

REQUEST FOR APPLICATIONS

Education Research Grants CFDA Number: 84.305A

Milestone	Date	Website
<i>Letter of Intent Due</i>	May 5, 2016	https://iesreview.ed.gov/
<i>Application Package Available</i>	May 5, 2016	http://www.grants.gov/
<i>Application Due</i>	No later than 4:30:00pm Washington DC time on August 4, 2016	http://www.grants.gov/
<i>Applicants Notified</i>	By July 1, 2017	https://iesreview.ed.gov/
<i>Possible Start Dates</i>	July 1, 2017 to September 1, 2017	

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PART I: OVERVIEW AND GENERAL REQUIREMENTS

A. INTRODUCTION

In this announcement, the Institute of Education Sciences (Institute) requests applications for research projects that will contribute to its Education Research Grants program (CFDA 84.305A). Through this program, the Institute seeks to improve the quality of education for all students - prekindergarten through postsecondary and adult education - by advancing the understanding of and practices for teaching, learning, and organizing education systems. By identifying what works, what doesn't, and why, the goal of this research grant program is to improve educational outcomes for all students, particularly those at risk of failure.

For the FY 2017 competition, the Institute will consider only applications that are [responsive](#) and [compliant](#) to the requirements described in this Request for Applications (RFA) and submitted electronically via Grants.gov (<http://www.grants.gov>) on time. Separate funding announcements are available on the Institute's website that pertain to the other research and research training grant programs funded through the Institute's National Center for Education Research (<http://ncer.ed.gov>) and to the discretionary grant competitions funded through the Institute's National Center for Special Education Research (<http://ncser.ed.gov>). An overview of the Institute's research grant programs is available at <http://ies.ed.gov/funding/overview.asp>.

The Institute believes that education research must address the interests and needs of education practitioners and policymakers, as well as students, parents, and community members (see <http://ies.ed.gov/director/board/priorities.asp> for the Institute's priorities). The Institute encourages researchers to develop partnerships with education stakeholder groups to advance the relevance of their work and the accessibility and usability of their findings for the day-to-day work of education practitioners and policymakers. In addition, researchers should disseminate their results to a wide range of audiences that includes researchers, policymakers, practitioners, and the public.

The Education Research Grants program uses a topic and goal structure to divide the research process into stages for both theoretical and practical purposes (each application must be submitted to one topic and one goal). Individually, the topics and goals are intended to help focus the work of researchers. Together, they are intended to cover the range of research, development, and evaluation activities necessary for building a scientific enterprise that can provide solutions to the education problems in our nation. Education has always produced new ideas, new innovations, and new approaches, but only appropriate empirical evaluation can identify those that are in fact improvements. Taken together, work across the Institute's topics and goals should not only yield information about the practical benefits and the effects of specific [interventions](#) on education outcomes but also contribute to the bigger picture of scientific knowledge and theory on learning, instruction, and education systems.

This RFA is organized as follows. Part I sets out the general requirements for a grant application. Parts II and III provide further detail on two of those requirements, topics and goals, respectively. Part IV provides general information on applicant eligibility and the review process. Part V describes how to prepare an application. Part VI describes how to submit an application electronically using Grants.gov.

You will also find a [glossary](#) of important terms located at the end of this RFA. The first use of each term is hyperlinked to the Glossary within each Part of this RFA, and within each Goal section within Part III.

1. Technical Assistance for Applicants

The Institute encourages you to contact the Institute's Program Officers as you develop your application. Program officers can provide guidance on substantive aspects of your application and answer any

questions prior to submitting an application. Program officer contact information is listed by topic in Part II and in Part VI.H.

The Institute asks potential applicants to submit a letter of intent prior to the application submission deadline to facilitate communication with program officers and to plan for the peer review process. Letters of intent are optional but strongly encouraged. If you submit a letter of intent, a program officer will contact you regarding your proposed research. Institute staff also use the information in the letters of intent to identify the expertise needed for the scientific peer-review panels and to secure a sufficient number of peer reviewers to handle the anticipated number of applications.

In addition, the Institute encourages you to sign up for the Institute's Funding Opportunities Webinars for advice on choosing the correct research competition, grant writing, or submitting your application. For more information regarding webinar topics, dates, and the registration process, see <http://ies.ed.gov/funding/webinars/index.asp>.

B. GENERAL REQUIREMENTS

1. Student Education Outcomes

All research supported under the Education Research Grants program must address the [education outcomes](#) of students and include measures of these outcomes. The Institute is most interested in student [academic outcomes](#) and student [social and behavioral competencies](#) that support success in school and afterwards.

