I

115TH CONGRESS
2D SESSION

H. R. 5509

To direct the National Science Foundation to provide grants for research about STEM education approaches and the STEM-related workforce, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 13, 2018

Mr. MCCARTHY (for himself and Mr. SMITH of Texas) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

---

A BILL

To direct the National Science Foundation to provide grants for research about STEM education approaches and the STEM-related workforce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Innovations in Mentoring, Training, and Apprenticeships Act''.

SEC. 2. FINDINGS.

Congress finds the following:

(1) To remain competitive in the global economy, foster greater innovation, and provide a foun-

dation for shared prosperity, the United States needs a workforce with the right mix of skills to meet the diverse needs of the economy.

(2) Evidence indicates that the returns on investments in technical skills in the labor market are strong when students successfully complete their training and gain credentials sought by employers.

(3) The responsibility for developing and sustaining a skilled technical workforce is fragmented across many groups, including educators; students; workers; employers; Federal, State, and local governments; labor organizations; and civic associations. Such groups need to be able to coordinate and cooperate successfully with each other.

(4) Coordination among students, community colleges, secondary and post-secondary institutions, and employers would improve educational outcomes.

(5) Promising experiments currently underway may guide innovation and reform, but scalability of some of those experiments has not yet been tested.

(6) Evidence suggests that integration of academic education, technical training, and hands-on work experience improves outcomes and return on investment for students in secondary and post-sec-

ondary education and for skilled technical workers in different career stages.

(7) Outcomes show that mentoring can increase STEM student engagement and the rate of completion of STEM post-secondary degrees.

SEC. 3. NATIONAL SCIENCE FOUNDATION STEM INNOVATION AND APPRENTICESHIP GRANTS.

(a) ESTABLISHMENT.—The Director of the National Science Foundation shall award competitive grants to eligible applicants in accordance with this section.

(b) COORDINATION.—In carrying out this section, the Director shall consult and cooperate with the programs and policies of other relevant Federal agencies to avoid duplication with, and enhance the effectiveness of, the provision of grants under this section.

(c) GRANTS FOR ASSOCIATE DEGREE PROGRAMS IN STEM FIELDS.—

(1) IN GENERAL.—The Director of the National Science Foundation shall award competitive grants to community colleges to develop or improve associate degree and certificate programs in STEM fields in which there is significant workforce demand in the region of the community college receiving the award and a need to strengthen the global competitiveness of affected companies.

(2) APPLICATION.—In considering applications for grants under paragraph (1), the Director shall prioritize—

(A) applicants that consist of a partnership between the applying community college and individual employers or an employer consortia, and may include a university or other organization with demonstrated expertise in academic program development;

(B) applications that demonstrate current and future workforce demand in occupations directly related to the proposed associate degree or certificate program.

(C) applications that include commitments by the partnering employers or employer consortia to offer apprenticeships, internships or other applied learning opportunities to students enrolled in the proposed associate degree program; and

(D) applications that include outreach plans and goals for recruiting and enrolling women and other historically underrepresented individuals in STEM studies and careers in the proposed associate degree program.

(3) FUNDING.—The National Science Foundation shall devote not less than $20,000,000 to awards described in this subsection, which shall include not less than $5,000,000 for each of fiscal years 2018 through 2021, subject to the availability of appropriations, to come from amounts made available for the Education and Human Resources Directorate. This subsection shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

(d) GRANTS FOR STEM DEGREE APPLIED LEARNING OPPORTUNITIES.—

(1) IN GENERAL.—The Director of the National Science Foundation shall award competitive grants to universities partnering with employers or employer consortia that commit to offering apprenticeships, internships, research opportunities, or applied learning experiences to enrolled university students in identified four-year STEM degree programs.

(2) APPLICATION.—In considering applications for grants under paragraph (1), the Director shall prioritize—

(A) applicants that consist of a partnership between—

(i) the applying university; and

(ii) individual employers or an employer consortia;

(B) applications that demonstrate current and future workforce demand in occupations directly related to selected STEM fields; and

(C) applications that include outreach plans and goals for recruiting and enrolling women and other populations historically underrepresented in STEM.

(3) FUNDING.—The National Science Foundation shall devote not less than $10,000,000 to awards described in this subsection, which shall include not less than $2,500,000 for each of fiscal years 2018 through 2021, subject to the availability of appropriations, to come from amounts made available for the Education and Human Resources Directorate. This subsection shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

(e) GRANTS FOR COMPUTER-BASED AND ONLINE STEM EDUCATION COURSES.—

(1) IN GENERAL.—The Director of the National Science Foundation shall award competitive grants to institutions of higher education or nonprofit organizations to conduct research on student outcomes

and determine best practices and scalability of computer-based and online courses for technical skills training.

