Institute of Education Sciences

NATIONAL CENTER FOR EDUCATION RESEARCH

Assistance Listing Number (ALN): 84.305C

Education Research and Development Center Program

Request for Applications

Letter of Intent	January 23, 2025	https://iesreview.ed.gov/LOI/LOISubmit
Application Package Available	December 20, 2024	https://www.grants.gov
Application Deadline	11:59:59 Eastern Time on March 14, 2025	https://www.grants.gov
Possible Start Dates	September 1, 2025	

See the companion IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) for guidance on preparing and submitting applications through Grants.gov.

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Part I: Overview

A. Purpose of the Education Research and Development Center Program (ALN 84.305C)

Through its National Center for Education Research (NCER), the Institute of Education Sciences (IES) supports a program of research to build knowledge and understanding of education practice and policy. IES was established by the Education Sciences Reform Act of 2002 (ESRA – P.L. 107-279), in part to improve academic achievement and attainment and access to educational opportunities for all learners (ESRA, § 111.b.1.B), with a particular focus on low-performing learners (ESRA, § 115.a.1) and those lacking access to high-quality educational opportunities (ESRA, § 115.a.2.A and 115.a.2.B). In carrying out this mission, we are committed to ensuring that our work is objective, secular, neutral, and nonideological; free of partisan political influence; and free of racial, cultural, gender, or regional bias (ESRA, § 111.b.2.B).

Through the Education Research and Development Center (R&D Center) program, NCER supports R&D centers that conduct research and provide national leadership on key education issues that face our nation. These centers have greater resources than are available through the Education Research Grants program (ALN 84.305A; https://ies.ed.gov/funding/ncer_progs.asp) to tackle understudied but critically important topics and create innovative solutions that could be deployed at scale. See https://ies.ed.gov/ncer/RandD/ for information on existing national R&D centers.

For the FY 2025 R&D Center competition, IES invites applications for two national R&D centers:

1. Improving Gifted Education
2. Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education

Each of these R&D centers will be responsible for conducting a **focused program of research** that will contribute to solving a specific education problem and generate new knowledge in its topic area; providing **national leadership, research training, capacity building, and outreach** within the topic area; and conducting relatively **rapid research and scholarship on supplemental questions** that emerge within its topic area.

The Improving Gifted Education center will be supported with funding authorized through the Jacob K. Javits Gifted and Talented Students Education Act and will partially fulfill the requirements of the Jacob K. Javits Gifted and Talented Students Education Program (Elementary and Secondary Education Act, Section 4644) which includes the establishment of a National Research Center for the Education of Gifted and Talented Children and Youth.

The Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education center will be supported as part of the Accelerate, Transform, and Scale Initiative established by IES to invest in quick-turnaround high-reward, scalable solutions intended to improve education outcomes for all learners as directed in the Explanatory Statement accompanying the fiscal year (FY) 2023 Consolidated Appropriations Act (P.L. 117–328).

To encourage rigorous education research that is transparent, actionable, and focused on meaningful outcomes, all applicants are expected to incorporate the **IES Standards for Excellence in Education Research** (SEER; https://ies.ed.gov/seer/) into their proposed research, as applicable. SEER recommends that researchers pre-register studies; make findings, methods, and data open; address inequities in learners' opportunities, access to resources, and outcomes; identify interventions' components; document treatment implementation and contrast; analyze interventions' costs; use high-

quality outcome measures; facilitate generalization of study findings; and support scaling of promising interventions.

NCER expects researchers receiving funding through this program to disseminate evidence in a way that is useful to and accessible by learners, educators, parents, policymakers, researchers, and the public (ESRA, § 112.2). To support accessibility to all stakeholders, IES grantees **must** comply with the IES Policy Regarding Public Access to Research (https://ies.ed.gov/funding/researchaccess.asp) and adhere to other open science practices and SEER principles (https://ies.ed.gov/seer/) where applicable.

B. Getting Started

1. Technical Assistance for Applicants

We strongly encourage all applicants to contact NCER program officers during the application planning and preparation process. Applicants may do so at any time via phone or e-mail. IES program officers can work with applicants up until the time the application is submitted to Grants.gov.

We strongly encourage you to submit a Letter of Intent (LOI) on the IES Peer Review website (https://iesreview.ed.gov/LOI/LOISubmit). If you do so, a program officer will contact you regarding your proposed project. IES also offers webinars (https://ies.ed.gov/funding/webinars/index.asp) and virtual office hours (https://ies.ed.gov/funding/technicalassistance.asp) for general guidance on grant writing and submitting your application and choosing the appropriate competition, topic, and project type.

The program officers for the FY 2025 Education Research and Development Center (R&D Center) program are:

- Improving Gifted Education
  - Dr. Corinne Alfeld (Corinne.Alfeld@ed.gov; 202-987-0835)
- Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education
  - Dr. Meredith Larson (Meredith.Larson@ed.gov; 202-804-7451)

2. Eligible Applicants

For Improving Gifted Education, partnerships involving at least one institution of higher education and at least two State educational agencies with the ability and capacity to conduct rigorous research are eligible to apply. **At a minimum, applications must include an institution of higher education and the education agencies from at least two states. The institution of higher education and the state educational agencies will implement the work of the Center together as partners.** Applications may also include additional institutions of higher education, additional state education agencies, local educational agencies, other public agencies, other private agencies and organizations, other research institutions, and non-profit and for-profit organizations.

For Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education, institutions that have the ability and capacity to conduct rigorous research are eligible to apply. Eligible applicants include, but are not limited to, non-profit and for-profit organizations and public and private agencies and institutions, such as colleges and universities.

Broadening Participation in the Education Sciences[1]: IES is committed to broadening institutional participation in its research grant programs. IES encourages applications from minority-serving institutions (MSIs) that meet the eligibility criteria for this request for applications (RFA). MSIs include Alaska Native and Native Hawaiian-Serving Institutions; American Indian Tribally Controlled Colleges and Universities; Asian American and Native American Pacific Islander-Serving Institutions; Hispanic-Serving Institutions; Historically Black Colleges and Universities; Predominantly Black Institutions; and Native American-Serving, Nontribal Institutions. IES also encourages applications from eligible institutions, including R2 institutions, that have not previously received funding.

3. Building Your Project Team

The principal investigator (PI) has the authority and responsibility for the proper conduct of the research, including the appropriate use of federal funds and the submission of required scientific progress reports, and is the primary point of contact with IES. The PI is designated by the institution submitting the application. Other personnel having authority and responsibility for the research and use of grant funds should be designated as co-principal investigators (co-PIs). Even if two or more people will share the authority and responsibility for leading and directing the proposed research intellectually and logistically as co-PIs, only one of them may be identified as the PI for the purposes of making a grant award. All team members making substantial contributions to the work should be considered as key personnel, described in the Personnel section of the Project Narrative, and have a biosketch included.

IES strives to ensure that the researchers we fund are drawn from the entire pool of talented individuals who bring different backgrounds, perspectives, interests, and experiences to address complex education problems (https://ies.ed.gov/aboutus/diversity.asp).

Although not required at the time of application, all key personnel must have a persistent identifier (PID), such as an ORCID iD (Open Researcher and Contributor ID; https://orcid.org/) at the time of award. For all key personnel who have a PID at the time of application, include the PID in the biosketch and in the "Credential, e.g., agency login" field on the Research and Related Senior/Key Person Profile (Expanded) form in the application package. All key personnel must have a PID as a condition of the award.

4. RFA Organization and the IES Application Submission Guide

To submit a compliant, responsive, and timely application, you will need to review two documents:

1. *This RFA* provides information on how to prepare an application that is compliant and responsive to the requirements. Part II sets out the general requirements for a center application and topic-specific requirements for each R&D Center. Part III provides information about general formatting and the other narrative content for the application, including required and optional appendices. Part IV provides general information on competition regulations and the review process. Part V provides **a checklist that you can use to ensure you have included all required application elements to advance to scientific peer review**. Part VI provides the codes to enter in Item 4b of the SF 424 Application for Federal Assistance form.

[1] Section 114 of the Education Science Reform Act of 2002 charges IES with undertaking "initiatives and programs to increase the participation of researchers and institutions that have been historically underutilized in Federal education research activities of IES, including historically Black colleges or universities or other institutions of higher education with large numbers of minority students."

2. *The IES Application Submission Guide* (https://ies.ed.gov/funding/submission_guide.asp) provides important information about submission procedures and IES-specific guidance and recommendations to help you ensure your application is complete and received without errors on time through Grants.gov.

We strongly recommend that both the principal investigator (PI) and the authorized organization representative (AOR) read both documents.

5. Ensuring Your Application is Forwarded for Scientific Peer Review

Only compliant and responsive applications received before the date and time deadline are peer reviewed for scientific merit and practical significance. The PI and the AOR should work together to ensure that the application meets these criteria.

a) On-time submission

- Received and validated by Grants.gov **no later than 11:59:59 p.m. Eastern Time on March 14, 2025** (See the separate IES Application Submission Guide https://ies.ed.gov/funding/submission_guide.asp)

b) Compliance

- Includes the **required R&D center narrative** (see Part II)
- Includes the **required Appendix A: Data Sharing and Management Plan** (see Part III)
- Includes the **required Appendix D: Letters of Agreement** (see Part III)
- Adheres to all **formatting requirements** (see Part III)
- Adheres to all **page limit maximums** for the R&D center narrative (see Part II) and appendices (see Part III). IES will remove any pages above the maximum before forwarding an application for scientific peer review

c) Responsiveness

- Meets **General Requirements** (see Part II)
- Meets **Sample, Outcomes, and Setting Requirements** for the selected R&D Center topic (see Part II).
- Meets **R&D Center Narrative Requirements** for the selected R&D Center topic (see Part II).

Part II: R&D Center Requirements and Recommendations

For this competition, you **must** submit to one of the two R&D Center topics described in this section. You **must** identify your chosen topic on the Application for Federal Assistance SF 424 form (Item 4b) of the Application Package (see the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) and the topic codes in Part VI) to ensure that your application is assigned appropriately for scientific peer review.

A. General Requirements for all R&D Center Applications

1. Eligible Study Populations

For this Request for Applications, NCER will fund education research that addresses the needs of learners from K-12 for the Improving Gifted Education Center and learners in postsecondary education (primarily baccalaureate and/or sub-baccalaureate) for the Postsecondary Instruction AI Center. If you propose research focused *solely* on the needs of learners with or at risk for disabilities, you **must** apply to the separate grant programs run by the National Center for Special Education Research (NCSER; https://ies.ed.gov/ncser).

2. Education Settings

Proposed research **must** be relevant to education in the United States and **must** address factors under the control of U.S. education systems. Proposed research must also be conducted in or use data from formal education settings in the United States, as described below.

For the Gifted Education Center, formal education settings in the United States include but are not limited to public and private K-12 schools and formal programs under the control of education agencies that take place out of school including after-school, distance learning, and online learning.

For the Postsecondary Instruction AI Center, formal education settings in the United States include but are not limited to community colleges, technical colleges, and 4-year colleges and universities and formal programs under the control of postsecondary systems or agencies involved in postsecondary education that take place out of school including after-school, distance learning, and online.

3. R&D Center Narrative

You **must** include an R&D Center Narrative with six sections: (i) **Significance of the Focused Program of Research**, (ii) **Research Plan for the Focused Program of Research**, (iii) **Research Training,** (iv) **National Leadership, Capacity Building, and Outreach Activities**, (v) **Management and Institutional Resources**, and (vi) **Personnel**. If any of these six sections are missing the application will not move forward to peer review.

The R&D Center Narrative **must** adhere to the formatting guidelines (see Part IV.B) and be **no more than 35 pages**. For example, the use of small type will be grounds for IES to return the application without scientific peer review. If the narrative exceeds the page limit, IES will remove any pages after the 35th page of the narrative.

B. Specific Requirements and Recommendations for R&D Centers

For each R&D Center Topic —

- **See the Purpose section** for a description of key challenges and identified needs that each R&D Center will address in the R&D Center's topic area.
- **See the Award Limit** section for the maximum duration and budget that can be requested for each R&D Center Topic.
- **See the Requirements section** for the specific content that you **must** address in the six sections of the R&D Center narrative. **Applications lacking this specific content will not be forwarded to peer review**.
- **See the Recommendations for Strong Applications section** for recommendations to improve the quality of your application. Reviewers determine quality in part by considering whether you have incorporated relevant recommendations appropriately. Many of these recommendations are aligned with the SEER principles (https://ies.ed.gov/seer/) to help ensure that research is transparent, actionable, and focused on meaningful outcomes that have the potential to dramatically improve education.

