

imum rate of pay for the Senior Executive Service, including, if applicable, the level of adjustment for the certified Senior Executive Service Performance Appraisal System.

(c) Report

Not later than 1 year after January 6, 2017, the Director of the Foundation shall submit to the appropriate committees of Congress a report on the Foundation's efforts to control costs associated with employing rotators, including the results of and participation in the Foundation's cost-sharing pilot program and the Foundation's progress in responding to the findings and implementing the recommendations of the Office of Inspector General of the Foundation related to the employment of rotators.

(Pub. L. 114-329, title I, §111, Jan. 6, 2017, 130 Stat. 2992.)

Editorial Notes

REFERENCES IN TEXT

The Intergovernmental Personnel Act of 1970, referred to in subsecs. (a) and (b), is Pub. L. 91-648, Jan. 5, 1971, 84 Stat. 1909, which is classified principally to chapter 62 (§4701 et seq.) of this title. For complete classification of this Act to the Code, see Short Title note set out under section 4701 of this title and Tables.

CODIFICATION

Section was enacted as part of the American Innovation and Competitiveness Act, and not as part of the National Science Foundation Act of 1950 which comprises this chapter.

Statutory Notes and Related Subsidiaries

DEFINITIONS

For definitions of terms used in this section, see section 2 of Pub. L. 114-329, set out as a note under section 1862s of this title.

§ 1862s-4. Brain Research through Advancing Innovative Neurotechnologies Initiative

(a) In general

The Foundation shall support research activities related to the interagency Brain Research through Advancing Innovative Neurotechnologies Initiative.

(b) Sense of Congress

It is the sense of Congress that the Foundation should work in conjunction with the Interagency Working Group on Neuroscience established by the National Science and Technology Council, Committee on Science to determine how to use the data infrastructure of the Foundation and other applicable Federal science agencies to help neuroscientists collect, standardize, manage, and analyze the large amounts of data that result from research attempting to understand how the brain functions.

(Pub. L. 114-329, title I, §117, Jan. 6, 2017, 130 Stat. 2995.)

Editorial Notes

CODIFICATION

Section was enacted as part of the American Innovation and Competitiveness Act, and not as part of the National Science Foundation Act of 1950 which comprises this chapter.

Statutory Notes and Related Subsidiaries

DEFINITIONS

For definitions of terms used in this section, see section 2 of Pub. L. 114-329, set out as a note under section 1862s of this title.

§ 1862s-5. Programs to expand STEM opportunities

(a) Findings

Congress makes the following findings:

(1) Economic projections by the Bureau of Labor Statistics indicate that by 2018, there could be 2,400,000 unfilled STEM jobs.

(2) Women represent slightly more than half the United States population, and projections indicate that 54 percent of the population will be a member of a racial or ethnic minority group by 2050.

(3) Despite representing half the population, women comprise only about 30 percent of STEM workers according to a 2015 report by the National Center for Science and Engineering Statistics.

(4) A 2014 National Center for Education Statistics study found that underrepresented populations leave the STEM fields at higher rates than their counterparts.

(5) The representation of women in STEM drops significantly at the faculty level. Overall, women hold only 25 percent of all tenured and tenure-track positions and 17 percent of full professor positions in STEM fields in our Nation's universities and 4-year colleges.

(6) Black and Hispanic faculty together hold about 6.5 percent of all tenured and tenure-track positions and 5 percent of full professor positions.

(7) Many of the numbers in the American Indian or Alaskan Native and Native Hawaiian or Other Pacific Islander categories for different faculty ranks were too small for the Foundation to report publicly without potentially compromising confidential information about the individuals being surveyed.

(b) Sense of Congress

It is the sense of Congress that—

(1) it is critical to our Nation's economic leadership and global competitiveness that the United States educate, train, and retain more scientists, engineers, and computer scientists;

(2) there is currently a disconnect between the availability of and growing demand for STEM-skilled workers;

(3) historically, underrepresented populations are the largest untapped STEM talent pools in the United States; and

(4) given the shifting demographic landscape, the United States should encourage full participation of individuals from underrepresented populations in STEM fields.

