

THE NATIONAL

DIVISION ON EARTH AND LIFE STUDIES

Understanding Interventions that Encourage Minorities to Pursue Research Careers

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Board on Life Sciences



Committee on Underrepresented Groups and the Expansion of
the Science and Engineering Workforce Pipeline

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NIGMS Efficacy of Interventions

Efficacy of Interventions R01 program established by NIGMS Division of Minority Opportunities in Research (MORE) in 2004

“...support research that will test assumptions regarding the effectiveness of interventions that are intended to increase interest, motivation, and preparedness for careers in biomedical research, with a particular interest in those interventions specifically designed to increase the number of underrepresented minorities entering careers in biomedical and behavioral research.”



NIH was generally disappointed in first several rounds of applications to this program; some deficiencies in applications:

- Lack of appropriate comparison or control groups
- Insufficient or inappropriate application of statistical techniques
- Inadequate incorporation of pre-existing research and theories
- Failure to ask meaningful questions
- Seemed more like program evaluations than research studies

Statement of Task

The study and identification of contributing factors and practices that determine the effectiveness of interventions aimed at increasing the participation of underrepresented minorities in the biomedical and behavioral sciences is critical for program design and success. The National Academies will **organize a public workshop** that, among its goals, will include the following:

1. An examination of the **current state of research** related to interventions that influence the participation of underrepresented minorities in biomedical and behavioral sciences and other science, technology, engineering, and mathematics disciplines. This will include an assessment of **factors relevant to studies in related disciplines** such as psychology, sociology and economics.
2. The **development of research questions** that reflect contributions of various factors influencing outcomes. This would include the relationship of these factors to interdisciplinary approaches for scholarly work in the study of interventions that impact the participation of underrepresented minorities in the biomedical and behavioral sciences.

(continued)

Statement of Task

(continued)

3. **Technical assistance on implementing effective methodologies** for studying interventions that impact the participation of underrepresented minorities in the biomedical and behavioral sciences.
4. The **encouragement of an interdisciplinary community of scholars** where outlets (e.g., journals, conferences, sponsored programs) for scholarly work and discourse are identified relevant to this area of study.

This public workshop will feature invited presentations and discussions. An **individually authored summary** of the workshop will be prepared by a designated rapporteur, who will not be a member of the ad hoc committee that will plan and conduct the event.



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Planning Committee

Anthony L. DePass (co-chair), *Long Island University-Brooklyn*

Larry V. Hedges (co-chair), *Northwestern University*

Daryl E. Chubin, *American Association for the Advancement of Science*

Howard H. Garrison, *Federation of American Societies for Experimental Biology*

Carol B. Muller, *MentorNet*

Karen Kashmanian Oates, *Harrisburg University of Science and Technology (now at National Science Foundation)*

Adam P. Fagen, *Study Director*

Tova G. Jacobovits, *Senior Program Assistant (through June 2007)*

Rebecca L. Walter, *Program Assistant (since June 2007)*

Jay B. Labov, *Senior Advisor for Education and Communications*

Steven Olson, *Science Writer (consultant)*

Paula Tarnapol Whitacre, *Editor (consultant)*

National Academies workshop

Held May 3-4, 2007, at AAAS

Planning included meeting with early grantees of Efficacy of Interventions programs

Publicity to NIGMS MORE Division grantees, professional societies, networks interested in diversity, etc.

Approximately 200 participants in attendance (originally expected 75), including program directors, researchers, university administrators, professional society representatives, agency officials, etc.

Additional 100-200 interested others who could not be accommodated

Featured a combination of plenary presentations, panel discussions, and breakout discussions...

National Academies workshop

Overview of Agenda: May 3, 2007

- **Introductory Remarks and Sponsor's Charge**
[Anthony DePass, Larry Hedges, Clifton Poodry]
- **Setting the Context: Factors Affecting Career Choice and Training**
[Robert Lent, Claude Steele, Michael Nettles, Anne Preston, Orlando Taylor]
- **NIH Perspectives**
[Jeremy Berg, Elias Zerhouni]
- **State of Knowledge and Avenues of Investigation**
[David Burgess, Yolanda George]
- **Technical Assistance Workshop**
 - Overview of Efficacy of Interventions Program
[Shiva Singh]
 - Problem Formulation: Asking answerable questions
[Barry Komisaruk, Martin Chemers]
 - Research Design: Strategies for data collection
[Larry Hedges]
 - Analysis: Quantitative and qualitative data analysis
[Kenneth Maton]
- **Reception and informal discussion** (sponsored by HHMI)