Note that IES may invite researchers funded through this competition to apply later for funding to extend the data collection period to collect follow-up data on study participants. Applicants should plan for this possibility by proposing procedures to maintain contact with participants and ensuring IRB protocols are written to allow researchers to follow participants longitudinally.

1. Improving Gifted Education

Program Officer: Dr. Corinne Alfeld (Corinne.Alfeld@ed.gov; 202-987-0835)

a) Purpose

Under this topic, IES requests applications to establish a National Research and Development (R&D) Center on Improving Gifted Education (Gifted Education Center). The work of the Gifted Education Center is intended to (a) support research that will improve the practice of gifted education and (b) to expand opportunities for further research on gifted education. To address these two purposes, the Gifted Education Center will carry out a focused program of research, provide training, and conduct leadership, capacity building and outreach activities.

The focused program of research will include three research activities.

- Program/Policy Research: The Gifted Education Center will be a partnership of at least one institution of higher education and at least two state education agencies that examines a gifted program and/or policy issue of high importance to each state (note: the program or policy may differ between the states).
- Data Landscape Study: The Gifted Education Center will document the availability of data on the education of gifted students in national, state, and other datasets, and make this documentation available on its website and through other forms of dissemination.
- Toolkit Development: The Gifted Education Center will develop a toolkit in collaboration with state and/or district education agencies (either a single general toolkit or multiple smaller toolkits) that will provide guidance on implementing specific gifted education practices, programs, and/or policies to support state and local education agencies in taking practical steps to establish or improve gifted education. The toolkit will be explicit about the level of evidence regarding each practice, program, and policy included and will be user tested with an education agency. The state education agencies may be the same agencies involved in the program/policy research.

The Gifted Education Center will provide research training to (a) involve new researchers in the field of gifted education, (b) provide researchers with access to advanced research methods, and (c) increase the capacity of education agencies to collect and use data on gifted education to improve practice, programs, and policies.

The Gifted Education Center will conduct national leadership, capacity building, and outreach activities to promote the Center's national visibility, engage with the fields of research and practice, and allow it to function as a trusted source of scientific research in gifted education.

The Gifted Education Center will partially fulfill the requirements of the Jacob K. Javits Gifted and Talented Students Education Program (Elementary and Secondary Education Act, Section 4644) which includes the establishment of a National Research Center for the Education of Gifted and Talented Children and Youth.

b) Award Limit

$5,000,000 (direct and indirect costs) over no more than 5 years.

- The annual amount of funding will be $1 million per year.
- Five percent of the center's budget **must** be set aside to conduct supplemental activities to be determined in cooperation with IES after the award is made.

- **IES will not make an award for the Gifted Education Center that exceeds $5,000,000 or that is for longer than 5 years.**

c) Requirements

Applications for the Gifted Education Center **must** meet the requirements set out under **(a) Sample, Outcomes, and Setting** and **(b) R&D Center Narrative** to be responsive and sent forward for scientific peer review.

i. Sample, Outcomes, and Setting

(1) Sample

- Your research **must** focus on K-12 learners.
  - You may focus on the entire spectrum of K-12 learners or a subset of grade/age levels.

(2) Outcomes

- One or more of the following K-12 learner academic outcomes **must** be measured as part of the proposed program/policy research:
  - Learning, achievement, and higher order thinking in the academic content areas of literacy, STEM, and social studies;[2] English language proficiency; career and technical education (CTE) attainment;[3] digital literacy; and progression through education systems as indicated by course and grade completion, retention, high school graduation, and/or dropout.
- If you are examining the role of educators in improving learners' academic outcomes, you **must** also measure educator knowledge, skills, beliefs, behaviors, and/or practices.
- If you are examining learners' social, emotional, and/or behavioral competencies and/or efforts to improve them, you **must** also include measures of these competencies.
- You may also include milestones and achievement metrics that are specific to gifted learners, such as grade acceleration and special honors, or alternate measures of giftedness, such as visual-spatial skills or creativity.

(3) Setting

- The program/policy research **must** be conducted by a partnership of **at least one institution of higher education and at *least two state education agencies*.** Each institution and education agency **must** include a letter of agreement in Appendix D.
- The data landscape study **must** use datasets that include data from schools serving K-12 learners.
- The toolkit development and user testing, must involve ***at least two state or local education agencies,*** and a letter of agreement from each state or district partner must be included in Appendix D. The state education agencies may be the same agencies involved in the program/policy research or different ones.

[2] Social studies outcomes are defined as a learner's understanding of government structures and processes and how to be an engaged and knowledgeable citizen through skills and knowledge in civics, citizenship, geography, history, and economics.
[3] CTE attainment is defined as an indicator of mastery of CTE content or skills such as CTE course grades or credits earned, technical skills, assessment scores, industry certification, or employment outcomes in a field related to the CTE training.

ii. R&D Center Narrative

The six sections of the Gifted Center Narrative **must** include the content described below. Please see the recommendations section for additional information about what is expected in a strong application.

(1) Significance of the Focused Program of Research

The purpose of this section is to explain the significance of the focused program of research.

You **must** describe:

- The overall contribution of your proposed Gifted Education Center to gifted education research, policy, and practice.
- How each of the three required research activities (program/policy research, data landscape study, toolkit development) will contribute to and advance gifted education research, policy, and practice.
- How the work of your proposed Gifted Education Center will apply to all students who are or could be served by gifted education, particularly economically disadvantaged students, students who are English learners, and students with disabilities.

(2) Research Plan for the Focused Program of Research

The purpose of this section is to describe how you will complete the three required research activities.

You **must** describe your plans for each of the three required research activities:

- Program/Policy Research: Carry out the program/policy research to examine a gifted program or policy issue of high importance to each state (note: the program or policy may differ between the states).
- Data Landscape Study: Document the availability of data on the education of gifted students in national, state, and other datasets.
- Toolkit Development: Partner with two state and/or local education agencies to develop and user test one or more toolkits that provide evidence-based guidance to improve gifted programs.

(3) Research Training

The purpose of this section is to describe the training you will provide to (a) involve new researchers in the field of gifted education, (b) provide researchers with access to advanced research methods, and (c) increase the capacity of education agencies to collect and use data on gifted education to improve practice, programs, and policies.

You **must** describe the research training you will provide.

(4) National Leadership, Capacity Building, and Outreach Activities

The purpose of this section is to describe and justify the importance of the national leadership, capacity building, and outreach activities that the Gifted Education Center will conduct to promote the center's national visibility, engage with the fields of research and practice, and allow it to function as a trusted source of scientific research in gifted education.

You **must** describe your plans for:

- National leadership, capacity building, and outreach activities
- Holding an annual 2-day meeting with the project directors of awards from the Jacob K. Javits Gifted and Talented Students Education Program in Washington, DC in January of each year

(5) Management and Institutional Resources

The purpose of this section is to demonstrate that you have the organizational structure, institutional capacity, and access to resources needed to carry out and effectively manage the research studies and national leadership activities of the center.

You **must** describe the management and institutional resources of your proposed Center.

(6) Personnel

The purpose of this section is to demonstrate that your team possesses appropriate expertise and experience to carry out the focused program of research, training, national leadership, capacity building, and outreach activities and will commit sufficient time to the center.

You **must** describe your Center's project team.

d) Recommendations for Strong Applications

IES provides recommendations intended to improve the quality of your application. Peer reviewers use these recommendations in their evaluation of your application.

i. Significance of the Focused Program of Research

Explain how the Gifted Education Center's work will advance theory and practice in gifted education, including how the work will provide information that policymakers and practitioners can use to improve learner outcomes for gifted students (including economically disadvantaged individuals, individuals who are English learners, and children with disabilities) who may not be identified and served through traditional assessment methods.

For the program/policy research:

- Describe the gifted program or policy issue of high importance to each state (for at least two states and the program or policy may differ by state).
- Discuss the importance of the program or policy for each state's gifted education program and gifted education in general.
- Discuss how the findings from the program/policy research may be used by each state's policymakers and practitioners to improve gifted education.
- Describe the potential contribution of the program/policy research to gifted education research and practice in general.

For data landscape study:

- Identify the specific data at multiple levels (e.g., student, classroom, teacher school, district, state) you believe are necessary to carry out high-quality research on gifted education and improve state and local decision making on gifted education. Include data such as student access to, participation in, and outcomes from gifted education; curriculum and instruction; teacher professional development, qualifications, and certification; and gifted education programs and policies (e.g., acceleration, magnet schools, methods of identification).

- Identify the datasets you will review for the availability of data on the education of gifted students. Discuss why you selected these datasets as the most important datasets to review.
    - These datasets should include key national datasets (such as the Civil Rights Data Collection from the Office for Civil Rights, U.S. Department of Education), state longitudinal data systems, district data systems, data from prior research studies as well other datasets you have identified.
- Discuss how the landscape study and the dissemination of the information on the available data might increase and/or improve research on gifted education, and support state and local decision making on gifted education.
- Discuss how this study might show what additional data could be collected by specific data systems to improve their coverage of gifted education.

For the toolkits:

- Identify the topic(s) for the toolkit(s) you will develop in collaboration with state and/or district education agencies (either a single general toolkit or multiple smaller toolkits on specific gifted education practices, programs, and or policies) to support state and local education agencies in taking practical steps to establish or improve their gifted education programs.
- Describe the importance of the toolkit(s) on these topics for improving gifted education in the states and districts collaborating with you and the applicability of the toolkits for other states and districts.
- Describe why you selected the two (or more) states or districts where you will be developing and user testing the toolkits and how their involvement will increase the relevance and practical value of the toolkit(s) (include Letters of Agreement from each state or district to take part in the development and user testing in Appendix D).

ii. Research Plan for the Focused Program of Research

Strong applications will demonstrate that the methods and analysis plans will support the contributions and advancements to research, policy, and practice described in the Significance section.

Include a timeline for the three research activities in Appendix B: Supplemental Charts, Tables, and Figures.

For the program/policy research that will examine a gifted program or policy issue of high importance to each state (at least two states and the program or policy may differ by state):

- Describe the key research questions to be addressed.
- Describe your setting and sample and how these are appropriate for responding to the research questions.
- Discuss the learner education outcomes you will measure, any proximal measures you will use, and any other outcomes you intend to measure (including those required under Sample, Outcomes, and Setting).
- Describe if and how you will use the states' longitudinal data systems.
- Describe any data collection procedures.
- Present a power analysis for any pilot or impact studies.

- Describe the research designs and types of analyses you intend to do. You may propose descriptive, correlational, predictive and/or causal analyses. NCER encourages the use of mixed methods to address research questions that cannot be answered solely through quantitative analysis. NCER intends to fund only high quality research that provides information that will address the research questions and help each state agency in its decision making. Therefore, you should link your proposed analyses to the research questions and the decisions each state agency needs to make.
- Describe the data analysis procedures. Describe and justify the statistical models to be used for any quantitative analyses and your analysis plans for any qualitative data.
- Describe the findings or products you will generate and their intended audiences or users.
- Describe the collaboration with each state education agency and the role of each agency in the research (letters of support from the two state education agencies must be included in Appendix D).

For the data landscape study:

- Describe your access to the key datasets you will review for the availability of data on the education of gifted students.
    - These datasets should include key national datasets (such as the Civil Rights Data Collection from the Office for Civil Rights, U.S. Department of Education), state longitudinal data systems, district data systems, and as well other datasets you have identified.
- Describe how you will document and produce a report on (1) what data on gifted education the datasets include, (2) what data they lack (including any data you described as necessary for high-quality research under the Significance section), and (3) opportunities and obstacles to adding any missing data needed for gifted education research and practice to local, state, and national datasets.
- Discuss how you will identify datasets at the national, state, and district levels that can serve as exemplars for agencies seeking to improve their own data systems.