(c) Reaffirmation

The Director of the Foundation shall continue to support programs designed to broaden participation of underrepresented populations in STEM fields.

(d) Grants to broaden participation

(1) In general

The Director of the Foundation shall award grants on a competitive, merit-reviewed basis,

to eligible entities to increase the participation of underrepresented populations in STEM fields, including individuals identified in section 1885a or section 1885b of this title.

(2) Center of excellence

(A) In general

Grants awarded under this subsection may include grants for the establishment of a Center of Excellence to collect, maintain, and disseminate information to increase participation of underrepresented populations in STEM fields.

(B) Purpose

The purpose of a Center of Excellence under this subsection is to promote diversity in STEM fields by building on the success of the INCLUDES programs, providing technical assistance, maintaining best practices, and providing related training at federally funded academic institutions.

(3) Research

As a component of improving participation of women in STEM fields, research funded by a grant under this subsection may include research on—

(A) the role of teacher training and professional development, including effective incentive structures to encourage teachers to participate in such training and professional development, in encouraging or discouraging female students in prekindergarten through elementary school from participating in STEM activities;

(B) the role of teachers in shaping perceptions of STEM in female students in prekindergarten through elementary school and discouraging such students from participating in STEM activities;

(C) the role of other facets of the learning environment on the willingness of female students in prekindergarten through elementary school to participate in STEM activities, including learning materials and textbooks, seating arrangements, use of media and technology, classroom culture, and composition of students during group work;

(D) the role of parents and other caregivers in encouraging or discouraging female students in prekindergarten through elementary school from participating in STEM activities;

(E) the types of STEM activities that encourage greater participation by female students in prekindergarten through elementary school;

(F) the role of mentorship and best practices in finding and utilizing mentors; and

(G) the role of informal and after-school STEM learning opportunities on the perception of and participation in STEM activities of female students in prekindergarten through elementary school.

(e) Support for increasing diversity among STEM faculty at institutions of higher education

(1) In general

The Director of the Foundation shall make awards to institutions of higher education (or

consortia thereof) for the development and assessment of innovative reform efforts designed to increase the recruitment, retention, and advancement of individuals from underrepresented minority groups in academic STEM careers, which may include implementing or expanding successful evidence-based practices.

(2) Merit review; competition

Awards shall be made under this subsection on a merit-reviewed, competitive basis.

(3) Use of funds

Activities supported by awards under this subsection may include—

(A) institutional assessment activities, such as data analyses and policy review, in order to identify and address specific issues in the recruitment, retention, and advancement of faculty members from underrepresented minority groups;

(B) assessments of distribution of mentoring and advising responsibilities among faculty, particularly for faculty from underrepresented minority groups, that may detract from time spent on research, publishing papers, and other activities required to achieve tenure status or promotion (or equivalents for non-tenure track faculty) and run a productive research program;

(C) development and assessment of training courses for administrators and search committee members designed to ensure unbiased evaluation of candidates from underrepresented minority groups;

(D) development and hosting of intra- or inter-institutional workshops to propagate best practices in recruiting, retaining, and advancing faculty members from underrepresented minority groups;

(E) professional development opportunities for faculty members from underrepresented minority groups;

(F) activities aimed at making undergraduate STEM students from underrepresented minority groups aware of opportunities for academic careers in STEM fields; and

(G) activities to identify and engage exceptional graduate students and postdoctoral researchers from underrepresented minority groups at various stages of their studies and to encourage them to enter academic careers.

