing that ever has.” CASHÉ is seeking to capture and document the commitment and change brought about by the MSPs

APPENDIX 1
SAMPLE EXPANDED AGENDA FOR A RECENT NRC WORKSHOP

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

NATIONAL RESEARCH COUNCIL
NATIONAL SCIENCE RESOURCES CENTER

MATH/SCIENCE PARTNERSHIPS WORKSHOP
Focusing on Higher Education in Mathematics and Science Partnerships

The Keck Center, 500 Fifth St., NW, Room 100
Washington, D.C.
June 26-28, 2005

Expanded Agenda

June 26-- Sunday

1:00 OPENING REMARKS

Jay Labov, Senior Advisor for Education and Communications, National Research Council
Melvin George, Chair, NRC Steering Committee
Elizabeth VanderPutten, Program Director, National Science Foundation

OVERVIEW OF THE WORKSHOP

1:30 UNCOOKING THE LAB

Sarah Lauffer, Co-Director, HHMI New Generation Program for Scientific Teaching, University of Wisconsin-Madison

The goal of this session is for participants to experience a traditional, "cookbook" lab and compare it to an inquiry-based "uncooked" lab for introductory biology. Participants will engage in a lab about bacterial ice nucleation, a phenomenon that is generally unknown to undergraduates. Printed materials will be distributed. In addition, participants will leave the workshop with ideas for "uncooking" their own labs.

3:30 BREAK

3:45 “SCIENTIFIC TEACHING”: BRINGING THE CULTURE AND APPROACHES OF SCIENTIFIC RESEARCH TO TEACHING AND LEARNING

Jim Gentile, President, Research Corporation

Sarah Lauffer, Co-Director, HHMI New Generation Program for Scientific Teaching, University of Wisconsin-Madison

This session will focus on concepts presented in a 2004 issue of “Science” magazine (Science, vol. 304, issue 5670, 521-22, 23 April, 2004). The article discusses reform in science education, why it hasn’t happened on a large scale, and how to push the movement forward. This session, led by two of the authors, will address these issues and make the case for scientific teaching. (See Briefing Book CD-ROM, Background Reading, Resource1.doc)

5:15 MSP TEAMS MEET WITH FACILITATORS

6:00 Adjourn for the Day and Shuttle Bus to Holiday Inn Central and 15ria Restaurant

6:15 CASH BAR RECEPTION

6:45 WORKING DINNER FOR ALL PARTICIPANTS AT 15 ria

June 27 -- Monday

7:45 FULL BREAKFAST

8:15 FACILITATED DISCUSSION: WHERE HAVE WE BEEN IN IMPROVING UNDERGRADUATE STEM EDUCATION: WHERE DO WE STILL NEED TO GO?

Melvin George, President Emeritus, University of Missouri, and St. Olaf College

Brad Kincaid, Professor, Biology, Mesa Community College

Jim Gentile, President, Research Corporation

Amy Chang, Director, Education Programs, American Society for Microbiology

This session will focus on what we have learned from the past decade or so of efforts by many people and groups to transform undergraduate STEM education and how that learning should influence future efforts, including the work of the MSP's. Panel members will make brief presentations and engage participants in discussion about next steps in trying to insure that ALL students have an opportunity to learn challenging mathematics and science that will prepare them to live productively in the years to come.