For the toolkits:

- Describe how you will develop a toolkit in collaboration with state and/or district education agencies (either a single general toolkit or multiple smaller toolkits on specific gifted education practices, programs, and/or policies) to support state and local education agencies in taking practical steps to establish or improve gifted education.
- Describe the expected components of the toolkit, for example:
    - The recommended gifted education practices (including practices, programs, and/or policies) that state and local education agencies can use to establish or improve gifted education
    - The evidence for using the gifted education practices to be included in the toolkit
    - An initial diagnostic tool that enables SEA and/or LEA staff to assess their current/baseline practice and future practice against the practices recommended in the toolkit
    - A comprehensive diagnostic tool that enables SEA and LEA staff to assess the extent to which their state and/or district supports the implementation and on-going monitoring of the practices recommended in the toolkit.
    - Professional development resources that provide the knowledge and skills associated with implementing the practices recommended in the toolkit with high fidelity

    - Guidance on the steps state and local education agency staff can take to help districts and schools set up the necessary support systems to maintain and sustain the practices recommended in the toolkit

- As part of the toolkit development process, discuss how you will ensure that the collaborating education agencies can use the toolkit and whether the options it offers are feasible for the collaborating education agencies to implement.
- Describe the format for the toolkits, print and/or digital options, and how that format is appropriate for their use by state and local education agency staff.
- Describe how the Center will use the findings from the program/policy research, data landscape analysis, and other sources in developing the toolkits.
- Describe how you will check whether the toolkit(s) meet the needs of state or district leaders for evidence-based guidance on gifted education. Discuss how the process can serve as a model for future toolkit development. You may develop the toolkit in one setting and check it in another, or you may develop and check a different toolkit in each setting.

iii. Research Training

Describe the training you will provide to (a) involve new researchers in the field of gifted education, (b) provide researchers with access to advanced research methods, and (c) increase the capacity of education agencies to collect and use data on gifted education to improve practice, programs, and policies.

In your description, address the different types of training participants and training to be provided including the following:

- How you will provide training to improve researchers' capacity to carry out high-quality research on gifted education including both current researchers and the next generation of researchers, including graduate students, early career researchers, and researchers new to gifted education. This training should include opportunities for researchers to take part in the Gifted Education Center's research activities and also training provided to researchers who will not be taking part in the Center's research.
- How you will provide training to state and local agency staff that will increase their capacity to analyze their data to better understand and improve their gifted education programs and policies.
- How you will provide training to state and local education agency staff to build or revise their administrative datasets to include more data and/or higher-quality data on gifted education.

Discuss how you will announce your training so that it is broadly known and describe the type of training formats you will provide, for example:

- Sessions at national, state, and regional conferences held for researchers or for state and local education agency staff involved in gifted education
- Training institutes held by the Gifted Education Center (virtual and/or in person)
- Asynchronous online training modules available to a wide audience

Describe any reference materials and technical assistance you will develop and provide to support participants after they have completed the training.

Include a timeline for the research training activities in Appendix B: Supplemental Charts, Tables, and Figures.

iv. National Leadership, Capacity Building, and Outreach Activities

Describe the activities the Gifted Education Center will conduct to promote the Center's national visibility, engage with the fields of research and practice, and allow it to function as a trusted source of scientific research in gifted education that can be used to improve gifted education policy and/or practice and learner outcomes. These leadership activities should include:

- An annual 2-day meeting with the project directors of awards from the Jacob K. Javits Gifted and Talented Students Education Program in Washington, DC in January of each year with one day set aside for the project directors of these grants to share project activities and findings and the other day for the project directors to meet with the staff of the Javits Gifted and Talented Student Education Program (project directors will use their Javits funds for meeting expenses).
- Meeting with the multiple stakeholders for gifted education to learn their interests and how to make the Gifted Education Center's work useful to them (this work might include such activities as listening sessions, direct meetings with stakeholder groups, open meetings at conferences, and establishing an advisory panel or working with existing forums).
- A website that can serve the field as a reference point for gifted education and that includes:
    - Findings and products developed by the Gifted Education Center
    - Updates on findings and products from rigorous gifted research and development done outside the Gifted Education Center
    - Training opportunities offered by the Gifted Education Center
    - Upcoming events regarding gifted education
    - Relevant research and products from past Gifted Education Centers and past and ongoing projects funded by the Javits Gifted and Talented Students Education Program
- Coordination with non-Center personnel working in the field of gifted education, including the Javits-funded project directors, to present at national and state professional and practitioner conferences and directly to interested state and local education agencies on using research findings, improving gifted programs and policies, and improving collection and use of gifted education data.

Describe the Gifted Education Center's activities to engage the fields of research and practice with the program/policy research findings, including the following activities.

- Publish research articles in peer-reviewed journals, submit them to ERIC, and make them freely usable/downloadable on the Center's website.
- Publish online policy briefs for federal and state policymakers on the Center website and share with other organizations and associations to post on their websites.
- Present research findings at both researcher and practitioner conferences and directly to interested state and local education agencies.
- Incorporate the research findings into the toolkits as appropriate.

Describe the Gifted Education Center's activities to engage the fields of research and practice with the data landscape analysis, including the following activities.

- Write and publish a guide for researchers on how to use the data sources reviewed (the different SLDS, the Civil Rights Data Collection, and other data sources) for gifted education research.
- Write and publish a guide for state and local agencies with recommended practices for collecting, cleaning, and including data on gifted education in their SLDS. Collaborate with the National Forum on Education Statistics on the development of the guide.
- Publish in practitioner outlets and on the Center's website exemplars of how state and local education agencies have collected, cleaned, and used data to support gifted programs and policies.
- Develop and post an interactive dataset that allows users to identify what gifted education variables are available in the different datasets reviewed.
- Present information about data availability at the NCES Effective Practices Conferences and other researcher and practitioner conferences (e.g., NAGC, AERA, regional meetings).
- Include the data landscape analysis in the Research Training component of the Center.

Describe the Gifted Education Center's activities to engage the fields of research and practice with the toolkits, including the following activities.

- Post the toolkits and make them freely usable/downloadable on the Center's website.
- Publish articles about the toolkits in both researcher and practitioner journals.
- Present the toolkits at both researcher and practitioner conferences and directly to state and local education agencies interested in establishing or revising their gifted education programs and policies.
- Include the toolkits in the Research Training component of the Center.

Describe how the Gifted Education Center will engage with

- The U.S. Department of Education's Technical Assistance Centers (https://oese.ed.gov/resources/oese-technical-assistance-centers/)
- The IES Regional Educational Laboratories (RELs; https://ies.ed.gov/ncee/rel/)
- A broad audience including researchers, practitioners, policymakers, associations and advocacy groups, parents, and students including such approaches as e-Newsletters, listservs, social media, synchronous and non-synchronous online presentations.

Describe how the above leadership and engagement activities along with the training activities will build the field's capacity to improve gifted education practice and research.

Include a timeline for the major national leadership, capacity building, and outreach activities in Appendix B: Supplemental Charts, Tables, and Figures.

v. Management and Institutional Resources

Describe plans and procedures for the structure and overall management of the Gifted Education Center and its various activities. Strong applications will demonstrate that you have sufficient research infrastructure and institutional capacity to carry out the focused program of research, research training, and the national leadership, capacity building, and outreach activities. Strong applications will also demonstrate that the commitments of each partner show support for the implementation and success of the center.

Identify the management structure and procedures you will use to keep the work of the Gifted Center on track and ensure that the center is responsive to the concerns and needs of IES while also carrying out the focused program of research, training, and national leadership activities.

- Make clear how all research institutions and state and local education agencies that are involved in the Gifted Education Center will work with one another, share information, and contribute to decision-making. It may be useful to include an organizational chart in Appendix B.
- Discuss your plans and procedures for coordinated communication and collaboration across settings, agencies, and partner research institutions.
- If you plan to add research sites or partners once the Gifted Education Center is established or over time, describe how you will identify, recruit, and establish formal relationships with these sites and the timeline for this work.
- Discuss the institution's capacity and experience for managing a grant of this size, including coordinating the work of multiple partners; managing large budgets including subcontracts; running large meetings, conferences and videoconferences; conducting other national leadership activities; and annual reporting.

Describe the resources you will use to support the work of the Gifted Education Center at both the primary applicant institution and any subaward institutions, including your

- Immediate access to resources available at the primary institution and any subaward institutions
- Plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the center to be successful
- Access to specific offices and organizations that will support planned national leadership, capacity building, and outreach activities
- Access to specific offices or organizations that will support dataset documentation and execution of the required Data Sharing and Management Plan (DSMP; see Appendix A: Data Sharing and Management Plan)
- Access to the settings and data sets necessary for the proposed research. Include letters of agreement, data licenses, or existing memoranda of understanding in Appendix D documenting this access

Describe the steps you will take to ensure meaningful involvement from state, regional, and/or local agencies, and other stakeholders in the communities where you are working.

- IES encourages including representatives from multiple state, regional, and local education agencies not taking part in the focused program of research to also be involved in identifying key issues for research, advising on how best to implement research, discussing the implications of findings, and identifying areas for follow-on research.
- Identify other stakeholder groups you will involve, their work regarding the gifted education programs and policies you are examining, and their role in the center's work.
- Explain whether your relationship with these education agencies and/or other stakeholder groups is new for this application or extends a prior relationship.

vi. Personnel

Describe how the background and experience of the Gifted Education Center team supports the

conduct of the focused program of research, the research training, the national leadership and the outreach activities with gifted education stakeholders.

- Identify the key personnel who will be responsible for each of the three studies proposed for the focused program of research and the amount of time they will devote to carry out these studies.
- Describe their expertise and experience for the work they will be responsible for and the amount of time (FTE) they will devote to the project. If key personnel have previously led one or more IES grants, briefly discuss the outcomes of the research, including products developed and/or tested and how the project's findings and products were disseminated consistent with IES's mission.
- Provide a plan for how key personnel will maintain their objectivity in conducting the proposed research and dissemination activities.
- Describe the personnel's experience and expertise for managing a grant of this size.
- Identify and describe the personnel from state, regional, and/or local agencies (at least one per state in which the program/policy research and the toolkit development are taking place) and their roles, qualifications, and experience with gifted education. Describe their role in the decision-making process regarding the program/policy research and toolkit development.
- Describe additional personnel at the primary applicant institution and any subaward institutions along with any consultants.

2. Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education

Program Officer:
Dr. Meredith Larson (Meredith.Larson@ed.gov; 202-804-7451)

a) Purpose

Under this topic, IES requests applications to establish a National Research and Development (R&D) Center on Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education (Postsecondary Instruction AI Center). The work of the Postsecondary Instruction AI Center is intended to (a) support research that will improve the use of generative AI in postsecondary instruction (primarily in baccalaureate and sub-baccalaureate education) and (b) to expand opportunities for further research on developing and implementing generative AI in postsecondary instruction. Researchers, product developers, and educators are envisioned working together to accomplish these two intentions.

The Postsecondary Instruction AI Center will carry out a focused program of research on the use of generative AI in improving formal postsecondary instruction in postsecondary courses. The Center will focus on educators (e.g., faculty teaching courses, teaching assistants, tutors) using generative AI as part of the instruction they directly provide to students or assign to students to use to complete their coursework. In addition, the Center will offer research training, and conduct leadership, capacity building, and outreach activities.

The focused program of research will include four research activities that will (a) identify the current use of generative AI in postsecondary instruction and (b) develop or revise a potentially useful generative AI tool for postsecondary instruction.

Identify Current Use of Generative AI in Postsecondary Instruction

- *Exploratory Study*: The Center will identify generative AI tools being used to improve postsecondary instruction. The exploratory study may have a broad focus or a narrow one centered on a particular type of tool, postsecondary institution or program, educator, and/or postsecondary student. This work will be ongoing as long as the Center exists, and the findings will be provided and updated on the Center's website in a publicly accessible and usable reference for researchers and practitioners.