(4) Selection process

(A) Application

An institution of higher education (or a consortium of such institutions) seeking funding under this subsection shall submit an application to the Director of the Foundation at such time, in such manner, and containing such information and assurances as such Director may require. The application shall include, at a minimum, a description of—

(i) the reform effort that is being proposed for implementation by the institution of higher education;

(ii) any available evidence of specific difficulties in the recruitment, retention, and advancement of faculty members from

underrepresented minority groups in STEM academic careers within the institution of higher education submitting an application, and how the proposed reform effort would address such issues;

(iii) support for the proposed reform effort by administrators of the institution, which may include details on previous or ongoing reform efforts;

(iv) how the proposed reform effort may contribute to change in institutional culture and policy such that a greater value is placed on the recruitment, retention, and advancement of faculty members from underrepresented minority groups;

(v) how the institution of higher education submitting an application plans to sustain the proposed reform effort beyond the duration of the award, if the effort proved successful; and

(vi) how the success and effectiveness of the proposed reform effort will be evaluated and assessed in order to contribute to the national knowledge base about models for catalyzing institutional change.

(B) Award distribution

The Director of the Foundation shall ensure, to the extent practicable, that awards under this section are made to a variety of types of institutions of higher education.

(5) Authorization of appropriations

There are authorized to be appropriated to carry out this subsection \$8,000,000 for each of fiscal years 2023 through 2027.

(f) Support for broadening participation in undergraduate STEM education

(1) In general

The Director of the Foundation shall make awards to institutions of higher education (or a consortium of such institutions) to implement or expand research-based reforms in undergraduate STEM education for the purpose of recruiting and retaining students from minority groups who are underrepresented in STEM fields.

(2) Merit review; competition

Awards shall be made under this subsection on a merit-reviewed, competitive basis.

(3) Use of funds

Activities supported by awards under this subsection may include—

(A) implementation or expansion of innovative, research-based approaches to broaden participation of underrepresented minority groups in STEM fields;

(B) implementation or expansion of successful, research-based bridge, cohort, tutoring, or mentoring programs, including those involving community colleges and technical schools, designed to enhance the recruitment and retention of students from underrepresented minority groups in STEM fields;

(C) implementation or expansion of outreach programs linking institutions of higher education and PreK–12 school systems in order to heighten awareness among precollege students from underrepresented

minority groups of opportunities in college-level STEM fields and STEM careers;

(D) implementation or expansion of faculty development programs focused on improving retention of undergraduate STEM students from underrepresented minority groups;

(E) implementation or expansion of mechanisms designed to recognize and reward faculty members who demonstrate a commitment to increasing the participation of students from underrepresented minority groups in STEM fields;

(F) expansion of successful reforms aimed at increasing the number of STEM students from underrepresented minority groups beyond a single course or group of courses to achieve reform within an entire academic unit, or expansion of successful reform efforts beyond a single academic unit or field to other STEM academic units or fields within an institution of higher education;

(G) expansion of opportunities for students from underrepresented minority groups to conduct STEM research in industry, at Federal labs, and at international research institutions or research sites;

(H) provision of stipends for students from underrepresented minority groups participating in research;

(I) development of research collaborations between research-intensive universities and primarily undergraduate historically Black colleges and universities, Tribal Colleges or Universities, and minority serving institutions;

(J) support for graduate students and postdoctoral fellows from underrepresented minority groups to participate in instructional or assessment activities at primarily undergraduate institutions, including primarily undergraduate historically Black colleges and universities, Tribal Colleges or Universities, and minority serving institutions and 2-year institutions of higher education; and

(K) other activities consistent with paragraph (1), as determined by the Director of the Foundation.

(4) Selection process

(A) Application

An institution of higher education (or a consortium thereof) seeking an award under this subsection shall submit an application to the Director of the Foundation at such time, in such manner, and containing such information and assurances as such Director may require. The application shall include, at a minimum—

(i) a description of the proposed reform effort;

(ii) a description of the research findings that will serve as the basis for the proposed reform effort or, in the case of applications that propose an expansion of a previously implemented reform, a description of the previously implemented reform effort, including data about the recruitment, retention, and academic achievement of students from underrepresented minority groups;

(iii) evidence of an institutional commitment to, and support for, the proposed reform effort, including a long-term commitment to implement successful strategies from the current reform beyond the academic unit or units included in the award proposal;

(iv) a description of how the proposed reform effort may contribute to, or in the case of applications that propose an expansion of a previously implemented reforms has contributed to, change in institutional culture and policy such that a greater value is placed on the recruitment, retention and academic achievement of students from underrepresented minority groups;