10:00 **BREAK**

10:15 **FACILITATED DISCUSSION: FINDING COMMON GROUND
BETWEEN IHE AND K-12 EDUCATORS: EXAMPLES OF
IMPLEMENTATION**

**Jerry Gollub, (Member, National Academy of Sciences) Professor,
Physics, Haverford College**

**Stephen Pruitt, Education Program Specialist, Georgia Department of
Education**

**Dorothy Zinsmeister, Associate Project Director, University System of
Georgia**

**Alexander Norquist, Assistant Professor, Chemistry, Haverford
College**

**Gail Fairchild, Mathematics Teacher, Academy Park High School,
Pennsylvania**

The successful functioning of the MSPs depends on developing effective relationships between Higher Education and K-12 partners. Here we focus on examples of models that have been developed for these interactions. Alex Norquist and Gail Fairchild of the Greater Philadelphia MSP will describe a faculty seminar in which HE and K-12 teachers work side by side to explore improved methods of instruction in chemistry, physics, and mathematics. They will describe typical sessions, show example strategies, and discuss the strengths of this seminar, including monthly reports on the implementation of new methods in the classroom. They will also discuss limitations, such as scheduling difficulties and disconnects between pedagogical theory and classroom experience. Stephen Pruitt and Dorothy Zinsmeister of the Georgia MSP will describe a process leading to the development and implementation of definition documents and rubrics that have helped the Georgia MSP to improve communication and assess progress goals. We shall discuss the successes and limitations of these two models, and how to overcome problems of communication.

11:45 **LUNCH**

Each participant will receive a voucher for lunch in the Atrium cafeteria.

1:15 **CONCURRENT STRANDS ON DESIGNING EFFECTIVE COURSES,
ACTIVE LEARNING, AND ASSESSING STUDENT LEARNING
(Refreshments for Breaks will be available outside Room 100 as needed)**

- **A Practical Goals-based Strategy for Designing Effective and Innovative Courses**

**Robert Beichner, Alumni Distinguished Professor of Physics, North
Carolina State University**

*“I know I should be doing a better job in the classroom, but where do I start?”
Sound familiar? This session will present concrete answers to this question and*

describe how a goals-based approach to course (re)design was used to revamp classes at several dozen universities across the country.

- **Active Learning: From Brain to Practice**
Robin Wright, Associate Dean for Faculty and Academic Affairs,
University of Minnesota

Learning results in physical changes to the brain, as new synapses form or are strengthened, and others are weakened or removed. We can take advantage of what we know about the physiology of learning and memory to inform our classroom practice. In this session, we'll explore a variety of active learning strategies that take advantage of "brain chemistry" to promote engagement and long-term learning.

- **Assessment of Student Learning: What Kind of Data Are You Getting?**
Karen Oates, Provost and Vice President for Academic Affairs,
Harrisburg University of Science and Technology

This hands on session will help you to create an assessment tool to meet your specific course learning objectives. Through dialog and discussion of specific cases and examples we hope to develop an understanding of the level of knowledge and intellectual complexity (using a Perry scales or Bloom's Taxonomy categories) you believe students are acquiring in your class. From this we will devise an assessment tool to measure or assess what actually was achieved and at what level of complexity.

Bring a copy of one of your own assessment tools with you or you can use one of the tools provided. The workshop will be interactive and problem based.

4:15 MSP TEAMS MEET

Each member of the team shares what s/he experienced during the Monday afternoon sessions and how this information and perspectives might be applicable to their MSP projects.

5:00 Adjourn – Dinner on Your Own

June 28 -- Tuesday

8:00 FULL BREAKFAST –

8:30 FOSTERING QUALITY PROFESSIONAL DEVELOPMENT: LESSON STUDY AS A WAY OF CULTIVATING COLLABORATIONS BETWEEN K-12 AND HIGHER EDUCATION

Emily Borda, Assistant Professor, Chemistry , Western Washington University

**Benjamin Fackler-Adams, Chair, Physical Sciences Department, Skagit
Valley College
Don Shepherd, Science Teacher, Sehome High School, Washington**

1

This session will focus on a model of professional development called lesson study that has been used in this instance to foster collaborations between K-12 and higher education teachers. Lesson Study is a process in which a team of teachers collaboratively plans a lesson which one of them teaches and the others observe. The lesson is then debriefed and revised, based on the evidence collected during the observations. This active, research-based approach to teaching has been adopted by K-12 as well as higher education teachers as part of the North Cascades and Olympics Science Partnership. Speakers will describe the lesson study model and the K-12/higher education collaborations that have evolved out of this process. Be prepared to volunteer a member of your team to participate in the lesson study experience!