Develop or Revise a Generative AI Tool for Use in Postsecondary Instruction

- *Iterative Development:* The Center will work with at least two postsecondary institutions, including at least one broad/open access institution, to develop at least one new or revise at least one existing generative AI tool designed for use in postsecondary instruction. This work will include a focus on the usability and feasibility of the tool for the identified instructional need.
- *Pilot of Promise Study:* The Center will work with at least two postsecondary institutions, including at least one broad/open access institution, to conduct a pilot study to assess the promise of the newly developed/revised generative AI tool for improving postsecondary students' academic outcomes. This work includes both an implementation study and a cost analysis study. The postsecondary institutions can be those included in the iterative development or different institutions.
- *Implementation Support Guide*: The Center will document and analyze the requirements and recommendations for successful adoption and monitoring of the newly developed/revised generative AI tool. This work will provide insights into the resources needed and barriers to the adoption of such tools. If the pilot study finds that the tool holds promise of beneficial impacts on postsecondary students' academic outcomes, the Center will further develop this work into a practitioner-friendly implementation support guide that will help postsecondary institutions adopt and evaluate the generative AI tool. If the pilot study does not find evidence for the promise

of beneficial impacts, the Center will release a more general guide based on its findings of the implementation needs and supports for the tool to inform those developing and implementing similar tools.

The Postsecondary Instruction AI Center will also provide research training to improve the field's capacity to carry out and disseminate high-quality research on the development, implementation, and evaluation of generative AI tools used in postsecondary instruction.

The Postsecondary Instruction AI Center will carry out national leadership, capacity building, and outreach activities to promote the Center's national visibility, engage with the fields of research and practice, and allow it to function as a trusted source of scientific research in the use of generative AI in postsecondary instruction.

b) Award Limit

No more than $10,000,000 (direct and indirect costs) over no more than 5 years.

- The duration and budget you request should reflect the actual time and amount of funding necessary to conduct your proposed scope of work.
    - Five percent of the center's budget **must** be set aside to conduct supplemental activities to be determined in cooperation with IES after the award is made.
- **IES will not make an award for a Postsecondary Instruction AI Center that exceeds $10,000,000 or that is for longer than 5 years.**

c) Requirements

Applications under the Postsecondary Instruction AI Center topic **must** meet the requirements set out under (a) **Sample, Outcomes, and Setting** and (b) **R&D Center Narrative** in order to be responsive and sent forward for scientific peer review.

i. Sample, Outcomes, and Setting

(1) Sample

- Your research **must** focus on postsecondary students in baccalaureate and/or sub-baccalaureate postsecondary institutions and postsecondary educators
- The generative AI tools identified in the exploratory study and the sample for the development and pilot study **must** be drawn from baccalaureate and/or sub-baccalaureate postsecondary education and may focus on a broad range of students or on students in specific types of courses or programs, in specific years of study, and/or in specific types of postsecondary institutions

(2) Outcomes

- One or more of the following postsecondary student academic outcomes **must** be measured as part of the development and piloting of the generative AI tool for postsecondary instruction:
    - Learning, achievement, and/or higher order thinking in postsecondary courses; and/or persistence in, progress through, and/or completion of postsecondary education, which includes developmental education and corequisite support courses, bridge programs, for-credit and non-credit programs that lead to occupational credentials and certificates, and for-credit programs that lead to associate or bachelor's degrees

- You **must** also measure educator knowledge, skills, beliefs, behaviors, and/or practices because you will be examining the role of educators in improving learners' academic outcomes through instruction.
- If you are also examining efforts to improve postsecondary students' social, emotional, and/or behavioral competencies through instruction, you **must** also include measures of these competencies.

(3) Setting

- Your research **must** be conducted in postsecondary education settings in the United States, as described in the General Requirements section.
- At least two postsecondary institutions, including at least one broad/open access postsecondary institution[4], **must** take part in the development and piloting of the generative AI tool for postsecondary instruction. You must include letters of agreement from these institutions in Appendix D for your application to go forward to peer review.

ii. R&D Center Narrative

The six sections of the Postsecondary Instruction AI center narrative **must** include the content described below. Please see the recommendations section for additional information about what is expected in a strong application.

(1) Significance of the Focused Program of Research

The purpose of this section is to explain the significance of the focused program of research.

You **must** describe the following:

- The focus of the exploratory study and how this focus will support research and improved practice of the use of generative AI in postsecondary instruction
- An identified need in postsecondary education instruction that the Center will address through the generative AI tool to be developed and piloted

(2) Research Plan for the Focused Program of Research

The purpose of this section is to describe your sample, setting, research design, methods, and data analysis plans for each study in the focused program of research and demonstrate how they will allow you to answer your research questions.

[4] These include both community and technical colleges and 4-year colleges and universities that accept 75 percent or more of their applicants.

You **must** describe plans to

- Carry out the exploratory study examining the current use of generative AI in postsecondary courses
- Carry out the development of at least one generative AI tool to be used in postsecondary instruction
- Carry out a pilot test to determine the promise of the developed generative AI tool to improve postsecondary student academic outcomes
- Carry out a cost study to determine the cost of implementing the generative AI tool during the pilot study
- Develop an implementation support guide

(3) Research Training

The purpose of this section is to describe the training you will provide to improve the field's capacity to carry out and disseminate high-quality research on the development, implementation, and evaluation of generative AI tools used in postsecondary instruction.

You **must** describe the training you will provide.

(4) National Leadership, Capacity Building, and Outreach Activities

The purpose of this section is to describe the national leadership, capacity building, and outreach activities to promote the Center's national visibility, engage with the fields of research and practice, and allow it to function as a trusted source of scientific research on the use of generative AI in postsecondary instruction.

You **must** describe your national leadership, capacity building, and outreach activities.

(5) Management and Institutional Resources

The purpose of this section is to describe the management and institutional resources that will support the work of the Center, including the organizational structure, institutional capacity, and access to resources needed to carry out and effectively manage the research and national leadership activities of the center.

You **must** describe the management and institutional resources of your proposed Center.

(6) Personnel

The purpose of this section is to demonstrate that your team possesses the appropriate training and experience to carry out the focused program of research and national leadership activities and will commit sufficient time to the center. You should consider including researchers from disciplines not traditionally represented in the education sciences and individuals from technology development companies and small businesses to the extent that these would be relevant for the development or revision of the generative AI tool.

You **must describe** your Center's project team.

d) Recommendations for Strong Applications

IES provides recommendations intended to improve the quality of your application. Peer reviewers use these recommendations in their evaluation of your application.

i. Significance of the Focused Program of Research

Strong applications will address a significant challenge in the use of generative AI in postsecondary instruction and provide a compelling theoretical and empirical rationale for the project activities. The Center's work should focus on the use of generative AI in improving formal postsecondary instruction in postsecondary courses primarily for baccalaureate and sub-baccalaureate education. The Center will focus on educators (for example, faculty teaching courses, teaching assistants, tutors) using generative AI as part of the instruction they directly provide to students or assign to students to use to complete their coursework.

Describe how the proposed Center will contribute to our understanding of and ability to address the instructional needs of postsecondary students, including historically underserved students.

Describe how the Center's partnerships with postsecondary institutions, education technology developers, education publishing companies, assessment companies, and/or industry leaders will make it more likely that researchers focus on factors and outcomes that are meaningful and useful to education practitioners and policymakers.

Explicitly state your research questions and approaches to addressing the aims of the exploratory study and the development and pilot study.

Exploratory Study

Identify if your exploratory study will focus on specific types of generative AI tools for instruction, specific postsecondary settings, e.g., institutional type, program, courses, specific instructional personnel, postsecondary students, or other factors. Justify the importance of the focus you will take.

Describe the relationship(s) you expect these tools to have with postsecondary students' education outcomes and whether these relationships would be expected to vary by institutional, educator, and student characteristics.

Describe the information you will gather about each generative AI tool, for example, each tool's instructional purposes, goals and course applications; information on each tool's implementation including available guides/manuals, costs, infrastructure requirements, and training needs; how the tool addresses safety, bias, and fairness; and available evidence of each tool's impacts on postsecondary students' academic outcomes. Justify how the information you will collect and release will support further research on the tools and their appropriate use.

Describe whether and, if so, how the exploratory study will contribute to the development and pilot study.

Development and Pilot Study

Describe whether you will be focusing on the use of generative AI in instruction for a subset of educators, institutions, and/or subject material in your research and discuss your reasons for focusing on that subset and the implications for your findings. These might include

- Provider of instruction, e.g., faculty, teaching assistant, tutor, other or the student
- Type of postsecondary institution
- Specific courses

- Specific groups of students, e.g., level/year of college, major, achievement level

Describe the generative AI tool(s) you propose to develop or refine, including

- The theory of change that will guide your development/refinement and testing of the tool (the theory of change should be supported by theoretical frameworks and empirical evidence that illustrate how and why the desired change in learner outcomes is expected to happen.)
- The core features of the tool, including its essential practices and structural elements (see https://ies.ed.gov/seer/core_components.asp)
- Why the tool is likely to be an improvement over what already exists. For example, how will it improve instruction and student learning? Is it more likely to be scaled-up because it is more user-friendly and less expensive to implement? Is it likely to produce significantly better education outcomes? What evidence exists that there is a need for this approach and that people will use it?
- The potential market for the tool
- The resources and organizational structure necessary for its wide adoption and implementation and its potential for commercialization
- For adaptive AI tools, the rationale for decision points, tailoring variables, decision rules, and intervention options

Implementation Support Guide

- Describe how the guide will be made understandable and useful to researchers and practitioners unfamiliar with the AI tool being described and assist them implementing the tool in postsecondary institutions unfamiliar with it. Similarly, describe how the guide will be made useful in the case that the pilot study does not show promise of beneficial impacts on postsecondary student academic outcomes.

ii. Research Plan for the Focused Program of Research

Strong applications will demonstrate that the sample, setting, research design, methods, data analysis plans, power analyses, and cost analysis plans align with the research questions posed in the Significance section and that the project will be able to answer those questions with sufficient rigor.

Include a timeline for study activities in Appendix B: Supplemental Charts, Tables, and Figures.

Discuss how your study conceptualizes education equity, and how the proposed study's design, sample, measurement, analysis, and reporting align to that conceptualization. For additional resources see https://ies.ed.gov/seer/equity.asp.

Research Design, Methods, and Data Analysis Plans

Describe your research design with enough detail to demonstrate how it will address your research questions. Use a mixed methods approach whenever possible.

For the Exploratory Study

- Describe the types of postsecondary institutions, courses, educators, and students you will focus on as you identify available generative AI tools used in instruction.

- Describe your plan for obtaining and compiling the information that you proposed to collect in the Significance section on each generative AI tools for postsecondary instruction.
- Describe how you will present this information for use by researchers and practitioners, how you will obtain feedback from them on the information's usefulness, and how you will use this feedback for revision.
- Describe how this work will be carried out over the course of the Center and how the information will be updated.

For the Development and Pilot Study

- Describe the setting and sample
    - Describe the population of educators and learners that your sample represents. Explain how your work with this sample will contribute to a larger body of knowledge on promising use of generative AI tools for the target populations.
    - Describe the procedures you will use to recruit a sample that represents your target population (postsecondary institutions, courses, educators, and postsecondary students). Describe and justify the inclusion/exclusion criteria you will use during sample recruitment and discuss how these may narrow the target population you propose to study and influence the generalizability of the results to the target population. Through intentional sampling or other means, your proposed study should permit ready generalization of its findings to your population of interest. IES does not expect individual projects to be generalizable to the U.S. population as a whole. Your target population may represent a very narrow segment of the larger U.S. population.
    - Describe the postsecondary institutions in which the research will take place (provide letters of agreement in Appendix D), including the size and characteristics of the setting and the student populations they serve, and discuss how this will allow you to draw conclusions about the education settings your research is intended to inform.
- Describe how you will develop/refine the generative AI tool. IES recommends using an iterative process to develop or refine the proposed generative AI tool. If appropriate, you may use a digital learning platform to support this process.
    - Provide examples/vignettes of potential use cases for the to be developed generative AI tool.
    - Identify any Large Language Models you will use and the training data for them.
    - Discuss integration of humans into the loop.
    - Describe any specific prompt engineering approach you will use.
    - Discuss model selection, model evaluation, and benchmarking.
    - Note your plans for risk assessment and contingency planning.
- Describe how you will collect information on the acceptability, usability, and feasibility of implementing the generative AI tool in a postsecondary setting. Address how you will use this information to
    - Make adaptations as needed to ensure the tool meets the needs of the intended end users
    - Make adjustments to the tool to improve its future scaling
    - Decide if the tool is a good fit for the setting in which it is being implemented, e.g. how the new tool would be integrated into the postsecondary instruction currently being used