(v) a description of existing or planned institutional policies and practices regarding faculty hiring, promotion, tenure, and teaching assignment that reward faculty contributions to improving the education of students from underrepresented minority groups in STEM; and

(vi) how the success and effectiveness of the proposed reform effort will be evaluated and assessed in order to contribute to the national knowledge base about models for catalyzing institutional change,¹

(B) Award distribution

The Director of the Foundation shall ensure, to the extent practicable, that awards under this subsection are made to a variety of types of institutions of higher education, including historically Black colleges and universities, Tribal Colleges or Universities, minority serving institutions, and 2-year institutions of higher education.

(5) Education research

(A) In general

All awards made under this subsection shall include an education research component that will support the design and implementation of a system for data collection and evaluation of proposed reform efforts in order to build the knowledge base on promising models for increasing recruitment and retention of students from underrepresented minority groups in STEM education at the undergraduate level across a diverse set of institutions.

(B) Dissemination

The Director of the Foundation shall coordinate with the Committee on STEM Education of the National Science and Technology Council in disseminating the results of the research under this paragraph to ensure that best practices in broadening participation in STEM education at the undergraduate level are made readily available to all institutions of higher education, other Federal agencies that support STEM programs, non-Federal funders of STEM education, and the general public.

(6) Authorization of appropriations

There are authorized to be appropriated to carry out this subsection \$15,000,000 for each of fiscal years 2023 through 2027.

¹ So in original.

(g) Accountability and dissemination

(1) Evaluation

(A) In general

Not later than 5 years after January 6, 2017, the Director of the Foundation shall evaluate the grants provided under this section.

(B) Requirements

In conducting the evaluation under subparagraph (A), the Director shall—

(i) use a common set of benchmarks and assessment tools to identify best practices and materials developed or demonstrated by the research; and

(ii) to the extent practicable, combine the research resulting from the grant activity under subsection (e) with the current research on serving underrepresented students in grades kindergarten through 8.

(2) Report on evaluations

Not later than 180 days after the completion of the evaluation under paragraph (1), the Director of the Foundation shall submit to the appropriate committees of Congress and make widely available to the public a report that includes—

(A) the results of the evaluation; and

(B) any recommendations for administrative and legislative action that could optimize the effectiveness of the program.

(h) Coordination

In carrying out this section, the Director of the Foundation shall consult and cooperate with the programs and policies of other relevant Federal agencies to avoid duplication with and enhance the effectiveness of the program under this section.

(Pub. L. 114–329, title III, §305, Jan. 6, 2017, 130 Stat. 3007; Pub. L. 116–102, §4, Dec. 24, 2019, 133 Stat. 3263; Pub. L. 117–167, div. B, title III, §10329, Aug. 9, 2022, 136 Stat. 1546.)

Editorial Notes

CODIFICATION

Section was enacted as part of the American Innovation and Competitiveness Act, and not as part of the National Science Foundation Act of 1950 which comprises this chapter.

AMENDMENTS

2022—Subsecs. (e) to (h). Pub. L. 117–167 added subsecs. (e) and (f) and redesignated former subsecs. (e) and (f) as (g) and (h), respectively.

2019—Subsec. (d)(3). Pub. L. 116–102 added par. (3).

Statutory Notes and Related Subsidiaries

FINDINGS

Pub. L. 116–102, §2, Dec. 24, 2019, 133 Stat. 3263, provided that: “Congress finds the following:

“(1) The National Science Foundation is a large investor in STEM education and plays a key role in setting research and policy agendas.

“(2) While studies have found that children who engage in scientific activities from an early age develop positive attitudes toward science and are more likely to pursue STEM expertise and careers later on, the majority of current research focuses on increasing STEM opportunities for middle school-aged children and older.

“(3) Women remain widely underrepresented in the STEM workforce, and this disparity extends down through all levels of education.”

