

STEM RESEARCH AND EDUCATION EFFECTIVENESS AND
TRANSPARENCY ACT

DECEMBER 18, 2017.—Committed to the Committee of the Whole House on the State
of the Union and ordered to be printed

Mr. SMITH of Texas, from the Committee on Science, Space, and
Technology, submitted the following

R E P O R T

[To accompany H.R. 4375]

The Committee on Science, Space, and Technology, to whom was
referred the bill (H.R. 4375) to provide for a study on broadening
participation in certain National Science Foundation research and
education programs, to collect data on Federal research grants to
science agencies, and for other purposes, having considered the
same, report favorably thereon without amendment and rec-
ommend that the bill do pass.

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COMMITTEE STATEMENT AND VIEWS

PURPOSE AND SUMMARY

H.R. 4375, the “STEM Research and Education Effectiveness and
Transparency Act,” is sponsored by Rep. Barbara Comstock and

Rep. Eddie Bernie Johnson. The purpose of H.R. 4375 is for the National Science Foundation (NSF) to study and make recommendations to Congress regarding the effectiveness of its research and education programs aimed at broadening the participation of women and historically underrepresented individuals in Science, Technology, Engineering, and Mathematics (STEM) careers. The bill also requires each Federal science agency to collect standardized information, including demographics, for each application received for research and development grants from universities, research institutions, and federal laboratories. Agencies are to submit their standardized information annually to NSF, to be published in an annual summary.

BACKGROUND AND NEED FOR LEGISLATION

During the past decade, employment in STEM occupations has grown six times as fast as non-STEM occupations. The average wage for STEM occupations is nearly double the average for all occupations. By 2018, however, projections are that 2.4 million STEM jobs will go unfilled.

Women continue to be underrepresented in STEM fields and therefore represent a prime opportunity to help fill the STEM void. According to the National Center for Science and Engineering Statistics (NCSES) women comprise 48 percent of the U.S. workforce but just 24 percent of STEM workers. For instance, 86 percent of engineers and 74 percent of computer professionals are male.

Many minority groups are also significantly under-represented in many STEM fields. Hispanics account for 6 percent of employment in STEM occupations, which is lower than their share of the U.S. population age 21 and older (15 percent), and African Americans account for 5 percent of science and engineering employment, which is lower than their share of the U.S. population age 21 and older (12 percent).

Attracting more women and individuals from historically under-represented populations to STEM studies and careers will create economic opportunities in higher-paying occupations and bolster the nation's capabilities in areas of science and technology that are crucial to our future economic and national security.

The National Science Foundation is the second largest federal resource for STEM education. NSF invests millions of taxpayer dollars annually in education and research programs aimed at increasing STEM participation among women and under-represented populations. The study required in H.R. 4375 will give Congress, NSF, and other stakeholders objective information about what kinds of interventions and assistance are efficient, scalable, and effective, and which are not.

H.R. 4375 also requires all Federal science agencies to collect standardized information, including demographics, for each application received for research and developments grants. Agencies are to submit the information annually to NSF and it is to be reported as part of the agency's annual science and engineering indicators report. This information will provide better transparency as to how taxpayer dollars are spent on research and scientists across the Federal government.

LEGISLATIVE HISTORY

On March 9, 2017, the Research and Technology Subcommittee held a hearing entitled, “National Science Foundation Part 1: Overview and Oversight.” Witnesses were: Dr. France Córdova, Director, National Science Foundation; Ms. Allison Lerner, Inspector General, National Science Foundation.

On March 21, 2017, the Research and Technology Subcommittee held a hearing entitled, “National Science Foundation Part II: Future Opportunities and Challenges for Science.” Witnesses were: Dr. Joan Ferrini-Mundy, Acting Chief Operating Officer, National Science Foundation; Dr. Maria Zuber, Chair, National Science Board; Dr. Jeffrey Spies, Co-Founder and Chief Technology Officer, Center for Open Science and Assistant Professor, University of Virginia; Dr. Keith Yamamoto, Vice Chancellor for Science Policy and Strategy, University of California, San Francisco.

On July 26, 2017, the Research and Technology Subcommittee held a hearing entitled, “STEM and Computer Science Education: Preparing the 21st Century Workforce.” Witnesses were: Mr. James Brown, Executive Director, STEM Education Coalition; Mr. Pat Yongpradit, Chief Academic Officer, Code.org; Dr. A. Paul Alivisatos, Executive Vice Chancellor & Provost, Vice Chancellor for Research, and Professor of Chemistry and Materials Science & Engineering, University of California, Berkeley; Ms. Dee Mooney, Executive Director, Micron Technology Foundation.

On November 15, the full Committee approved by voice vote H.R. 4375, the STEM Research and Education Effectiveness and Transparency Act.

