

National Science Foundation
Office of the Director
Arlington, VA 22230

Notice No. 130

September 24, 2007

IMPORTANT NOTICE TO
PRESIDENTS OF UNIVERSITIES AND COLLEGES
AND HEADS OF OTHER NATIONAL SCIENCE FOUNDATION
AWARDEE ORGANIZATIONS

Subject: Transformative Research

At the 399th meeting¹ of the National Science Board (Board), the Board unanimously approved a motion to enhance support of transformative research at the NSF. Additionally, the Board approved a change to the Intellectual Merit Review Criterion specified in Part I of the *NSF Proposal & Award Policies & Procedures Guide: the Grant Proposal Guide*² to specifically include review of the extent to which a proposal also suggests and explores potentially transformative concepts. The full text of the newly revised criterion is as follows:

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative, original, **or potentially transformative** concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

Effective October 1, 2007, the *Grant Proposal Guide*, as well as new funding opportunities issued after that date, will incorporate the revised new Intellectual Merit criterion. Necessary changes also will be made to NSF reviewer systems to incorporate the revised language. All proposals received after January 5, 2008, will be reviewed against the newly revised criterion.

The term "transformative research" is being used to describe a range of endeavors which promise extraordinary outcomes, such as: revolutionizing entire disciplines; creating entirely new fields; or disrupting accepted theories and perspectives -- in other words, those endeavors which have the potential to change the way we address challenges in science, engineering, and innovation. Supporting more transformative research is of critical importance in the fast-paced, science and technology-intensive world of the 21st Century.

The concept of transformative research is not new to NSF. For example, the results of a recent survey revealed that the majority of respondents (proposers) perceive that NSF already welcomes transformative research, and that NSF was strongly preferred over other funding sources as the place to submit a transformative idea. However, there is always room for improvement.

¹ The 399th meeting of the National Science Board was held August 6-8, 2007.

² For the full text of NSF merit review criteria, see Chapter III of the GPG, available electronically at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg

To make progress in enhancing support for transformative research, NSF will need a positive, open attitude toward experimentation with our processes and programs that allows us the necessary space to discover what will ultimately work best. To implement the emphasis on transformative research, NSF will:

1. Infuse support of potentially transformative research throughout NSF and all of its programs;
2. Learn how to facilitate potentially transformative research; and
3. Lead the way for the community through creating opportunities for investigators to submit proposals for potentially transformative research.

While much can be accomplished with implementation of a revised criterion, improved communication and existing award mechanisms, these activities alone are insufficient to fully accomplish the above approach. We are creating an NSF working group to develop the framework and recommend implementation details for a new funding mechanism for "early-concept" research projects, including a mechanism to monitor and track the impact. Learning from small scale pilots and community feedback will be vital in this process NSF will broadly advertise the new funding mechanism to the community once it has been finalized.

We challenge you to encourage, support and foster transformative research by exercising leadership in your own institutions. The nation needs bold efforts, at the most demanding levels of creative enterprise, to sustain a leadership role in the global economy. We have always been remarkably adept at this in America. Working together, I am confident we can do an even better job in the future.

Arden L. Bement, Jr.
Director