

CEOSE

Committee on Equal Opportunities in Science and Engineering

Recommendation for a Bold New Initiative for Broadening Participation

NSF should be commended for its outstanding leadership in broadening participation in STEM throughout the government and throughout America's scientific community, working toward full inclusion of persons from underrepresented racial and ethnic minority groups (African Americans, Hispanics, and Native Americans), persons with disabilities, and women. Indeed, broadening STEM participation constitutes an important thrust across the Foundation. Yet the changing nature of STEM, challenges to U.S. competitiveness, the creative advantages of achieving workforce diversity, concerns about global leadership and domestic security, and the drive to realize America's democratic principles by achieving America's promise of equal opportunity for all call for more innovative and transformative intellectual work, engaging scholars from multiple disciplines, in order to yield satisfactory inclusion of all Americans in STEM education and in the STEM workforce.

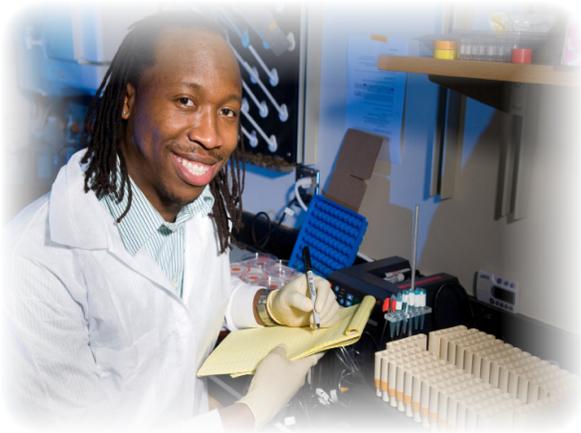


To better address emerging challenges and opportunities and the limited progress being made in improving broadening participation in STEM, the Committee on Equal Opportunities in Science and Engineering recommends that NSF implement a coordinated initiative that would create Centers, similar in concept and scale to the NSF's Science and Technology Centers, dedicated to transforming U.S. educational institutions into inclusive STEM institutions. These transformations will come from recognizing, adapting, and expanding successful strategies, coupled with stringent analysis and widespread dissemination of results. NSF could immediately leverage the existing Centers model as a way to (a) invest major, long-term support and (b) mandate connections across multiple tiers and stakeholders. Dissemination of results by NSF as well as by the awardees of this new initiative will create a feedback loop whereby both successes and failures educate NSF and the broader STEM communities, allowing the scaling of and further improvements to proven broadening participation strategies. Only through this positive feedback mechanism will the goals of diversity, inclusion and parity in STEM be achieved.

Critical features of this initiative would include:

1. An emphasis on institutional transformation and systemic change to address challenges (e.g., poor graduation rates, low grant participation rates, human capital needs in the federal and academic STEM workforce).
2. Development of novel, innovative analysis mechanisms that will provide for ready access to longitudinal data and allow for recognition and reporting of successful broadening participation efforts.
3. Identification of clear benchmarks for success in all aspects of broadening participation.
4. Support for translation, replication, and expansion of successful broadening participation strategies.





This initiative might include several multisite, geographically-based, national experiments of foundational and implementation research involving universities, schools, and communities. The ongoing research experiments would be inclusive of all underrepresented populations and would be designed to significantly advance broadening participation across all levels of schooling, resulting in sustainable pathways preK-20+.

We envision this initiative as including direct support for individuals (students, postdoctoral fellows, faculty, practitioners) as investigators in broadening participation initiatives. Through coupling dissemination of broadening participation efforts with catalyzing innovative adaptations of

successful initiatives, NSF and the nation will significantly “move the needle” toward developing a strong, highly educated, and highly trained domestic STEM workforce that reflects and represents the U.S. population.

Equally important will be high-risk and transformative research and training activities that shift the paradigm of broadening participation in global science. We seek game-changers to reach the coordinated coherence and collaboration needed for a seamless preK-20+ scope of broadening participation.

Interagency and private sector partnerships will also be key to accomplishing transformative, positive change in STEM inclusion across the nation. NSF currently assumes and should continue a leadership role in sharing best practices in broadening STEM participation with other federal agencies, welcoming substantive participation by federal agency representatives at all CEOSE meetings.

The “boldness” of this initiative rests in its focus on institutional transformation and systemic change in addition to basic research on broadening participation. The “boldness” comes from making a long-term commitment to sufficient resources to alter the current trajectory in STEM employment.

In sum, the nature of the economy has changed and is changing, and so have the demographics of our nation. Effective action must be taken now to ensure that the large and rapidly growing population subgroups are empowered to participate and contribute to scientific and technological advances. If not, our democratic society faces a grave economic, intellectual and scientific disadvantage in an increasingly globalized competition for talent and innovation. So in this report, in contrast to its past practice, CEOSE makes only one main recommendation:

NSF should implement a bold new initiative, focused on broadening participation of underrepresented groups in STEM that emphasizes institutional transformation and system change; collects and makes accessible longitudinal data; defines clear benchmarks for success; supports the translation, replication and expansion of successful broadening participation efforts; and provides significant financial support to individuals who represent the very broadened participation that we seek.

