

(1) creation of multidisciplinary or interdisciplinary courses or programs for the purpose of improved student instruction and research in STEM;

(2) expansion of graduate STEM research opportunities to include interdisciplinary research opportunities and research opportunities in industry, at Federal laboratories, and at international research institutions or research sites;

(3) development and implementation of future faculty training programs focused on improved instruction, mentoring, assessment of student learning, and support of undergraduate STEM students;

(4) support and training for graduate students to participate in instructional activities beyond the traditional teaching assistantship, and especially as part of ongoing educational reform efforts, including at pre-K–12 schools, and primarily undergraduate institutions;

(5) creation, improvement, or expansion of innovative graduate programs such as science master's degree programs;

(6) development and implementation of seminars, workshops, and other professional development activities that increase the ability of graduate students to engage in innovation, technology transfer, and entrepreneurship;

(7) development and implementation of seminars, workshops, and other professional development activities that increase the ability of graduate students to effectively communicate their research findings to technical audiences outside of their own discipline and to nontechnical audiences;

(8) expansion of successful STEM reform efforts beyond a single academic unit to other STEM academic units within an institution or to comparable academic units at other institutions; and

(9) research on teaching and learning of STEM at the graduate level related to the proposed reform effort, including assessment and evaluation of the proposed reform activities and research on scalability and sustainability of approaches to reform.

(c) Partnership

An institution of higher education may partner with one or more other nonprofit education or research organizations, including scientific and engineering societies, for the purposes of carrying out the activities authorized under this section.

(d) Selection process

(1) Applications

An institution of higher education seeking a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(A) a description of the proposed reform effort;

(B) in the case of applications that propose an expansion of a previously implemented reform effort at the applicant's institution or at other institutions, a description of the previously implemented reform effort;

(C) evidence of institutional support for, and commitment to, the proposed reform effort, including long-term commitment to implement successful strategies from the current reform effort beyond the academic unit or units included in the grant proposal or to disseminate successful strategies to other institutions; and

(D) a description of the plans for assessment and evaluation of the grant proposed reform activities.

(2) Review of applications

In selecting grant recipients under this section, the Director shall consider at a minimum—

(A) the likelihood of success in undertaking the proposed effort at the institution submitting the application, including the extent to which the faculty, staff, and administrators of the institution are committed to making the proposed institutional reform a priority of the participating academic unit or units;

(B) the degree to which the proposed reform will contribute to change in institutional culture and policy such that a greater value is placed on preparing graduate students for diverse careers utilizing STEM degrees;

(C) the likelihood that the institution will sustain or expand the reform beyond the period of the grant; and

(D) the degree to which scholarly assessment and evaluation plans are included in the design of the reform effort.

(Pub. L. 111-358, title V, §527, Jan. 4, 2011, 124 Stat. 4020.)

Editorial Notes

CODIFICATION

Section was enacted as part of the America COMPETES Reauthorization Act of 2010, also known as the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Reauthorization Act of 2010, and also as part of the National Science Foundation Authorization Act of 2010, 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. 111-358, set out as a note under section 6621 of this title, and section 502 of Pub. L. 111-358, set out as a note under section 1862p of this title.

§ 1862q. Informal STEM education

(a) Grants

The Director of the National Science Foundation, through the Directorate for Education and Human Resources, shall continue to award competitive, merit-reviewed grants to support—

(1) research and development of innovative out-of-school STEM learning and emerging STEM learning environments in order to improve STEM learning outcomes and engagement in STEM;

(2) research that advances the field of informal STEM education;

(3) a national partnership of institutions involved in informal STEM learning; and

(4) the integration of art and design in STEM educational programs.