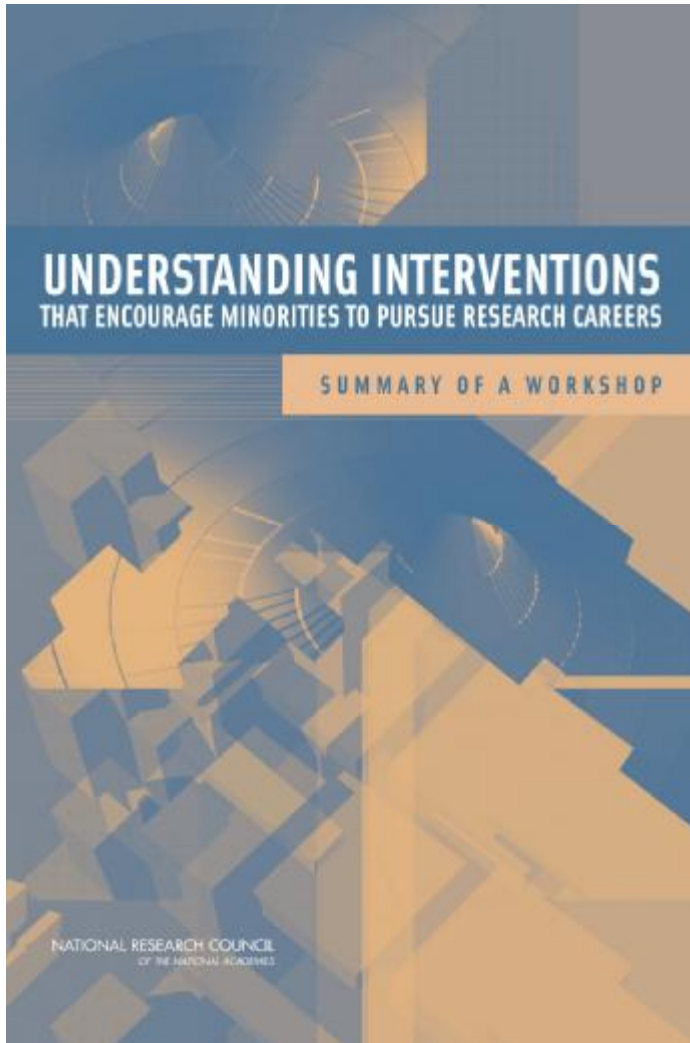
National Academies workshop

Overview of Agenda: May 4, 2007

- Breakout discussions on research questions and approaches
 - Research institutions
 - Primarily undergraduate institutions
 - Professional societies
- Reporting back on breakout discussions
- Panel on next steps, including community building and facilitating advancement

[Carol Burger, Tuajuanda Jordan, LaRuth McAfee, Wanda Ward]

Workshop Summary



Summarizes discussions at workshop

No conclusions or recommendations

Committee not involved in summary; authored by consultant science writer and NRC staff

Released in prepublication form on October 8, 2007

Released in final form in November

Companion 4-page report-in-brief



Some interesting considerations*

Intervention programs should not be considered in isolation; many factors influence students' career decisions, such as:

- Social setting (e.g., stereotype threat)
- Economic concerns
- Psychological development

It is important for researchers to ask *meaningful* questions that can be answered with appropriate methodologies.

The definition of “success” is a critical issue; what constitutes “success” depends on the goals a program is designed to achieve.

Researchers must not study only effective programs; otherwise, they will not be able to determine if helpful features do not also exist in ineffective programs.

* Because the workshop report did not make any conclusions and recommendations, these comments are not consensus findings.

Some interesting considerations*

Many intervention programs have a long time horizon. For example, interventions at the undergraduate level may be designed to increase interest in the professoriate years later. Are there intermediate measures that can be used to assess “success”?

Interdisciplinary teams will likely be required to conduct this research. Expertise from the social sciences will be necessary.

Carrying a research agenda forward will require sustained opportunities for dissemination and conversation.

Federal agencies and professional societies can help by establishing a coordinated research agenda and common tools.

** Because the workshop report did not make any conclusions and recommendations, these comments are not consensus findings.*

Follow-up activity

Several members of the workshop planning committee are organizing a follow-up meeting

May 2-4, 2008, in Atlanta

Supported by a MARC grant to the American Society for Cell Biology

Information available at <http://understandinginterventions.org/>

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INTERVENTIONS
That Encourage Minorities to
Pursue Research Careers

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For more information, visit

<http://www.nationalacademies.org/moreworkshop>

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