10:15 BREAK

10:30 TEAMS MEET TO DISCUSS WORKSHOP QUESTIONS, APPLY WHAT THEY HAVE LEARNED TO THEIR OWN PROJECTS, AND DRAFT A FRAMEWORK OF ACTION.

Teams plan next steps in involving more higher education STEM faculty in MSP activities.

11:15 MSP TEAMS REPORT THEIR PLANS TO SHARE WITH THE GROUP

12:00 Committee Reflections and Participant Discussion

12:30 Lunch and Adjourn

APPENDIX 2
SAMPLE GOALS AND OBJECTIVES AND DISCUSSION QUESTIONS FOR
MSP TEAMS PARTICIPATING IN AN NRC/NSRC WORKSHOP

Focusing on Higher Education in Mathematics and Science Partnerships
June 26-28, 2005

Goals and Objectives

The goal of this workshop is to assist MSP teams in exploring practical ways to stimulate and enhance the involvement and contributions of Institutions of Higher Education in partnerships. This goal will be addressed by 1) introducing workshop participants to the expanding body of research evidence and applications of that evidence for improving undergraduate learning, assessment of learning, and teacher education and professional development, as synthesized in National Research Council reports; 2) exploring the roles of disciplinary faculty, departments, and higher education institutions in developing more effective teachers of science and mathematics at both the K-12 and undergraduate levels; and 3) examining how K-12 partners in MSP can enhance teaching, learning, and teacher education programs through their work with colleagues in higher education. While this event will emphasize ways in which college-level faculty and institutions of higher education can enhance learning for their own students and become more effective partners within their MSP projects, the voices and perspectives of K-12 partners will be critical to all aspects of the workshop.

These goals will be addressed through a combination of plenary sessions, discussions, and interactive engagement with experts, some of whom have served on the authoring committees for NRC reports; three-hour concurrent sessions in which attendees will be able to focus more deeply on aspects of learning, assessment, and teacher education and professional development; and through time reserved for MSP teams and facilitators to discuss with each other what they have learned throughout the workshop and how those concepts can be applied to their own partnerships.

-- Continued on next page --

Discussion Questions
for
Focusing on Higher Education in Mathematics and Science Partnerships
June 26-28, 2005
Washington, D.C.

When you return home:

1. *What* do you wish to bring back to BOTH your K-12 and higher education colleagues in your MSP project from this workshop regarding the role of higher education partners in your project?
2. *Where* will you start? At what level(s) must these conversations begin with different contributors to your partnership? What will you emphasize?
3. *Who* in your MSP must be involved next to move these plans forward? (Remember, consider both K-12 and higher education partners)
4. *How* must they be involved?
5. *What* mechanisms will your team employ to engage them?
6. *What barriers* do you anticipate? How will you overcome them?

APPENDIX 3

EXAMPLES OF FORMATIVE DATA PROVIDED BY THE NRC/NSRC PROJECT'S EXTERNAL EVALUATOR

Participant Assessment of the Quality and Usefulness of the MSP Workshops – July
2003-December 2004

Background

The National Research Council (NRC) and the National Science Resources Center (NSRC) of the National Academies are conducting a Mathematics and Science Partnerships (MSP) Workshop Series for National Science Foundation (NSF) MSP grantees and state education agency (SEA) administrators involved with the mathematics and science partnership program sponsored by the U.S. Department of Education. NSF sponsors the Workshop Series under its MSP Research, Technical Assistance and Evaluation (RETA) Program.

More than 160 MSP staff, partners, SEA administrators, and NSF and ED staff attended one or more of five workshops held between July 2003 and June 2004. The National Academies asked The Study Group Inc. (TSG) to collect outcome (summative) evaluation data from participants in the first five workshops in the Series that would:

1. Confirm the overall quality of the workshop activities, speakers, materials and resources.
2. Find out how participants are using the insights, information, resources and materials they gained through the workshops in their own projects.
3. Inform the project staff and Steering Committee on refinements called for to increase the value and usefulness of the Workshop Series in 2005.