  - Assess product market fit
- Describe the methods will you use to ensure that the generative AI tool creates safe, valid, and unbiased results for the intended learners. Provide a detailed plan for how you will evaluate and mitigate sources of bias and ensure fairness for different populations of learners. Describe
  - The ways that you will be transparent in how the tool functions and in the research findings
  - Procedures that will promote ethical decision-making throughout the development cycle
  - How you will address privacy and security concerns
- Describe how you will pilot test the tool to determine its potential benefit for learner education outcomes.
  - If appropriate, consider using a digital learning platform to support the pilot test of promise.
  - Propose the most rigorous research design possible given what you will be piloting, with whom, and under what conditions. Provide a rationale for the research design you propose for your pilot study.
  - Detail the procedure used to calculate either the statistical power for detecting the minimum effect or the minimum detectable effect size. If the pilot study will be underpowered, describe what can be learned about the potential benefits for learner education outcomes given the known limits on statistical power.
  - Describe the measures you will collect. Clearly define the constructs of interest. Describe the importance, reliability, and validity of all measures proposed, including student academic outcomes, educator and instructional outcomes, and postsecondary institutional characteristics. For additional resources see https://ies.ed.gov/seer/outcomes.asp.
  - If you need to develop a measure, describe what you will develop, why it is necessary, how it will be developed, and the process for checking its reliability and validity. Explain how this measurement work will not compromise your ability to achieve the primary aims of the center's focused program of research.
- Describe your data analysis plan.
  - Provide a detailed data analysis plan for all quantitative and qualitative analyses necessary to address your research questions. Provide separate descriptions for all analyses of factors that mediate or moderate the relationships of interest.
  - Describe and justify the statistical models to be used, including how they address the multilevel nature of education data and how well they control for selection bias, if appropriate.
  - If you intend to link multiple datasets, provide sufficient detail for reviewers to judge the feasibility of the linking plan.
  - Describe what approaches you will take to ensure that non-experts have trust in the results and that the decisions made by the generative AI tool are valid, such as model interpretability and post-hoc measures.
- Describe your cost analysis plan (see https://ies.ed.gov/seer/cost_analysis.asp) to be done as part of the pilot study.
  - Describe the method you will use to estimate costs using both at a societal perspective and a postsecondary perspective (be it at the postsecondary institution, educator, or course level).

- Describe how you will collect data about costs, including the time period for the cost data collection, the data collection assessments you will use, and the sources you will use to obtain national prices for resources and, if useful to a local audience, local prices.
- Describe how you will calculate the cost of the resources, the cost of core components of the tool, and the total and incremental cost of implementing the tool. Include details such as how you will adjust prices where needed (for example, to account for inflation, geographic price differences, the time value of money), assign costs to resources that are provided at below their actual value, and run sensitivity analyses to check assumptions.
- Describe the metrics you will use to report costs to education stakeholders.

- While more detail about the Center's data sharing plans and adherence to open science principles will be included in Appendix A: Data Sharing and Management Plan, you should also describe within the narrative how the Center will make datasets or analytic code available for other researchers. These resources should enable the replication of results and extension to adjacent projects. In addition, to promote transparency and interpretability, you should describe the methods used for the dataset, including the data collection, data transformations, and algorithmic choices that are made.

Implementation Support Guide

- Describe your plan for assessing implementation of the generative AI tool during the pilot study and fidelity to core components in the treatment group and the identification of similar components in the comparison group.
- Describe the data and measures you will use to document and understand implementation and fidelity to core components, including any training or coaching provided to implementers or any other resources required.
- Describe how you will identify potential moderators of implementation including characteristics of those who implement the generative AI tool; adaptations made in response to local context; and organizational factors at the course and institutional levels.
- Describe how you will iteratively develop the guide to ensure that other researchers and postsecondary practitioners understand how to implement the generative AI tool that was piloted and the necessary expertise, conditions, and resources for its successful implementation.
- Describe the assessments that will be included in the guide for users to check (a) whether they have the necessary expertise, conditions, and resources to implement the generative AI tool and (b) how well they are implementing the tool.
- Describe how you will check whether postsecondary practitioners can use the guide to implement the generative AI tool. Describe how the results of this check may be used to revise the guide.
- Should the pilot study not show that the generative AI tool holds promise of beneficial impacts on postsecondary students' academic outcomes, describe how the guide will be written to provide general lessons on how to implement a generative AI tool for postsecondary instruction.

iii. Research Training

Describe the training you will provide to increase the improve the field's capacity to carry out and disseminate high-quality research on the development, implementation, and evaluation of generative AI tools used in postsecondary instruction. In your description, address the different types of training participants and training to be provided including the following:

- Identify the knowledge, skills, and abilities that professionals (including education researchers, education technology developers, and postsecondary educators, institutional

researchers, administrators, and policymakers) need to build and discuss the activities, products, and resources the center will create to address their needs.

- How you will provide training to improve researchers' capacity to carry out high-quality research on generative AI tools used in postsecondary instruction including both current researchers and the next generation of researchers, including graduate students, early career researchers, and researchers new to the topic. This training includes opportunities for researchers to take part in the Center's research activities and training provided to researchers who will not be taking part in the Center's research.
- How you will provide training to improve researchers' capacity to disseminate the findings from high-quality research on generative AI tools used in postsecondary instruction.

Discuss how you will announce your training so that it is broadly known.

Describe the type of training formats you will provide, for example:

- Sessions at national and regional conferences held for researchers or for postsecondary practitioners and policymakers
- Training institutes held by the Center (virtual and/or in person)
- Asynchronous online training modules available to a wide audience

Describe any reference materials and technical assistance you will develop and provide to support participants after they have completed the training.

Include a timeline for research training activities in Appendix B: Supplemental Charts, Tables, and Figures.

iv. National Leadership, Capacity Building, and Outreach Activities

Describe the activities the Center will conduct to promote its national visibility and allow it to function as a trusted source of scientific research on the use of generative AI in postsecondary instruction. Describe how the national leadership activities will build from and feed into the focused program of research and how they will help address the needs of a wide range of stakeholders.

- Establish and maintain a website that describes the Center's goals and activities including research training activities, and makes the exploratory study, research reports, and other products readily available for downloading. Describe the Center website you will design, including its content and the audiences you intend to reach.
- Communicate with policymakers, practitioners, researchers, the media, postsecondary students, and the general public about the Center's work. Use technology such as webinars, podcasts, and social media to broaden the reach of the Center at a relatively low cost.
- Discuss ways that the Center could provide timely, actionable information to address high-priority or immediate needs that educators are facing. Identify the information brokers providing recommendations on the use of generative AI in postsecondary instruction to the postsecondary institutions you will be working with and involve them in Center activities including dissemination.
- Consider activities that bring together different stakeholders or that help different audiences understand the needs, insights, or motivations of groups with whom they may not normally interact. For example, the Center could help developers and industry leaders engage with educators to better understand the current education context, including the opportunities, challenges, and risks with integrating generative AI into postsecondary instruction.
- Involve external advisors to help guide and provide feedback on the Center's work.

- Establish or take part in an existing forum composed of practitioners, policymakers, and researchers for identifying ongoing research needs. This forum should meet at least annually to discuss the latest findings on education related to the Center's area of focus, discuss ways of disseminating findings to practitioners and policymakers, and identify additional short- and medium-term research that would be useful for improving practice. Describe what groups will be represented on the forum, how often the forum will meet, how the meetings will be structured, what kinds of information are to be gleaned from the forum, and how this information is to be disseminated through and used by the center. Identify existing forums, such as annual professional researcher and practitioner conferences, where the center can disseminate to technical and nontechnical audiences, including educators, administrators, policy makers, and other stakeholders.
- Host meetings and conferences (both in-person and virtual) to foster collaboration and communication on problems or issues of importance to key stakeholders, and to discuss possible approaches, programs, or policies to address these issues.
- Develop resources that can be used by researchers and educators to build the capacity of postsecondary institutions to take part in and/or to use high-quality, scientific research on generative AI to improve instruction and learner education outcomes.
- Present, post online, and publish the findings in different formats for multiple audiences, e.g., journals for researchers, policymakers, and practitioners along with briefs for wider distribution.

Plan to meet with other IES-funded researchers at the Annual IES Principal Investigators Meeting, including those from the four Using Generative Artificial Intelligence to Augment Teaching in Classrooms Centers. Discuss the major goals for meeting with them, how you will facilitate the exchange of information and ideas, and how you might work with them and IES to determine training or dissemination needs and to form appropriate plans to meet these needs.

Include a timeline for the major national leadership, capacity building, and outreach activities in Appendix B.

v. Management and Institutional Resources

Strong applications will demonstrate that you have sufficient research infrastructure and institutional capacity to carry out the focused program of research, research training, and the national leadership, capacity building, and outreach activities. Strong applications will also demonstrate that the commitments of each partner show support for the implementation and success of the Center.

Describe the resources you will use to support the work of the Center at both the primary applicant institution and any subaward institutions, including

- Any prior experience your institution has in managing a grant of this size, including coordinating the work of multiple partners; managing large budgets including subcontracts; running large meetings, conferences and videoconferences; conducting other national leadership activities; and annual reporting.
- Your immediate access to resources available at the primary institution and any subaward institutions
- Your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the center to be successful
- Your access to specific offices and organizations that will support planned national leadership, capacity building, and outreach activities

- Your access to specific offices or organizations that will support dataset documentation and execution of the required Data Sharing and Management Plan (DSMP; see Appendix A: Data Sharing and Management Plan)
- Your access to the postsecondary settings, data sets, and platforms necessary for the proposed research
    - Include letters of agreement, data licenses, or existing memoranda of understanding in Appendix D documenting this access and conveying that the organizations understand what their participation in the study will involve, such as annual surveys, assessments, and/or classroom observations
    - Include information about incentives for participation, if applicable

Describe your capacity and plans to manage the Center.

- Make clear how all research institutions and postsecondary institutions that are involved in the Center will work with one another, share information, and contribute to decision making. It may be useful to include an organizational chart in Appendix B.
- Discuss your plans and procedures for the overall management of these diverse stakeholders and activities, including coordination of communication and collaboration across settings and partner research institutions.
- If you plan to add research sites or partners once the Center is established or over time, describe the process for identifying, recruiting, and establishing formal relationships with these sites and the timeline for this work.
- Describe the steps you will take to ensure meaningful involvement from stakeholders in the postsecondary institutions where you are working.
    - Describe how you will involve postsecondary institutions in identifying key issues for research, advising you on how best to implement research, discussing the implications of findings, and identifying areas for follow-on research.
    - Explain whether your relationship with these postsecondary institutions and/or other stakeholder groups is new for this application or extends a prior relationship.

Include signed Letters of Agreement in Appendix D from the postsecondary institutions where the initial research will take place (more settings can be added later); any postsecondary institution that will play a role, either directly or in an advisory capacity, in the Center's work; and all other research institutions to be included in the Center's work as research partners.

vi. Personnel

Strong applications will demonstrate that the Center team possess the appropriate skills and qualifications to carry out the proposed research project, that the principal investigator and other key personnel possess the appropriate training and experience for their roles and responsibilities, and that they will commit sufficient time to competently implement the focused program of research and lead capacity building and outreach activities at a national level.

In its research grant programs, IES is strongly committed to broadening participation, including personnel from underrepresented communities and diverse institutions.

Describe how the background and experience of the Center project team supports the conduct of the focused program of research, the research training, and the national leadership activities with the population of learners that your Center addresses.

- Identify the key personnel who will be responsible for each of the specified activities in the

proposed research plan, their expertise and experience for the work they will be responsible for, and the amount of time (FTE) they will devote to the project.

- Describe how key personnel will maintain their objectivity and promote transparency in conducting the proposed research and dissemination activities.

Part III: Preparing Your Application

A. Overview

The application contents—individual forms and their PDF attachments—represent the body of an application to IES. Read the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) to learn how to prepare a complete application that is submitted on time through Grants.gov (https://www.grants.gov/).

B. General Formatting

To ensure that reviewers can read your application and that all applicants have similar expectations for length and space, IES specifies the following formatting conventions. Adherence to type size and line spacing requirements is necessary so that no applicant will have an unfair advantage by using small type or by providing more text in their applications. These requirements apply to the PDF file as submitted, unless otherwise specified. In order for an application to be compliant and sent forward for review, the applicant should ensure that each narrative section follows both the page limit maximums and the formatting guidelines below unless otherwise specified.