COMMITTEE VIEWS

Broadening Participation Report

The National Science Foundation has invested billions of dollars in research and programs to broaden participation in STEM studies and research. The Committee recognizes the importance of these efforts, but is concerned that there has not been enough collection and dissemination of outcomes data on these investments. The Committee believes that the collection and sharing of best practices will save taxpayer dollars and accelerate the advancement of broader participation in STEM. The Committee understands that NSF is working to address this issue through the new NSF initiative Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES). The Committee further understands that a key objective of NSF INCLUDES is to engage current NSF awardees working on broadening participation, as well as the broader STEM community, in the creation and development of a network to help provide connections to this community. The Committee is aware that NSF is supporting efforts that create, analyze and aggregate knowledge and assessments, and also implement, expand, and sustain effective practices. The Committee determines that a report to Congress is complementary to this effort, and will give the committees, NSF, and other stakeholders objective information about what kinds of interventions and assistance are efficient, scalable and effective, and which are not effective, efficient, or useful.

Collection and Reporting of Data on Federal Research Grants

The Committee believes that the collection and reporting of data on federal research grant applications will provide better transparency to how taxpayer dollars are spent on research and scientists across the Federal government. The Committee finds that the data and reporting requirements of this bill are complementary to the Digital Accountability and Transparency Act of 2014 (DATA Act) and should not make implementation overly burdensome. However, the Committee is concerned by the results of a November 2017 independent audit of NSF's implementation of the DATA Act and urges NSF to adopt the recommendations made by auditors to comply with the DATA Act and this provision of H.R. 4375.

SECTION-BY-SECTION

Sec. 1. Short title

STEM Research and Education Effectiveness and Transparency Act.

Sec. 2. Broadening participation in STEM program effectiveness study

This section requires the NSF Director to submit a report to Congress, one year after enactment, on the effectiveness of all NSF research and education programs in broadening the participation of women and other underrepresented individuals in STEM studies and careers.

Sec. 3. Collection and reporting of data on Federal research grants

This section requires each Federal science agency to collect standardized record-level annual information on demographics, primary field, award type, review rating, budget request, funding outcome, and awarded budget for each application for merit-reviewed research and development grants to institutions of higher education and Federal laboratories supported by that agency. This section also requires the Director of NSF to publish a statistical summary of all the data collected.

EXPLANATION OF AMENDMENTS

There were no amendments to this bill.

COMMITTEE CONSIDERATION

On November 15, 2017, the Committee met in open session and ordered reported favorably the bill, H.R. 4375, by voice vote, a quorum being present.

APPLICATION OF LAW TO THE LEGISLATIVE BRANCH

Section 102(b)(3) of Public Law 104–1 requires a description of the application of this bill to the legislative branch where the bill relates to the terms and conditions of employment or access to public services and accommodations. This bill provides for a report from the NSF to make recommendations to Congress regarding the effectiveness of its research and education programs aimed at broadening the participation of women and historically underrepresented individuals in STEM studies and careers. As such this bill

does not relate to employment or access to public services and accommodations.

STATEMENT OF OVERSIGHT FINDINGS AND RECOMMENDATIONS OF THE COMMITTEE

In compliance with clause 3(c)(1) of rule XIII and clause (2)(b)(1) of rule X of the Rules of the House of Representatives, the Committee's oversight findings and recommendations are reflected in the descriptive portions of this report.

STATEMENT OF GENERAL PERFORMANCE GOALS AND OBJECTIVES

H.R. 4375 provides for a report from the NSF to make recommendations to Congress regarding the effectiveness of its research and education programs aimed at broadening the participation of women and historically underrepresented individuals in STEM studies and careers.

DUPLICATION OF FEDERAL PROGRAMS

No provision of H.R. 4375 establishes or reauthorizes a program of the Federal Government known to be duplicative of another Federal program, a program that was included in any report from the Government Accountability Office to Congress pursuant to section 21 of Public Law 111-139, or a program related to a program identified in the most recent Catalog of Federal Domestic Assistance.

DISCLOSURE OF DIRECTED RULE MAKINGS

The Committee estimates that enacting H.R. 4375 does not direct the completion of any specific rule makings within the meaning of 5 U.S.C. 551.

FEDERAL ADVISORY COMMITTEE ACT

The Committee finds that the legislation does not establish or authorize the establishment of an advisory committee within the definition of 5 U.S.C. App., Section 5(b).

UNFUNDED MANDATE STATEMENT

Section 423 of the Congressional Budget and Impoundment Control Act (as amended by Section 101(a)(2) of the Unfunded Mandates Reform Act, P.L. 104-4) requires a statement as to whether the provisions of the reported include unfunded mandates. In compliance with this requirement the Committee has received a letter from the Congressional Budget Office included herein.

EARMARK IDENTIFICATION

H.R. 4375 does not include any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9 of rule XXI.

COMMITTEE ESTIMATE

The Committee estimates that implementing H.R. 4375 would have no effect on direct spending or revenue.

BUDGET AUTHORITY AND CONGRESSIONAL BUDGET OFFICE COST
ESTIMATE

The Committee advises that a Congressional Budget Office cost estimate was not available at the time this report was printed.