(2) RESEARCH AREAS.—The research areas eligible for funding under this subsection may include—

(A) post-secondary courses for technical training for STEM occupations;

(B) improving high-school level vocational training in STEM subjects;

(C) encouraging and sustaining interest and achievement levels in STEM subjects among women and other populations historically underrepresented in STEM studies and careers; and

(D) combining computer-based and online STEM education and training with traditional mentoring and other mentoring arrangements, apprenticeships, internships, and other applied learning opportunities.

(3) FUNDING.—The National Science Foundation shall devote not less than $10,000,000 to awards described in this subsection, which shall include not less than $2,500,000 for each of fiscal years 2018 through 2021, subject to the availability

of appropriations, to come from amounts made available for the Education and Human Resources Directorate. This subsection shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

SEC. 4. RESEARCH ON EFFICIENCY OF SKILLED TECHNICAL LABOR MARKETS.

(a) EFFICIENCY OF SKILLED TECHNICAL LABOR MARKETS.—The Directorate of Social, Behavioral & Economic Sciences of the National Science Foundation, in coordination with the Secretary of Labor, shall support research that improves the efficiency of skilled technical labor markets in the United States, including research on labor market analysis innovations, data and information sciences, electronic information tools and methodologies, and metrics.

(b) COMPARISON OF UNITED STATES WORKFORCE.—

(1) RESEARCH.—The National Science Foundation shall commission research that compares and contrasts skilled technical workforce development between the United States and other developed countries, including the diversity of skilled technical and professional workforces, to the extent feasible.

(2) REPORT.—Not later than 3 years after the date of enactment of this Act, the Director of the National Science Foundation shall submit to Congress a report on the results of the study under paragraph (1).

(c) SKILLED TECHNICAL WORKFORCE.—

(1) REVIEW.—The National Center for Science and Engineering Statistics of the National Science Foundation shall consult and coordinate with other relevant Federal statistical agencies to explore the feasibility of expanding its surveys to include the collection of objective data on the skilled technical workforce.

(2) REPORT.—Not later than 1 year after the date of enactment of this Act, the Director of the National Science Foundation shall submit to Congress a report containing the progress made in expanding the National Center for Science and Engineering Statistics surveys to include the skilled technical workforce. Such report shall include a plan for multi-agency collaboration in order to effect data collection and reporting of data on the skilled technical workforce.

SEC. 5. SPENDING LIMITATION.

No additional funds are authorized to be appropriated to carry out this Act and the amendments made by this Act, and this Act and such amendments shall be carried out using amounts otherwise available for such purpose.

SEC. 6. EVALUATION AND REPORT.

(a) EVALUATION.—

(1) IN GENERAL.—Not later than 2 years after the date of enactment of this Act, the Director of the Foundation shall evaluate the grants and programs provided under this Act.

(2) REQUIREMENTS.—In conducting the evaluation under paragraph (1), the Director shall use a common set of benchmarks and assessment tools to identify best practices and materials developed or demonstrated by the research conducted pursuant to such grants and programs.

(b) REPORT ON EVALUATIONS.—Not later than 180 days after the completion of the evaluation under subsection (a), the Director of the Foundation shall submit to Congress and make widely available to the public a report that includes—

(1) the results of the evaluation; and

(2) any recommendations for administrative and legislative action that could optimize the effectiveness of the grants and programs under this Act.

(c) CONSULTATION.—In carrying out this section, the Director of the Foundation shall consult the programs and policies of other relevant Federal agencies to avoid duplication with, and enhance the effectiveness of, the grants and programs under this Act.

SEC. 7. DEFINITIONS.

In this Act:

(1) STEM.—The term ''STEM'' means science, technology, engineering, and mathematics, including computer science.

(2) COMMUNITY COLLEGE.—The term ''community college'' has the meaning given the term ''junior and community college'' in section 312 of the Higher Education Act of 1965 (20 U.S.C. 1058).

(3) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given such term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(4) REGION.—The term ''region'' means a labor market area, as such term is defined in section 3 of the Workforce Innovation and Opportunity Act (29 U.S.C. 3102).

(5) SKILLED TECHNICAL WORKFORCE.—The term ''skilled technical workforce'' means workers with high school diplomas and two-year technical training or certifications who employ significant levels of STEM knowledge in their jobs.

(6) UNIVERSITY.—The term ''university'' means a 4-year institution of higher education, as defined in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

○