1. Page and Margin Specifications

For all IES grant applications, a "page" is 8.5 in. x 11 in. on one side only with 1-inch margins at the top, bottom, and both sides.

2. Page Numbering

Add page numbers using the header or footer function and place them at the bottom or upper right corner for ease of reading.

3. Spacing

Text must be single spaced.

4. Type Size (Font Size)

Type must conform to the following three requirements:

- The height of the letters must not be smaller than a type size of 12-point.
- Type density, including characters and spaces, must be no more than 15 characters per inch (cpi). For proportional spacing, the average for any representative section of text must not exceed 15 cpi.
- Type size must yield no more than 6 lines of type within a vertical inch.

You should check the type size using a standard device for measuring type size, rather than relying on the font selected for a particular word processing/printer combination. Small type size makes it difficult for reviewers to read the application; consequently, the use of small type will be grounds for IES to return the application without scientific peer review.

As a practical matter, if you use a 12-point Times New Roman font without compressing, kerning, condensing, or other alterations, and use footnotes sparingly, if at all, the application will typically meet these requirements. Readability should guide your selection of an appropriate font and your use of footnotes.

5. Citations
Use the parenthetical author-date style for citations rather than numeric citations that correspond to the reference list.

6. Graphs, Diagrams, and Tables
Use black and white in graphs, diagrams, tables, and charts. If color is used, check that the material reproduces well if printed or photocopied in black and white.

Text in figures, charts, and tables, including legends, may be in a type size smaller than 12-point but must be readily legible.

C. Required and Optional Appendices

The required R&D Center Narrative for each R&D Center (see Part II: R&D Center Requirements and Recommendations) is followed by four appendices. Two of these appendices are required, and the others are optional. When you submit your application through Grants.gov, you will create a single PD*F* file that contains the R&D center narrative and all appendices and include this file as an attachment in the application package. Include appendices in alphabetical order and simply skip an appendix if it is not required for your application or if you choose not to include one of the optional appendices. See the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) for more information about preparing and submitting your application using the required application package for this competition through Grants.gov (https://www.grants.gov/).

The R&D center narrative and appendices are critical parts of the IES application because they include the substantive content that the peer reviewers will evaluate for theoretical and practical significance and scientific merit.

1. Appendix A: Data Sharing and Management Plan (Required)

You **must** include Appendix A. Appendix A must meet the general formatting guidelines and be **no more than five pages**. If Appendix A exceeds this page limit, IES will remove any pages after the fifth page of the Appendix before it is forwarded for scientific peer review.

Include your Data Sharing and Management Plan (DSMP) in Appendix A. **This is the only material that may be included in Appendix A; all other material will be removed prior to review of the application.**

IES recommends that you address the following in your DSMP. See the Implementation Guide for Public Access to Research Data (https://ies.ed.gov/funding/datasharing_implementation.asp) and our FAQs (https://ies.ed.gov/funding/datasharing_faq.asp) for additional guidance on developing a DSMP.

When the principal investigator (PI) and authorized organization representative (AOR) sign the cover page of the grant application, they will be assuring compliance with the IES Policy Regarding Public Access to Research (https://ies.ed.gov/funding/researchaccess.asp) as well as other policies and regulations governing research awards. This entails uploading full text of accepted or published manuscripts to ERIC that are based on IES-funded data, as well as the sharing of data.

Once the DSMP is approved by IES, the PI and the institution are required to carry it out and to report progress and problems through the regular reporting channels. Compliance with IES data sharing requirements is expected even if the final dataset may not be completed and prepared for data sharing until after the grant has been completed. In cases where the PI/grantee is non-compliant with the requirements of the data sharing policy or DSMP, subsequent awards to individuals or institutions may be

affected. By addressing the items identified below, your DSMP describes how you will meet the requirements of the IES policy for data sharing and adopt best practices for adherence to open science principles.

The DSMP should describe the following:

- The pre-registration repository where you will pre-register your study within the first year of the project, following the Standards for Excellence in Education Research (SEER; https://ies.ed.gov/seer/preregistration.asp).
- The data repository where you plan to share your data, and an indication of the selected repository's adherence with the National Science and Technology Council document entitled "Desirable Characteristics of Data Repositories for Federally Funded Research" (https://repository.si.edu/handle/10088/113528).
- The type of data to be shared.
- The approach you will take to curating, cleaning, and preparing data for sharing, taking into consideration guidance from IES's Sharing Study Data: A Guide for Education Researchers (https://ies.ed.gov/ncee/pubs/2022004/).
- The format of the final dataset.
- Dataset documentation to be provided, including any decisions made about the data that would be important in replicating the results. Dataset documentation should also include information about data transformations and algorithmic choices that are made.
- Intentions to share analysis code to support reproducibility, including format and location.
- Procedures for managing and for maintaining the confidentiality of Personally Identifiable Information.
- Roles and responsibilities of project or institutional staff in the management and retention of research data, including a discussion of any changes to the roles and responsibilities that will occur should the project director/principal investigator and/or co-project directors/co-principal investigators leave the project or their institution.
- Expected schedule for data sharing, including how long the data will remain accessible (no later than publication of findings in a peer-reviewed publication and available for at least 10 years) and acknowledgement that the timeframe of data accessibility will be reviewed at the annual progress reviews and revised as necessary.
- Whether or not users will need to sign a data use agreement and, if so, what conditions they must meet.
- Any circumstances that prevent all or some of the data from being shared. This includes data that may fall under multiple statutes and, hence, must meet the confidentiality requirements for each applicable statute including data covered by Common Rule for Protection of Human Subjects, the Family Educational Rights and Privacy Act (FERPA), and the Health Insurance Portability and Accountability Act (HIPAA).
- Approaches to disseminating the availability and location of data to support discoverability for reuse purposes.

The costs associated with implementation of the DSMP can be covered by the grant and should be included in the budget and explained in the budget narrative.

IES program officers will be responsible for reviewing the completeness of the proposed DSMP. If your application is being considered for funding based on the scores received during the scientific review process but your DSMP is determined incomplete, you will be required to provide additional detail regarding your DSMP.

2. Appendix B: Supplemental Charts, Tables, and Figures (Optional)

Appendix B **must** meet the general formatting guidelines and be **no more than 15 pages**. If Appendix B exceeds this page limit, IES will remove any pages after the 15th page before it is forwarded for scientific peer review. In Appendix B, you may include figures, charts, or tables with supplementary information like a timeline for center activities, a diagram of the management structure of your center, or examples of measures used to collect data for your project such as individual test items, tests, surveys, and observation and interview protocols.

These are the only materials that may be included in Appendix B; all other material will be removed prior to review of the application.

3. Appendix C: Examples of Program, Practice, Policy, or Assessment Materials (Optional)

Appendix C **must** meet the general formatting guidelines and be **no more than 10 pages**. If Appendix C exceeds this page limit, IES will remove any pages after the 10th page before it is forwarded for scientific peer review. If you are proposing to explore, develop, evaluate, or validate a program, practice, policy, or assessment you may include examples of it such as curriculum materials, computer screen shots, assessment items, or other materials used in the program, practice, policy, or assessment to be explored, developed, evaluated, or validated.

These are the only materials that may be included in Appendix C; all other material will be removed prior to review of the application.

4. Appendix D: Letters of Agreement (Required)

There is **no recommended page length** for Appendix D. Use this appendix to provide copies of letters of agreement from institutions of higher education, state and local education agencies, other organizations and agencies, platform developers, and/or other settings or data sources that will be a part of or will provide data for the proposed research and/or individuals who will serve as consultants. Ensure that the letters reproduce well so that reviewers can easily read them. Do not reduce the size of the letters. See the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) for guidance regarding the size of file attachments.

Applications for the Gifted Education Center must include **letters from least one institution of higher education and at least two state education agencies.**

Applications for the Postsecondary Instruction AI Center must include **letters from at least two postsecondary institutions, including at least one broad/open access postsecondary institution**[5].

Letters of agreement should include enough information to make it clear that the author of the letter understands the nature of the time commitment and timing of participation, as well as the required space

[5] These include both community and technical colleges and 4-year colleges and universities that accept 75 percent or more of their applicants.

and personnel resources that the organization is prepared to contribute to the center and the ways that organization personnel will be expected to coordinate with the center team (such as quarterly meetings with administrative staff, weekly research team observations in classrooms) if the application is funded. Letters of agreement regarding the provision of data should make it clear that the author of the letter will provide the data described in the application for use in the proposed research and in time to meet the proposed schedule.

These are the only materials that may be included in Appendix D; all other material will be removed prior to review of the application.

D. Other Narrative Content

In addition to the R&D center narrative (see Part II: R&D Center Requirements and Recommendations) and required and optional appendices (see above), you will also prepare a project summary/structured abstract, a bibliography and references cited, an exempt or non-exempt research on human subjects narrative, and biosketches for key personnel and consultants to include as file attachments in your application. See the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) for more information about preparing and submitting your application using the required application package for this competition on Grants.gov (https://www.grants.gov/).

1. R&D Center Summary/Structured Abstract

You **must** submit the R&D Center summary/structured abstract as a separate PDF attachment in the application package. If your R&D Center is recommended for funding, IES will use this abstract as the basis for the online abstracts that we post when new awards are announced. We recommend that the project summary/structured abstract be two-pages long and follow the format used for IES online abstracts (https://ies.ed.gov/funding/grantsearch/).

Title

- **R&D Center Topic:** Identify the R&D Center topic to which you are applying (see Part II). This information should match the topic code entered for Item 4b: Agency Routing Number on the SF 424 Application for Federal Assistance form (see the IES Application Submission Guide https://ies.ed.gov/funding/submission_guide.asp and the topic codes in Part VI for more information).
- **Title:** Distinct, descriptive title for the R&D Center.
- **Co-Principal Investigator(s)**: Include the names of all co-principal investigators, as appropriate
- **Partner Institutions**: Include all institutions, including state and local agencies, that are taking part in the R&D Center's work

R&D Center Summary

The purpose of the R&D Center summary is to provide a high-level overview of the focused program of research, research training, and the national leadership, capacity building, and outreach activities that is accessible to a range of audiences, such as policymakers, practitioners, and the general public. This section should use short, active sentences to briefly describe the significance of the center, center activities, and the intended outcomes.

- **Purpose**: A brief description of the purpose of the R&D Center and the significance of the focused program of research. This should include why the research is important, and what this

center will do to address the need. This section should also address the general expected outcomes of the focused program of research and of the national leadership, capacity building, and outreach activities.

- **Focused Program of Research**: An overview of the research activities to be completed by the R&D Center.
- **Research Training**: A brief description of the training to be provided by the R&D Center.
- **National Leadership, Capacity Building, and Outreach Activities**: A brief description of the national leadership, capacity building, and outreach activities that the R&D Center will conduct to promote the center's national visibility and allow it to function as a trusted source of scientific research.

Structured Abstract

The purpose of the structured abstract is to provide key details about the center's activities. This section is most likely to be used by other researchers but should be written in a way that is accessible to anyone who wants more information about the R&D Center.

- **Setting:** A brief description of the location (identified at the state level) where the R&D Center's activities will take place and other important characteristics of the locale, such as whether it is rural or urban
- **Sample**: A brief description of the sample including number of participants; the composition of the sample including age or grade level, race/ethnicity, or disability status as appropriate; and the population the sample is intended to represent
- **Research Design and Methods**: A brief description of the major features of the design and methodology for each study proposed for the focused program of research, describing the design and methods year by year, in terms of steps or phases as applicable
- **Data Analytic Strategy**: A brief description of the data analytic strategies that the R&D Center team will use to answer the research questions
- **Outcomes:** A brief description of key measures, including postsecondary students' academic outcomes and the constructs being measured
- **Cost Analysis:** If applicable, a brief description of the cost and/or cost-effectiveness analyses planned
- **Related IES Projects:** A list of the IES-issued award number and/or corresponding online abstract link (URLs) to completed or ongoing IES-funded projects that are related to the proposed center

See our online search engine of funded research grants (https://ies.ed.gov/funding/grantsearch/) for examples of the content to be included in your project summary/structured abstract and to search for award numbers and URLs.