MSP Workshop Series 2004 Survey

TSG collected the outcome data through a MSP Workshop Series 2004 Survey, which TSG administered online in December 2004. TSG evaluation staff made three attempts to reach every one of the 157 workshop participants for whom the National Academies provided contact information. TSG reached 143 of these individuals and invited them to complete the online survey.

This evaluation memorandum reports the results of the MSP Workshops Series 2004 Survey. The survey data are displayed in Attachment A. All responses to open-ended questions are written verbatim. The audiences for this report are the National Academies' staff and Steering Committee along with NSF as the sponsor of the MSP Workshop Series.

Respondents

Fifty-six (56) workshop participants completed the survey. This is a response rate of 39%. TSG tracked survey responses and made two attempts to encourage workshop participants to respond. Seventy-three percent (73%) of the respondents are associated with NSF-sponsored MSPs. Thirty-percent (30%) work in higher education institutions; 39% work in State, regional or local K-12 settings. Seventy-nine percent (79%) of the 56 participants responding to the survey attended only one workshop in 2003 or 2004; 21% attended two workshops.

Between 70% and 80% of the survey respondents reported that they attended the MSP workshops to:

- Deepen their understanding of the research on the topic.
- Interact with researchers and other experts in the topic.
- Find researchers and experts to work with their own projects.
- Find tools, resources and best practices for their own projects.

Respondents were much less likely to attend a workshop to learn more about the NSF and ED MSP programs.

Participant Assessment of Workshop Quality

Participants in the MSP Workshop Series between July 2003 and June 2004 rated the overall quality of the individual workshops highly. For example, 58% of survey respondents reported that the workshops either met or exceeded their expectations. Another forty-two percent (42%) replied that the workshops met some of their expectations. Presentations that were seen as frequently rushed or lecture-based were the most frequently mentioned reason for a workshop not meeting participants' expectations.¹

Seventy-seven percent (77%) of the workshop participants responding to the survey rated the value of the Workshop Series as a professional development experience as either excellent or very good. More than 70% of the respondents also rated the following workshop features as either excellent or very good:

- Clarity of workshop goals and objectives.
- Significance of the research.
- Usefulness of resources.
- Accommodations and meals.
- Facilities.
- Helpfulness of the staff.

Workshop features where respondents' ratings appear to allow room for improvement (i.e., less than 70% of respondents rated the feature as excellent or very good) include:

¹ The National Academies is aware of this criticism and has taken numerous steps in constructing recent workshop agenda and briefing speakers to avoid traditional lecture techniques

- Quality of workshop presentations.
- Relevance of effective practices.
- Balance of time spent in whole group and breakout sessions.
- Balance of time spent on the research vs. effective practices.
- Time to meet and reflect as a team.²
- Opportunities to meet colleagues from other projects.³

Seventy-five percent (75%) of the workshop participants responding to the survey reported that they will recommend the workshops strongly to their colleagues. No one declined the opportunity to recommend the workshops. Reservations about recommending the workshops to others centered on the lecture orientations of initial offerings and the “academic” nature of some presentations, which lacked a direct application to practice (see open-ended responses to questions 15).

In a similar vein, 52% of survey respondents registered their intention to attend a future workshop; another 46% want to attend another workshop but are uncertain given time, location and financial resources. Only 2% of respondents reported not wanting to attend a future workshop.⁴

Participant Use of Research, Resources and Effective Practices Highlighted in the Workshops

Participants are using the research, resources and effective practices highlighted in the MSP Workshop Series. The most frequently reported application of the research presented in the workshops is in the design of professional development programs (i.e., 70% of survey respondents reported this application). Fifty percent (50%) or more of respondents report also using the research to inform the design of future project activities in general or to guide the evaluation of project activities. The frequency with which respondents are incorporating the research into K-12 or higher education courses is much less (i.e., less than 15% of respondents reporting this application).⁵

It appears that the resources and effective practices demonstrated in the workshops are highly useful to participants in their own projects. More than 70% of survey respondents indicated that they already or plan to:

- Share NRC research reports (highlighted in the workshops) with colleagues and use them in project activities.
- Incorporate the effective practices presented in the workshops into their own projects.
- Continue to interact with experts met through the workshops.