(b) Uses of funds

Activities supported by grants under this section may encompass a single STEM discipline, multiple STEM disciplines, or integrative STEM initiatives and shall include—

(1) research and development that improves our understanding of learning and engagement in informal environments, including the role of informal environments in broadening participation in STEM;

(2) design and testing of innovative STEM learning models, programs, and other resources for informal learning environments to improve STEM learning outcomes and increase engagement for K–12 students, K–12 teachers, and the general public, including design and testing of the scalability of models, programs, and other resources;

(3) fostering on-going partnerships between institutions involved in informal STEM learning, institutions of higher education, and education research centers;

(4) developing, and making available informal STEM education activities and educational materials; and

(5) design and testing of programming that integrates art and design in STEM education to promote creativity and innovation.

(c) PreK–12 informal STEM

(1) In general

The Director of the National Science Foundation shall make awards, through existing programs where appropriate to institutions of higher education and nonprofit organizations (or consortia of such institutions¹ or organizations) on a merit-reviewed, competitive basis for research on effective approaches to engaging students in PreK–12, including students from groups historically underrepresented in STEM and rural students.

(2) Purposes

The purposes of this subsection are to—

(A) provide effective, compelling, and engaging means for teaching and reinforcing fundamental STEM concepts to PreK–12 students;

(B) expand the STEM workforce pipeline by increasing the number of youth in the United States exposed to STEM from an early age and encourage them to pursue careers in STEM-related fields; and

(C) broaden participation of groups historically underrepresented in STEM and rural students, in the STEM workforce.

(3) Use of funds

(A) In general

Awards made under this subsection shall support research and development on innovative before-school, after-school, out-of-school, or summer activities that are designed to encourage interest, engagement, and skills development in STEM, including

for students from groups historically underrepresented in STEM and rural students.

(B) Permitted activities

The research and development activities described in subparagraph (A) may include—

(i) the provision of programming described in such subparagraph for the purpose of research described in such subparagraph;

(ii) the use of a variety of engagement methods, including cooperative and hands-on learning;

(iii) exposure of students to role models in the fields of STEM and near-peer mentors;

(iv) training of informal learning educators, youth-serving professionals, and volunteers who lead informal STEM programs in using evidence-based methods consistent with the target student population being served;

(v) education of students on the relevance and significance of STEM careers, provision of academic advice and assistance, and activities designed to help students make real-world connections to STEM content;

(vi) the preparation of students to attend events, competitions, and academic programs that provide content expertise and encourage career exposure in STEM, which may include the purchase of parts and supplies needed to prepare for participation in such competitions;

(vii) activities designed to engage parents and families of students in PreK–12 in STEM;

(viii) innovative strategies to engage students, such as using leadership skills and outcome measures to impart youth with the confidence to pursue STEM coursework and academic study;

(ix) coordination with STEM-rich environments, including other nonprofit, nongovernmental organizations, out-of-² classroom settings, institutions of higher education, vocational facilities, corporations, museums, or science centers; and

(x) the acquisition of instructional materials or technology-based tools to conduct applicable award activity.

(4) Application

An applicant seeking funding under this subsection shall submit an application at such time, in such manner, and containing such information as may be required by the Director. Applications that include or partner with a nonprofit, nongovernmental organization that has extensive experience and expertise in increasing the participation of students in PreK–12 in STEM are encouraged. At a minimum, the application shall include the following:

(A) A description of the target audience to be served by the research activity or activities for which such funding is sought.

(B) A description of the process for recruitment and selection of students to participate in such activities.

¹ So in original. Probably should be “institutions”.

² So in original.

(C) A description of how such activity or activities may inform programming that engages students in PreK–12 in STEM.

(D) A description of how such activity or activities may inform programming that promotes student academic achievement in STEM.

(E) An evaluation plan that includes, at a minimum, the use of outcome-oriented measures to determine the impact and efficacy of programming being researched.

(5) Evaluations

Each recipient of an award under this subsection shall provide, at the conclusion of every year during which the award funds are received, a report in a form prescribed by the Director.