2. Bibliography and References Cited

You **must** submit the bibliography and references cited as a separate PDF attachment in the application package. There is **no recommended page length** for the bibliography and references cited. You should include complete citations, including the names of all authors (in the same sequence in which they appear in the publication), titles of relevant elements such as the article/journal and chapter/book, page numbers, and year of publication for literature cited in the R&D center narrative. As a reminder, you should use the author-date style for citations in the R&D center narrative (see Part VI B.5 Citations for more information).

3. Human Subjects Narrative

You **must** submit an exempt or non-exempt human subjects narrative as a separate PDF attachment in the application package. We do not recommend a page length for the human subjects narrative. See *Information About the Protection of Human Subjects in Research Supported by the Department of Education* (https://www2.ed.gov/policy/fund/guid/humansub/hrsnarrative1.html) for a brief overview of principles, regulations, and policies which affect research involving human subjects in research activities supported by the Department.

The U.S. Department of Education does not require certification of IRB approval at the time you submit your application. However, if an application that involves non-exempt human subjects research is recommended for funding, the designated U.S. Department of Education official will request that you obtain and send the certification to the Department within 30 days of the formal request from the Department.

4. Biographical Sketches for Key Personnel

You **must** submit a biographical sketch for each person named as key personnel in your application. You may also submit biographical sketches for consultants (optional). Each biographical sketch (an abbreviated CV plus current and pending support information) **must be no more than five pages in length, and this five-page limit includes current and pending support information**. If a biographical sketch exceeds this page limit, IES will remove any pages after the fifth page before it is forwarded for scientific peer review.

Biographical sketches are submitted as separate PDF attachments in the application package. IES strongly encourages applicants to use SciENcv (https://www.ncbi.nlm.nih.gov/sciencv/) where you will find an IES biosketch form. IES will accept the SciENcv format for your biographical sketch even though it does not adhere exactly to our general formatting requirements. You may also develop your own biosketch format. If you use SciENcv, the information on current and pending support will be entered into the IES biosketch template. If you use your own format, you will need to provide this information in a separate table.

The biographical sketch for the principal investigator, each co-principal investigator, other key personnel, and consultants (if included) should show how members of the center team possess training and expertise commensurate with their specified duties, for example, by describing relevant publications, grants, and research experience, including experience working with the focal population as applicable.

Provide a list of current and pending grants for the principal investigator, each co-principal investigator, and other key personnel, along with the proportion of their time, expressed as percent **effort over a 12-month calendar year**, allocated to each project. Include the proposed IES grant as one of the pending grants in this list.

Include a persistent identifier (PID) such as an ORCID iD (Open Researcher and Contributor; https://orcid.org/) in the biosketches for all key personnel. If you or any key member of your center team does not yet have a PID, IES encourages you to establish one as soon as possible, given the requirement that **all key personnel are required to have a PID in place before an award will be made**.

Part IV: Competition Regulations and Review Criteria

A. Funding Mechanisms and Restrictions

1. Mechanism of Support

IES intends to award cooperative agreements pursuant to this Request for Applications.

2. Funding Available

Although IES intends to support the R&D Center topics described in this announcement, all awards pursuant to this Request for Applications are contingent upon the availability of funds and the receipt of meritorious applications. IES makes its awards to the highest quality applications, as determined through scientific peer review. For the Improving Gifted Education center, the availability of funds will depend upon funds being authorized through the Jacob K. Javits Gifted and Talented Students Education Act and appropriated by Congress for the Javits program.

The size of the award depends on the center topic and scope of the center's activities. Please attend to the duration and budget maximums set for each center in Part II: R&D Center Requirements and Recommendations.

IES expects the focused program of research to comprise at least 75 percent of the R&D Center's activities depending on the cost and effort required to carry out the focused program of research, with the remainder of the budget devoted to the national leadership activities and any administrative activities not included in the focused program of research. You **must** allocate at least 5 percent of the center's budget to the supplemental activities of the center that will be determined cooperatively with IES after an award is made.

Although the plans of IES include the Education Research and Development Center topics described in this announcement, awards pursuant to this Request for Applications are contingent upon the availability of funds and the scientific merit of applications as determined by scientific peer review. IES intends to fund one award under the Improving Gifted Education topic and one award under the Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education topic. IES may consider making additional awards to high-quality applications under the Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education topic that remain unfunded after one award is made should resources permit.

3. Special Considerations for Budget Expenses

a) Indirect Cost Rate

Applicants are expected to apply their institution's federally negotiated indirect cost rate when developing a budget for the proposed research project.

If your institution does not have an indirect cost rate and you receive a grant from IES, the Indirect Cost Group (ICG) in the U.S. Department of Education's Office of the Chief Financial Officer (https://www2.ed.gov/about/offices/list/ocfo/fipao/faq.html) can help with obtaining an indirect cost rate once the grant is awarded. Please note that the ICG is not available for assistance during the application preparation process.

Most institutions that do not have a current negotiated rate may use a de minimis rate of 15 percent of modified total direct costs (see 2 CFR §200.414 https://www.ecfr.gov/cgi-bin/text-

idx?node=se2.1.200_1414&rgn=div8 for more information). This de minimis rate may be used indefinitely and no documentation is required to justify its use.

Institutions, both primary grantees and subawardees, not located in the territorial United States may not charge indirect costs.

b) Meetings and Conferences

There are statutory and regulatory requirements in determining whether costs related to hosting meetings and conferences are reasonable and necessary. Please refer to the Office of Management and Budget's (OMB's) Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), 2 CFR, §200.432 Conferences (https://www.ecfr.gov/cgi-bin/text-idx?SID=dcd3efbcf2b6092f84c3b1af32bdcc34&node=se2.1.200_1432&rgn=div8).

Federal grant funds cannot be used to pay for alcoholic beverages or entertainment, which includes costs for amusement, diversion, and social activities. In general, federal funds may not be used to pay for food. A grantee hosting a meeting or conference may not use grant funds to pay for food for conference attendees unless doing so is necessary to accomplish legitimate meeting or conference business. You may request funds to cover expenses for working meetings, such as working lunches; however, IES will determine whether these costs are allowable in keeping with the Uniform Guidance Cost Principles. Grantees are responsible for the proper use of their grant awards and may have to repay funds to the Department if they violate the rules for meeting- and conference-related expenses or other disallowed expenditures.

4. Program Authority

20 U.S.C. 7294 for the Improving Gifted Education R&D Center; and 20 U.S.C. 9501, *et seq*. (which includes the "Education Sciences Reform Act of 2002," Title I of Public Law 107-279, November 5, 2002). for the Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education R&D Center. This program is not subject to the intergovernmental review requirements of Executive Order 12372 and the regulations in 34 CFR part 79.

5. Applicable Regulations

The Education Department General Administrative Regulations in 34 CFR parts 77, 81, 82, 84, 86, 97, 98, and 99. In addition, the regulations in 34 CFR part 75 are applicable, except for the provisions in 34 CFR 75.100, 75.101(b), 75.102, 75.103, 75.105, 75.200, 75.201, 75.209, 75.210, 75.211, 75.217(a)-(c), 75.219, 75.220, 75.221, 75.222, and 75.230. (b) The Office of Management and Budget (OMB) Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement) in 2 CFR part 180, as adopted and amended as regulations of the Department in 2 CFR part 3485. (c) The Guidance for Federal Financial Assistance in 2 CFR part 200, as adopted and amended as regulations of the Department in 2 CFR part 3474.
Note: The regulations in 34 CFR part 86 apply to institutions of higher education only.
Note: The open licensing requirement in 2 CFR 3474.20 does not apply to this competition.
Note: As of October 1, 2024, grant applicants must follow the provisions in the OMB Guidance for Federal Financial Assistance (89 FR 30046, April 22, 2024) when preparing an application. For more information about these regulations please visit: https://www.cfo.gov/resources-coffa/uniform-guidance/.

B. Additional Requirements

1. Pre-Award

a) Clarification and Budget Questions

IES uses the scientific peer review process as the first step in making funding decisions. If your application is recommended for funding based on the outcome of the scientific peer review, an IES program officer will contact you to clarify any issues that were raised by the peer reviewers and to address whether the proposed budget adequately supports the proposed scope of work and meets federal guidelines.

b) Demonstrating Access to Data and Education Settings

The focused program of research you propose to conduct will most likely require that you have (or will obtain) access to education settings such as classrooms, schools, districts, colleges/universities; secondary datasets; or studies currently under way. In such cases, you will need to provide evidence that you have access to these resources prior to receiving funding. Whenever possible, include letters of agreement in Appendix D from those who have responsibility for or access to the data or settings you wish to incorporate when you submit your application. Even in circumstances where you have included such letters with your application, **IES will require additional supporting evidence prior to the release of funds**. If you cannot provide such documentation, IES may not award the grant or may withhold funds.

You will need supporting evidence of partnership or access if you are doing any of the following.

(1) Conducting research in or with education settings

If your application is being considered for funding based on scientific merit scores from the scientific peer review panel and your research relies on access to education settings, you will need to provide documentation that you have access to the necessary settings in order to receive the grant. This means that if you do not have permission to conduct the proposed project in the necessary number of settings at the time of application, you will need to provide documentation to IES indicating that you have successfully recruited the necessary number of settings for the proposed research before the full first-year costs will be awarded. If you recruited sufficient numbers of settings prior to the application, IES will ask you to provide documentation that the settings originally recruited for the application are still willing to partner in the research.

(2) Using secondary datasets

If your application is being considered for funding based on scientific merit scores from the scientific peer review panel and your research relies on access to secondary datasets (such as federally collected datasets, state or district administrative data, or data collected by you or other researchers), you will need to provide documentation that you have access to the necessary datasets in order to receive the grant. This means that if you do not have permission to use the proposed datasets at the time of application, you must provide documentation to IES from the entity controlling the dataset(s) before the grant will be awarded. This documentation must indicate that you have permission to use the data for the proposed research for the time period discussed in the application. If you obtained permission to use a proposed dataset prior to submitting your application, IES will ask you to provide updated documentation indicating that you still have permission to use the dataset to conduct the proposed research during the project period.

(3) Building on existing studies

You may propose studies that piggyback onto an ongoing study, which will require access to those subjects and data. In such cases, the principal investigator of the existing study should be one of the members of the research team applying for the grant to conduct the center's focused program of research.

In addition to obtaining evidence of access, IES strongly advises applicants to establish a written agreement, within three months of receipt of an award, among all key collaborators and their institutions (including principal and co-principal investigators) regarding roles, responsibilities, access to data, publication rights, and decision-making procedures.

c) Assessment of Past Performance

IES considers the applicant's performance and use of funds under a previous federal award as part of the criteria for making a funding decision. IES also determines the principal investigator's (PI's) compliance with the IES Policy Regarding Public Access to Research if they were the PI on previous IES grants awarded in 2012 or later (https://ies.ed.gov/funding/researchaccess.asp).

d) Persistent Identifiers (PIDs) for Key Personnel

All key personnel are required to have a persistent identifier (PID), such as ORCID iD (Open Researcher and Contributor Identification; https://orcid.org/) **in place before an award will be made**.

2. Post-Award

a) Compliance with IES Policy Regarding Public Access to Research

(1) Access to research results: Grantee submissions to ERIC

IES requires all grantees to submit the electronic version of peer-reviewed scholarly publications to ERIC (https://eric.ed.gov/), a publicly accessible and searchable electronic database of education research that makes available full-text documents to the public for free. This public access requirement (https://ies.ed.gov/funding/researchaccess.asp) applies to peer-reviewed, original scholarly publications that have been supported (in whole or in part) with direct funding from IES. The public access requirement does not apply to book chapters, editorials, reviews, or non-peer-reviewed conference proceedings. **As the designated representative for the grantee institution, IES holds the principal investigator (PI) responsible** for ensuring that authors of publications stemming from the grant comply with this requirement.

The author's final manuscript is defined as the final version accepted for journal publication and includes all modifications from the peer review process. Submission of accepted manuscripts for public accessibility through ERIC **must** occur immediately upon acceptance for publication**.**

The ERIC website includes a homepage for the Grantee and Online Submission System (https://eric.ed.gov/submit/), as well as a Frequently Asked Questions page (https://eric.ed.gov/?granteefaq). During the submission process, authors are asked to submit bibliographic information from the publication, including title, authors, publication date, journal title, and associated IES award number(s).