² On a five-point scale from excellent to poor. See Attachment A, question 8.

³ Time to meet as a team and opportunities to meet colleagues from other projects are not reasons why the majority of respondents attended the workshops (see Respondents).

⁴ See responses to question 17.

⁵ Open-ended responses to question 12 to which 42 of 56 participants contributed describe how individuals are using the research, effective practices and resources presented in the workshops.

- Continue their team discussions around the workshops topics.
- Order additional National Academies' products and publications.

Participant Suggestions for Improving the MSP Workshop Series

The overall reaction of participants is extremely positive. However, survey responses did point toward three areas of improvement.⁶ These areas are the:

- Quality of individual workshop presentations.
- Relevance of effective practices highlighted in the workshops to participants' own projects.
- Balance of workshop time spent in whole group and breakout sessions and on research vs. effective practices (see questions 8 and 13).

Respondents called for even more emphasis on the research on each workshop topic and more direct ties between the research and effective practices demonstrated in a workshop (see responses to open-ended questions).

Attachment A MSP WORKSHOPS SERIES 2004 SURVEY

The National Academies has asked The Study Group Inc. to conduct an independent survey of MSP staff partners who attended the MSP Workshop Series between July 2003 and June 2004. The purpose of the survey is to gather information on the quality and usefulness of the workshops to participants.

The National Academies appreciates your taking a few minutes to fill out this survey. If you would like to complete the survey in a different format, please contact The Study Group Inc. staff at studygroupsara@aol.com.

Note: the question and the modal response for it are printed in **bold**.

1. Which one of the following project types best describes the project with which you work?

	Response Percent	Response Total
NSF Comprehensive MSP	32.1	18
NSF Targeted MSP	41.1	23
RETA	5.4	3
State Education Agency Program	3.6	2
State-sponsored MSP funded by ED	14.3	8
Other	3.6	2
Total Respondents		56
Skipped this Question		0

⁶ These are workshop features rated as either excellent or good by fewer than 70% of respondents.

2. Which one of the following organizations best describes where you work?

	Response Percent	Response Total
Higher Education	30.4	17
Local K-12 education	17.9	10
State or regional K-12 education	21.4	12
Informal Education	3.6	2
Business/Industry	3.6	2
Other	23.2	13
Total Respondents		56
Skipped this Question		0

3. If you answered “Other” on question 2 above, please specify. ⁷

4. Which of the following workshops in the National Academies MSP Workshop Series did you attend?

	Response Percent	Response Total
How People Learn – July 2003	25.9	14
Assessment of Student Learning 2/004	53.7	29
How People Learn – March 2004	9.3	5
Assessment of Student Learning – 5/04	13.0	7
How People Learn – June 2004	22	12
Total Respondents		54
Skipped this Question		2

5. Please indicate which three reasons best describe why you chose to attend a workshop in the Series.

(Mark up to three that apply.)

	Response Percent	Response Total
To interact with researchers and other Experts in the topic	69.1	38
To deepen my understanding of the research on this topic	80.0	44
To meet colleagues from other projects	30.9	17
To find researchers and experts to work with my project	69.1	38

⁷ Note: For all questions, the complete report provides comments by individual who answered “other” or added additional explanation (e.g., see Question 7). Those comments and questions that sought only written responses have been deleted here because of space limitations, but are available upon request.

To find tools, resources and best practices for my project.	69.1	38
To learn more about the NSF MSP program.	14.5	8
To learn more about the U.S. Department of Education's MSP program	9.1	5
Total Respondents		55
Skipped this question		1

6. How well did the workshops meet your expectations?

	Response Percent	Response Total
The workshops exceeded my expectations	14.5	8
The workshops met all of my expectations	43.6	24
The workshops met some of my expectations	41.8	23
The workshops did not meet my expectations	0	0
Total Respondents		55
Skipped this question		1