(6) Encourage applications

In making awards under this subsection, the Director shall encourage applications which, for the purpose of the activity or activities funded through the award, are from or include eligible nonprofit programs serving students that attend elementary schools or secondary schools (including high schools) that—

(A) are implementing comprehensive support and improvement activities or targeted support and improvement activities under paragraph (1) or (2) of section 6311(d) of title 20; or

(B) serve high percentages of students who are eligible for a free or reduced-price lunch under the Richard B. Russell National School Lunch Act (42 U.S.C. 1751 et seq.) (which, in the case of a high school, may be calculated using comparable data from the schools that feed into the high school).

(7) Accountability and dissemination

(A) Evaluation required

The Director shall evaluate the activities established under this subsection. Such evaluation shall—

(i) use a common set of benchmarks and tools to assess the results of research conducted under such awards; and

(ii) to the extent practicable, integrate the findings of the research resulting from the activity or activities funded through the award with the current research on serving students with respect to the pursuit of degrees or careers in STEM, including underrepresented and rural students, in PreK–12.

(B) Report on evaluations

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

(i) the results of the evaluation; and

(ii) any recommendations for administrative and legislative action that could optimize the effectiveness of the program under this subsection.

(8) Coordination

In carrying out this subsection, the Director shall, for purposes of enhancing program effec-

tiveness and avoiding duplication of activities, consult, and coordinate with other relevant Federal agencies.

(Pub. L. 114–59, § 3, Oct. 7, 2015, 129 Stat. 540; Pub. L. 114–329, title III, § 311, Jan. 6, 2017, 130 Stat. 3013; Pub. L. 117–167, div. B, title III, §§ 10311(b), 10319(b), Aug. 9, 2022, 136 Stat. 1511, 1536.)

Editorial Notes

REFERENCES IN TEXT

The Richard B. Russell National School Lunch Act, referred to in subsec. (c)(6)(B), is act June 4, 1946, ch. 281, 60 Stat. 230, which is classified generally to chapter 13 (§ 1751 et seq.) of this title. For complete classification of this Act to the Code, see Short Title note set out under section 1751 of this title and Tables.

CODIFICATION

Section was enacted as part of the STEM Education Act of 2015, and not as part of the National Science Foundation Act of 1950 which comprises this chapter.

AMENDMENTS

2022—Subsec. (a)(4). Pub. L. 117–167, § 10319(b)(1), added par. (4).

Subsec. (b)(5). Pub. L. 117–167, § 10319(b)(2), added par. (5).

Subsec. (c). Pub. L. 117–167, § 10311(b), added subsec. (c).

2017—Subsec. (a)(3). Pub. L. 114–329, § 311(a), added par. (3).

Subsec. (b)(3), (4). Pub. L. 114–329, § 311(b), added pars. (3) and (4).

§ 1862r. Research in disabilities education

(a) Program

Nothing in this section and section 1862r–1 of this title alters the National Science Foundation’s Research in Disabilities Education program for fundamental and implementation research about learners (of all ages) with disabilities, including dyslexia, in science, technology, engineering, and mathematics (STEM). The National Science Foundation shall continue to encourage efforts to understand and address disability-based differences in STEM education and workforce participation, including differences for dyslexic learners.

(b) Line item

The Director of the National Science Foundation shall include the amount requested for the Research in Disabilities Education program in the Foundation’s annual congressional budget justification.

(Pub. L. 114–124, § 3, Feb. 18, 2016, 130 Stat. 120.)

Editorial Notes

CODIFICATION

Section was enacted as part of the Research Excellence and Advancements for Dyslexia Act or READ Act, and not as part of the National Science Foundation Act of 1950 which comprises this chapter.

Statutory Notes and Related Subsidiaries

FINDINGS

Pub. L. 114–124, § 2, Feb. 18, 2016, 130 Stat. 120, provided that: “The Congress finds the following:

“(1) As many as 1 out of 6, or 8,500,000, American school children may have dyslexia.