(2) Access to final research data

Applicants to this competition must describe a plan for making final research data available should the center be funded. You must include a Data Sharing and Management Plan (DSMP) in

Appendix A. The scientific peer review process will not include the DSMP in the scoring of the scientific merit of the application. Instead, IES program officers will be responsible for reviewing the completeness of the proposed DSMP. The costs of the DSMP can be covered by the grant and should be included in the budget and explained in the budget narrative.

b) Pre-Register Studies

Grantees must register their exploratory and impact studies on a suitable pre-registration platform within the first year of receiving a new award. There are several options for pre-registration including but not limited to the Registry of Efficacy and Effectiveness Studies (REES; https://sreereg.icpsr.umich.edu/sreereg/), the Open Science Framework (OSF; https://osf.io/), ClinicalTrials.gov (https://clinicaltrials.gov/), AEA Registry (https://www.socialscienceregistry.org/), EGAP (https://egap.org/content/registration), Uri Simonsohn's *AsPredicted* (https://aspredicted.org/), and trial registries in the WHO Registry Network (https://www.who.int/ictrp/network/en/).

c) Special Conditions on Grants

IES may impose special conditions on a grant pertinent to the proper implementation of key aspects of the proposed research design or if the grantee is not financially stable, has a history of unsatisfactory performance, has an unsatisfactory financial or other management system, has not fulfilled the conditions of a prior grant, or is otherwise not responsible.

d) Attendance at the Annual IES Principal Investigators Meeting

The principal investigator (PI) is required to attend one meeting each year (for up to three days) in Washington, DC with other IES grantees and IES staff. The center's budget should include this meeting. PIs who are not able to attend the meeting may designate another person who is key personnel on the research team to attend.

C. Overview of Application and Scientific Peer Review Process

1. Submitting Your Letter of Intent

Letters of intent (LOIs) are submitted online at the IES Peer Review Information Management Online (PRIMO) system (https://iesreview.ed.gov/LOI/LOISubmit). **Select the Letter of Intent form for the competition under which you plan to submit your application**. The online submission form contains fields for each of the seven content areas listed below. Use these fields to provide the requested information. The center description should be single-spaced and is recommended to be no more than one page (about 3,500 characters).

The LOI is non-binding and optional but strongly recommended. If you submit an LOI, a program officer will contact you regarding your proposed center. IES staff also use the information in the LOI to identify the expertise needed for the scientific peer review panels and to secure a sufficient number of reviewers to handle the anticipated number of applications.

Elements for the Letter of Intent:

- Descriptive title
- R&D Center Topic that you will address
- Brief description of the proposed center
- Name, institutional affiliation, address, telephone number, and email address of the principal investigator and any co-principal investigators

- Name and institutional affiliation of any key collaborators and contractors
- Duration of the proposed project (attend to the Duration maximums for each center)
- Estimated total budget request (attend to the Budget maximums for each center)

2. Multiple Submissions

You may submit applications to more than one of the FY 2025 IES grant programs. In addition, within a particular grant program or topic, you may submit multiple applications. However, you may submit a given application only once for the FY 2025 grant competitions, meaning you may not submit the same application or similar applications to multiple grant programs, multiple topics, or multiple times within the same topic. If you submit the same or similar applications, IES will determine whether and which applications will be accepted for review and/or will be eligible for funding.

3. Application Processing

Applications must be submitted electronically and received no later than 11:59:59 p.m. Eastern Time on March 14, 2024 using the Grants.gov Workspace (https://www.grants.gov/applicants/workspace-overview.html). You must follow the application procedures and submission requirements described in the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) and on Grants.gov (https://www.grants.gov/applicants).

After applications are fully uploaded and validated at Grants.gov, the U.S. Department of Education receives the applications for processing and transfer to the IES PRIMO system (https://iesreview.ed.gov/). PRIMO allows applicants to track the progress of their application via the Applicant Notification System (ANS).

Approximately one to two weeks after the application deadline, invitation emails are sent to applicants who have never applied to IES before to create their individual PRIMO ANS accounts. Both the PI and the AOR will receive invitation emails. Approximately four to six weeks after the application deadline, all applicants (new and existing ANS users) will begin to receive a series of emails about the status of their application. See the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) for additional information about ANS and PRIMO.

Once an application has been submitted and the application deadline has passed, you may not submit additional materials or information for inclusion with your application.

4. Scientific Peer Review Process

IES will forward all applications that are compliant and responsive to this Request for Applications to be evaluated for scientific and technical merit. Scientific reviews are conducted in accordance with the review criteria stated below and the review procedures posted on the IES website (https://ies.ed.gov/director/sro/application_review.asp) by a panel of experts who have substantive and methodological expertise appropriate to the program of research and Request for Applications.

Each compliant and responsive application is assigned to an IES review panel. Applications are assigned to panel according to the match between the overall expertise of reviewers on each panel and the content and methodological approach proposed in each application.

At least two primary reviewers will complete written evaluations of the application, identifying strengths and weaknesses related to each of the review criteria. Primary reviewers will independently assign a score for each criterion, as well as an overall score, for each application they review. Based on the overall scores

assigned by primary reviewers, IES calculates an average overall score for each application and prepares a preliminary rank order of applications before the full peer review panel convenes to complete the review of applications.

The full panel will consider and score only those applications deemed to be the most competitive and to have the highest merit, as reflected by the preliminary rank order. A panel member may nominate for consideration by the full panel any application that they believe merits full panel review but that would not have been included in the full panel meeting based on its preliminary rank order.

5. Review Criteria for Scientific Merit

The purpose of IES-supported research is to help solve education problems by generating reliable information about education programs, practices, policies, and assessments that support learning and improve academic achievement and education access for all learners. IES expects reviewers to assess the scientific rigor and practical significance of the center proposed in order to judge the likelihood that it will make a meaningful contribution to the larger IES mission. Information about each of these criteria is described in Part II R&D Center Requirements and Recommendations.

a) Significance of the Focused Program of Research

Does the applicant provide a compelling rationale for the significance of the R&D Center as defined in the section on the significance of the focused program of research? Does the applicant thoughtfully address the recommendations described in the significance section for the specific R&D Center topic?

b) Research Plan for the Focused Program of Research

Does the applicant thoughtfully address the recommendations described in the section detailing the expectations for the focused program of research?

c) Research Training

Does the applicant address the recommendations described in the research training section for the specific R&D Center topic?

d) National Leadership, Capacity Building, and Outreach Activities

Does the description of the applicant's capacity to conduct supplemental and national leadership activities demonstrate that the applicant has the ideas, experience, and capability to successfully carry-out such activities in cooperation with IES? Does the applicant propose meaningful national leadership, capacity building, and outreach activities for the R&D Center? Does the applicant thoughtfully address the recommendations described for national leadership, capacity building, and outreach activities?

e) Management and Institutional Resources

Do the plans and procedures for the overall management of the R&D Center indicate that the applicant has the capacity to complete the proposed research, dissemination, and leadership activities efficiently and successfully? Does the applicant have the facilities, equipment, supplies, and other resources required to support the proposed activities? Do the commitments of each partner show support for the implementation and success of the proposed R&D Center activities? Does the applicant thoughtfully address the recommendations for management and institutional resources?

f) Personnel

Does the description of the personnel make it apparent that the Principal Investigator/Center Director and other key personnel possess the appropriate training and experience and will commit sufficient time

to competently implement the proposed research and leadership activities? Does the applicant thoughtfully address the recommendations described for personnel?

6. Award Decisions

The following will be considered in making award decisions for responsive and compliant applications:

- Scientific merit as determined by scientific peer review
- Performance and use of funds under a previous federal award
- Compliance with the IES Public Access Policy on previous IES awards
- Persistent Identifiers (PIDs) for all key personnel
- Contribution to the overall program of research described in this request for applications
- Ability to carry out the proposed research within the maximum award and duration requirements
- Availability of funds

Part V: Compliance and Responsiveness Checklist

Only compliant and responsive applications will be forwarded for scientific peer review. Use this checklist to better ensure you have included all required components for compliance and that you have addressed all general and R&D center narrative requirements for responsiveness.

See the IES Application Submission Guide (https://ies.ed.gov/funding/submission_guide.asp) for an application checklist that describes the forms in the application package that must be completed and the PDF files that must be attached to the forms for a successful submission through Grants.gov.

Compliance		
Have you included the R&D Center narrative?		
Do the R&D Center narrative and other narrative content adhere to all formatting requirements?		
Do the R&D Center narrative and other narrative content adhere to all page maximums as described in the RFA? IES will remove any pages above the maximum before forwarding an application for scientific peer review.		
Have you included Appendix A: Data Sharing and Management Plan?		
Have you included Appendix D: Letters of Agreement?		
General Requirements for Responsiveness		
Does the proposed R&D Center address the needs of typically developing learners?		
Is the proposed research relevant to education in the United States, and does it address factors under the control of U.S. education systems?		
Have you indicated a single topic for your application?		
Does your R&D Center narrative include the six required sections and the associated requirements for the selected R&D Center Topic? Did you describe the elements required for each section as listed below?		
R&D Center Narrative Requirements for Responsiveness		
	Improving Gifted Education	Using Generative Artificial Intelligence to Improve Instruction in Postsecondary Education
Sample	K-12 learners	Postsecondary students in baccalaureate and/or sub-baccalaureate postsecondary institutions and postsecondary educators
Outcomes	Learner academic outcomes If applicable • Educator knowledge, skills, beliefs, behaviors, and/or practices • Learner social, emotional, and/or behavioral competencies	Postsecondary student academic outcomes Educator knowledge, skills, beliefs, behaviors, and/or practices If applicable, student social, emotional, and/or behavioral competencies

This checklist continues on the next page.

Setting	For program/policy research, at least two state education agencies For data landscape study, data from schools serving K-12 learners For toolkits, at least two state or district education agencies Letter of agreement from each state/district education agency and institution of higher education partner	Postsecondary education settings in the United States Include at least two postsecondary institutions, including at least one broad/open access postsecondary institution, in the development and pilot study Letter of agreement from each postsecondary institution
Significance of the Focused Program of Research	Describe • The overall contribution of your proposed Gifted Education Center to gifted education research, policy, and practice. • How each of the three required research activities will contribute to and advance gifted education research, policy, and practice. • How the work of your proposed Gifted Education Center will all apply to all students to be served, particularly economically disadvantaged students, students who are English learners, and students with disabilities.	Describe • The focus of the exploratory study and how this focus will support research and improved practices of the use of generative AI in postsecondary instruction • An identified need in postsecondary education instruction that the Center will address through the generative AI tool to be developed and piloted
Research Plan for the Focused Program of Research	Describe your plans for each of the three required research activities • Program/Policy Research: Partner with a minimum of two states' education agencies to examine a gifted and talented program or policy issue of high importance to each state (note: the program or policy may differ between the states). • Data Landscape Study: Document the availability of data on the education of gifted and talented students in national, state, and other datasets. • Toolkit: Partner with two state and/or local education agencies to develop and pilot test a toolkit that provides guidance to improve gifted and talented programs.	Describe your plans to • Carry out the exploratory study examining the current use of generative AI in postsecondary instruction • Carry out the development of at least one generative AI tool for use in postsecondary instruction • Carry out a pilot test to determine the promise of the developed generative AI tool to improve postsecondary student academic outcomes • Carry out a cost study to determine the cost of implementing the generative AI tool during the pilot study • Develop an implementation support guide
Research Training	Describe the research training you will provide.	Describe the research training you will provide.
National Leadership, Capacity Building, and Outreach Activities	Describe your national leadership, capacity building, and outreach activities. Describe your plans for holding an annual 2-day meeting with Javits program project directors.	Describe your national leadership, capacity building, and outreach activities.
Management and Institutional Resources	Describe the management and institutional resources of your proposed Center.	Describe the management and institutional resources of your proposed Center.
Personnel	Describe your Center's project team	Describe your Center's project team

Part VI: Required Codes for Item 4b of the SF 424 Cover Sheet

Applications to the **Education Research and Development Center Program (ALN 84.305C)** are submitted under a single topic.

You **must** enter the appropriate topic code in Item 4b of the SF 424 Application for Federal Assistance form (see the IES Application Submission Guide https://ies.ed.gov/funding/submission_guide.asp for more information about this form).

R&D Center Topic	Codes
Improving Gifted Education	Gifted Education
Using Generative Artificial Intelligence to Improve Postsecondary Access, Persistence, and Completion Center	Postsecondary AI