

116TH CONGRESS
2D SESSION

H. R. 8390

To require the Director of the National Science Foundation to establish a grant program to make grants to eligible entities to develop instructional content on artificial intelligence, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 24, 2020

Mr. TONKO (for himself and Mr. RESCENTHALER) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on Education and Labor, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

A BILL

To require the Director of the National Science Foundation to establish a grant program to make grants to eligible entities to develop instructional content on artificial intelligence, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. GRANT PROGRAM FOR ARTIFICIAL INTEL-**
4 **LIGENCE INSTRUCTIONAL CONTENT.**

5 (a) IN GENERAL.—Beginning not later than January
6 1, 2022, the Director shall award grants on a competitive

1 basis to eligible entities to research the development of in-
2 structional content for teachers of a public elementary
3 school or secondary school in accordance with subsection
4 (e).

5 (b) APPLICATIONS.—

6 (1) IN GENERAL.—To be eligible to receive a
7 grant under subsection (a), an eligible entity shall
8 submit to the Director an application at such time,
9 in such manner, and containing such information as
10 the Secretary may require, which shall include—

11 (A) an explanation detailing how the pro-
12 posed research and development of instructional
13 content by such eligible entity would com-
14 plement and enrich a curriculum approved by a
15 State educational agency for implementation in
16 a public elementary school or secondary school;
17 and

18 (B) a plan to—

19 (i) develop or adapt instructional con-
20 tent in accordance with subsection (e);

21 (ii) pilot such instructional content in
22 a public elementary school or secondary
23 school; or

24 (iii) assess the comprehension of stu-
25 dents after the instruction of such pilot in-

1 instructional content to determine the effi-
2 cacy of such instructional content.

3 (2) CONDITIONS FOR RECEIVING A GRANT.—As
4 a condition of receiving a grant under this section,
5 an eligible entity shall agree to—

6 (A) report to the Director, at such time
7 and in such manner as the Director may re-
8 quire, on—

9 (i) the activities carried out and mate-
10 rials developed using funds from such
11 grant; and

12 (ii) input received from any teacher of
13 an elementary school or secondary school
14 that has successfully used the instructional
15 content within the curriculum of such
16 school;

17 (B) ensure that all instructional content
18 created as a result of such grant are freely
19 available to the public; and

20 (C) comply with the requirements of sec-
21 tion 3474.20 of title 2, Federal Code of Regula-
22 tions.

23 (c) REVIEW BOARD.—

1 (1) ESTABLISHMENT.—The Director shall es-
2 tablish, and appoint individuals to, a review board to
3 select the grant recipients in accordance with—

4 (A) the standard metrics in the most re-
5 cent version of the National Science Foundation
6 Proposal and Award Policies Guide; and

7 (B) the metrics outlined in subsection (d).

8 (2) COMPOSITION.—The review board shall be
9 equally comprised of the following:

10 (A) Faculty members at institutions of
11 higher education with expertise in artificial in-
12 telligence.

13 (B) Faculty members at institutions of
14 higher education with expertise in education.

15 (C) Teachers at institutions of higher edu-
16 cation.

17 (D) Teachers at elementary schools or sec-
18 ondary schools, including elementary schools or
19 secondary schools receiving funds under part A
20 of title I of the Elementary and Secondary
21 Education Act of 1965 (20 U.S.C. 6311 et
22 seq.).

23 (E) Professionals who, as determined by
24 the Director, spend the majority of their work-

1 day interacting with artificial intelligence tools
2 in the workplace.

3 (d) ADDITIONAL SELECTION METRICS.—The Direc-
4 tor shall develop metrics, for the review board to measure
5 the likely success of an application, that assess—

6 (1) the ability for the instructional content de-
7 rived from the research grants to be widely distrib-
8 uted, and easily accessible, to public elementary
9 schools and secondary schools;

10 (2) the ability for the instructional content de-
11 rived from the research grants to reach a diverse
12 student body; and

13 (3) the ability for the instructional content de-
14 rived from the research grants to address the unique
15 needs of a school receiving Federal funds under
16 Title 1 of the Elementary and Secondary Education
17 Act of 1965 (20 U.S.C. 6301 et seq.).

18 (e) INSTRUCTIONAL CONTENT.—

19 (1) IN GENERAL.—An eligible entity conducting
20 research under subsection (a) shall devise a com-
21 prehensive and structured series of exercises—

22 (A) appropriate to each grade level; and

23 (B) designed to—

1 (i) convey the principles behind, me-
2 chanics of, and societal implications or eth-
3 ics of the use of artificial intelligence; and

4 (ii) provide teaching instructions for
5 teachers at elementary schools or sec-
6 ondary schools on such mechanisms when
7 needed.

8 (2) TEACHING INSTRUCTIONS.—In providing
9 teaching instructions for teachers at elementary
10 schools or secondary schools under paragraph (1),
11 an eligible entity may include the following:

12 (A) Prescribed worksheets.

13 (B) Textbooks or other reading materials.

14 (C) Educational games.

15 (D) Digital instructional resources, includ-
16 ing web-based applications, mobile applications,
17 or application programming interfaces.

18 (E) Virtual professional development pro-
19 grams for teachers at elementary schools or sec-
20 ondary schools, including webinars, online con-
21 ferences, or massive open online courses.