8. Please rate the National Academies MSP Workshop Series on:

	Excellent (= 1)	Very Good (= 2)	Good (= 3)	Fair (= 4)	Poor (= 5)	Average Response
a. Clarity of workshop goals and objectives.	25% (14)	47% (26)	25% (14)	2% (1)	0% (0)	2.04
b. Quality of workshop presentations.	27% (15)	40% (22)	27% (15)	5% (3)	0% (0)	2.11
c. Significance of the research presented.	36% (20)	42% (23)	20% (11)	2% (1)	0% (0)	1.87
d. Relevance of effective practices presented.	23% (12)	42% (22)	28% (15)	6% (3)	2% (1)	2.23
e. Usefulness of resources (e.g., compendium CD's of NRC Reports).	48% (26)	30% (16)	20% (11)	0% (0)	2% (1)	1.78
f. Balance of time spent in whole group and breakout sessions.	21% (11)	38% (20)	30% (16)	11% (6)	0 % (0)	2.32
g. Balance of time spent in whole group and breakout sessions.	11% (6)	39% (21)	35% (19)	11% (6)	4% (2)	2.57
h. Time to meet and reflect as a team.	4% (2)	27% (13)	41% (20)	24% (12))	4% (2)	2.98
i. Opportunities to meet colleagues from other projects (e.g., MSPs, State	15% (8)	30% (16)	51% (27)	4% (2)	0% (0)	2.43

Education Agencies).						
j. Accommodations and meals.	50% (27)	35% (19)	13% (7)	2% (1)	0% (0)	1.67
k. National Academies facilities.	69% (37)	26% (14)	4% (2)	2% (1)	0% (0)	1.39
l. Helpfulness of the National Academies staff.	79% (42)	15% (8)	6% (3)	0% (0)	0% (0)	1.26
m. Value of the Series as a professional development experience.	33% (18)	44% (24)	19% (10)	4% (2)	0% (0)	1.93
Total Respondents						55

**9. How are you applying the RESEARCH presented in the workshops in your own project?
(Mark all that apply)**

	<u>Percent</u>	<u>Total</u>
Teaching K-12 courses.	11.10%	6
Teaching higher education courses.	14.80%	8
Designing professional development programs.	70.40%	38
Designing assessments of student learning.	40.70%	22
Evaluating project activities.	51.90%	28
Informing the design of future activities.	59.30%	32
Writing proposals for funding.	13.00%	7
Total Respondents		54
Skipped this question		2

10. How are you applying the EFFECTIVE PRACTICES and RESOURCES you learned about in the workshops?

	Am already doing.	Plan to Do.	Do not plan to do.	Response Total
a. Sharing NRC research reports with colleagues.	85% (47)	11% (6)	4% (2)	55
b. Using NRC reports in project activities.	69% (35)	31% (16)	0% (0)	51
c. Using other workshop materials in project activities.	54% (27)	32% (16)	14% (7)	50
d. Incorporating effective practices presented in the workshops into my project.	55% (29)	32% (17)	13% (7)	53
e. Continuing to interact with experts met through the workshops.	31% (16)	43% (22)	25% (13)	51
f. Continuing to discuss the workshop topic with my team.	77% (37)	15% (7)	8% (4)	48
g. Continuing to interact with colleagues from other projects whom I met during the workshops.	20% (10)	39% (19)	41% (20)	49
h. Requesting additional copies of the workshop materials (e.g., compendium CDs of NRC reports, articles, handouts).	21% (11)	28% (15)	51% (27)	53
i. Ordering additional National Academies' products and publications.	34% (18)	40% (21)	26% (14)	53
j. Other	11% (1)	0% (0)	89% (8)	9
Total Respondents				
Skipped this question				

14. Will you recommend the National Academies MSP Workshop Series to others?

	Response Percent	Response Total
Recommend Strongly.	75.50%	40
Recommend with reservations.	24.50%	13
Will not recommend.	0%	0
Total Respondents		53

16. Are you planning to attend a future workshop in the Series?

	Response Percent	Response Total
Yes	51.90%	28
Unsure at this time	46.30%	25
No	1.90%	1
Total Respondents		54
Skipped this question		2