SUPPORTING EARLY CHILDHOOD AND ELEMENTARY
STEM EDUCATION RESEARCH

Pub. L. 116-102, §3, Dec. 24, 2019, 133 Stat. 3263, provided that: “In awarding grants under the Discovery Research PreK-12 program, the Director of the National Science Foundation shall consider the age distribution of a STEM education research and development project to improve the focus of research and development on elementary and prekindergarten education.”

DEFINITIONS

For definitions of terms used in this section, see section 2 of Pub. L. 114-329, set out as a note under section 1862s of this title.

§ 1862s-6. Presidential awards for excellence in STEM mentoring

(a) In general

The Director of the Foundation shall continue to administer awards on behalf of the Office of Science and Technology Policy to recognize outstanding mentoring in STEM fields.

(b) Annual award recipients

The Director of the Foundation shall provide Congress with a list of award recipients, including the name, institution, and a brief synopsis of the impact of the mentoring efforts.

(Pub. L. 114-329, title III, §307, Jan. 6, 2017, 130 Stat. 3010.)

Editorial Notes

CODIFICATION

Section was enacted as part of the American Innovation and Competitiveness Act, and not as part of the National Science Foundation Act of 1950 which comprises this chapter.

Statutory Notes and Related Subsidiaries

PRESIDENTIAL AWARDS FOR EDUCATORS AND MENTORS
IN FIELDS RELATING TO CYBERSECURITY

Pub. L. 116-283, div. H, title XCIV, §9405(d), Jan. 1, 2021, 134 Stat. 4812, provided that: “The Director of the National Science Foundation shall ensure that educators and mentors in fields relating to cybersecurity can be considered for—

“(1) Presidential Awards for Excellence in Mathematics and Science Teaching made under section 117 of the National Science Foundation Authorization Act of 1988 (42 U.S.C. 1881b); and

“(2) Presidential Awards for Excellence in STEM Mentoring administered under section 307 of the American Innovation and Competitiveness Act (42 U.S.C. 1862s-6).”

DEFINITIONS

For definitions of terms used in this section, see section 2 of Pub. L. 114-329, set out as a note under section 1862s of this title.

§ 1862s-7. Computer science education research

(a) Findings

Congress finds that as the lead Federal agency for building the research knowledge base for computer science education, the Foundation is well positioned to make investments that will accelerate ongoing efforts to enable rigorous

and engaging computer science throughout the Nation as an integral part of STEM education.

(b) Grant program

(1) In general

The Director of the Foundation shall award grants to eligible entities to research computer science and cybersecurity education and computational thinking.

(2) Research

The research described in paragraph (1) may include the development or adaptation, piloting or full implementation, and testing of—

(A) models of preservice preparation for teachers who will teach computer science and computational thinking;

(B) scalable and sustainable models of professional development and ongoing support for the teachers described in subparagraph (A);

(C) tools and models for teaching and learning aimed at supporting student success and inclusion in computing within and across diverse populations, particularly poor, rural, and tribal populations and other populations that have been historically underrepresented in computer science and STEM fields;

(D) high-quality learning opportunities for teaching computer science and, especially in poor, rural, or tribal schools at the elementary school and middle school levels, for integrating computational thinking into STEM teaching and learning; and

(E) tools and models for the integration of cybersecurity and other interdisciplinary efforts into computer science education and computational thinking at secondary and postsecondary levels of education.

(3) Uses of funds

The tools and models described in paragraph (2)(C) may include—

(A) offering training and professional development programs, including summer or academic year institutes or workshops, designed to strengthen the capabilities of prekindergarten and elementary school teachers and to familiarize such teachers with the role of bias against female students in the classroom;

(B) offering innovative pre-service and in-service programs that instruct teachers on female-inclusive practices for teaching computing concepts;

(C) developing distance learning programs for teachers or students, including developing curricular materials, play-based computing activities, and other resources for the in-service professional development of teachers that are made available to teachers through the Internet;

(D) developing or adapting prekindergarten and elementary school computer science curricular materials that incorporate contemporary research on the science of learning, particularly with respect to female inclusion;

(E) developing and offering female-inclusive computer science enrichment programs for students, including after-school and summer programs;