22 (F) Tools to improve the accessibility of in-
23 structional content to students with learning
24 disabilities.

1 (G) Tools to improve the accessibility of in-
2 structional content to students learning English
3 as a second language.

4 (H) Any other materials or activities that
5 the Director determines to be necessary to ac-
6 complish the general goal outlined in paragraph
7 (1)(B)(i).

8 (3) TOPICS.—In conveying the mechanisms be-
9 hind artificial intelligence and the societal implica-
10 tions of the use of artificial intelligence, an eligible
11 entity may address the following topics:

12 (A) How artificial intelligence systems
13 work, including—

14 (i) how artificial intelligence systems
15 perceive and interact with their sur-
16 rounding environments;

17 (ii) how artificial intelligence systems
18 derive patterns and relationships from
19 data; and

20 (iii) how artificial intelligence systems
21 adapt based on the acquisition of new in-
22 formation.

23 (B) The societal implications of the broad
24 application of artificial intelligence systems, in-
25 cluding—

1 (i) investigating when and how bias
2 may be intentionally or unintentionally cre-
3 ated when using artificial intelligence;

4 (ii) investigating the tradeoffs between
5 privacy and security as it pertains to the
6 use of artificial intelligence applications;
7 and

8 (iii) investigating the likely future im-
9 pacts of artificial intelligence on society.

10 (C) Any other topics determined necessary
11 by the Director.

12 (f) EVALUATION.—

13 (1) IN GENERAL.—Not later than 4 years after
14 the date of the enactment of this Act, and every 3
15 years thereafter, the Director shall evaluate the
16 grant program under this section.

17 (2) CONTENT.—In evaluating the grant pro-
18 gram under subsection (a), the Director shall in-
19 clude—

20 (A) a common set of benchmarks and as-
21 sessment tools to identify best practices and
22 materials developed and demonstrated by the
23 grant recipients; and

24 (B) recommendations for future expansion
25 of such program.

1 (3) PUBLICATION.—Not later than 30 days
2 after the completion of the evaluation under para-
3 graph (1), the results of such evaluation shall be
4 made available on a publicly accessible website of the
5 National Science Foundation.

6 (g) DEFINITIONS.—In this section:

7 (1) ARTIFICIAL INTELLIGENCE.—The term “ar-
8 tificial intelligence” means a machine-based system
9 that—

10 (A) can, for a given set of human-defined
11 objectives, make predictions, recommendations,
12 or decisions that influence real or virtual envi-
13 ronments; and

14 (B) uses machine and human-based inputs
15 to—

16 (i) perceive real and virtual environ-
17 ments;

18 (ii) abstract such perceptions into
19 models through analysis in an automated
20 manner; and

21 (iii) use model inference to formulate
22 options for information or action.

23 (2) DIRECTOR.—The term “Director” means
24 the Director of the National Science Foundation.

1 (3) ELIGIBLE ENTITY.—The term “eligible enti-
2 ty” means—

3 (A) a State research agency;

4 (B) a Federal research agency;

5 (C) an institution of higher education;

6 (D) a junior or community college;

7 (E) a nonprofit organization with a history
8 of publishing peer-reviewed research in the
9 fields of education, computer science, or related
10 fields; or

11 (F) any combination of subparagraphs (A)
12 through (E).

13 (4) ELEMENTARY SCHOOL; SECONDARY
14 SCHOOL.—The terms “elementary school” and “sec-
15 ondary school” have the meanings given those terms
16 in section 8101 of the Elementary and Secondary
17 Education Act of 1965 (20 U.S.C. 7801).

18 (5) INSTITUTION OF HIGHER EDUCATION.—The
19 term “institution of higher education” has the
20 meaning given that term in section 101 of the High-
21 er Education Act of 1965 (20 U.S.C. 1001).

22 (6) INSTRUCTIONAL CONTENT.—The term “in-
23 structional content” means lesson plans, educational
24 tools, and educational resources designed to assist in
25 the teaching of a concept or series of concepts in a

1 structured manner to students in elementary schools
 2 or secondary schools.

3 (7) JUNIOR OR COMMUNITY COLLEGE.—The
 4 term “junior or community college” has the meaning
 5 given that term in section 312(f) of the Higher Edu-
 6 cation Act of 1965 (20 U.S.C. 1058(f)).

7 (8) STATE EDUCATIONAL AGENCY.—The term
 8 “State educational agency” means the State board
 9 of education or other agency or officer primarily re-
 10 sponsible for the State supervision of public elemen-
 11 tary schools and secondary schools, or, if there is no
 12 such officer or agency, an officer or agency des-
 13 ignated by the Governor or by State law.

14 **SEC. 2. ROBERT NOYCE TEACHER TRAINING AND EDU-**
 15 **CATION PROGRAM.**

16 Section 10(i)(5) of the National Science Foundation
 17 Authorization Act of 2002 (42 U.S.C. 1862n–1(i)(5)) is
 18 amended to read as follows:

19 “(5) the term ‘mathematics and science teacher’
 20 means—

21 “(A) a science, technology, engineering,
 22 mathematics, or computer science, including cy-
 23 bersecurity, teacher at the elementary school or
 24 secondary school level; or

1 “(B) a teacher at an elementary school or
2 secondary school who instructs from a cur-
3 riculum that incorporates, to a substantial de-
4 gree, quantitative data analysis.”.

○