The Institute supports research on a diverse set of student academic outcomes that fall under two categories. The first category includes **academic outcomes that reflect learning and achievement in the core academic content areas** (e.g., measures of understanding and achievement in reading, writing, math, and science). The second category includes academic outcomes that reflect **students' successful progression through the education system** (e.g., course and grade completion and retention in grades K through 12; high school graduation and dropout; postsecondary enrollment, progress, and completion). **Social and behavioral competencies** encompass a range of student social skills, attitudes, and behaviors that may be important to students' academic and post-academic success. Social and behavioral competencies may be the primary focus of your research so long as your application makes clear how they relate to academic outcomes.

The Institute also sets out the student academic outcomes of interest by education level as follows:

- (i) For **Prekindergarten** (PreK; 3- to 5-year-olds), school readiness is the primary student academic outcome (i.e., pre-reading, pre-writing, early science, early mathematics, and social and behavioral competencies that are seen as a key component of school readiness).
- (ii) For **Kindergarten through Grade 12**, the primary student academic outcomes include learning, achievement, and higher-order thinking in the core academic content areas of reading, writing, mathematics, and science measured by specific assessments (e.g., researcher-developed assessments, standardized tests, grades, end-of-course exams, exit exams) and student progression through the education system (e.g., course and grade completion, retention, high school graduation, and dropout).
- (iii) For **Postsecondary Education** (Grades 13-16), the primary student academic outcomes are access to, persistence in, progress through, and completion of postsecondary education, which includes programs for students in developmental and bridge programs as well as programs that lead to occupational certificates, or associate's or bachelor's degrees. For students in developmental programs, additional outcomes include achievement in reading, writing, English language proficiency, and mathematics. The Institute is also interested in student achievement in

postsecondary gateway courses for mathematics and science degrees and introductory English composition courses.

- (iv) For **Adult Education** (i.e., for students at least 16 years old and outside of the K-12 system who are engaged in Adult Basic Education, Adult Secondary Education, adult English literacy programs, and preparation programs for high school equivalency exams), the primary outcomes are student achievement in reading, writing, English language proficiency, and mathematics as measured by specific assessments, as well as access to, persistence in, progress through, and completion of adult education courses and programs.

2. Authentic Education Settings

Proposed research must be relevant to education in the United States and must address factors under the control of the U.S. education system (be it at the national-, state-, local-, or school-level). To help ensure such relevance, the Institute requires researchers to work within or with data from [authentic education settings](#). Authentic education settings include both in-school settings (including PreK centers) and formal programs that take place after school or out of school (e.g., after-school programs, distance learning programs, online programs) under the control of schools or state and local education agencies. Formal programs not under the control of schools or state and local education agencies are not considered as taking place in an authentic education setting and are not appropriate for study under the Education Research Grants program. The Institute permits a limited amount of laboratory research (see Part III Research Goals) if it is carried out in addition to work within or with data from authentic education settings, but will not fund any projects that are exclusively based in laboratories.

Authentic education settings vary by education level and are defined as follows:

- **Authentic PreK Education Settings** are defined as center-based prekindergarten settings, which include the following:
 - Public prekindergarten programs
 - Child care centers
 - Head Start programs
- **Authentic K-12 Education Settings**
 - Schools and alternative school settings (e.g., alternative schools or juvenile justice settings)
 - School systems (e.g., local education agencies or state education agencies)
 - Settings that deliver supplemental education services (as defined in Section 1116(e) of the Elementary and Secondary Education Act of 1965, as amended by the No Child Left Behind Act of 2001) (<http://www2.ed.gov/policy/elsec/leg/esea02/index.html>)
 - Career and Technical Education Centers affiliated with schools or school systems
- **Authentic Postsecondary Education Settings**
 - 2-year and 4-year colleges and universities that have education programs leading to occupational certificates or associate's or bachelor's degrees.
 - Career and Technical Education Centers affiliated with postsecondary institutions.
- **Authentic Adult Education Settings** are those where eligible providers (e.g., state and local education agencies, community-based organizations, institutions of higher education, public or non-profit agencies, libraries) identified under Title II of the Workforce Innovation and Opportunity Act (WIOA: <https://www.gpo.gov/fdsys/pkg/PLAW-113publ128/pdf/PLAW-113publ128.pdf>) provide one or more of the following:
 - Adult English language programs.
 - Adult Basic Education (ABE).
 - Adult Secondary Education (ASE).

- Programs that assist students who lack secondary education credentials (e.g., diploma or GED) or basic skills that lead to course credit or certificates.

3. Topics

The Institute uses a topic structure to encourage focused programs of research. The Institute's current topic structure has been in place since 2010 with ten topics (this year one of these ten topics has been split into two separate topics, resulting in 11 standing topics). These standing topics are defined by specific populations of learners (Early Learning Programs and Policies, English Learners, Postsecondary and Adult Education), salient student education outcomes (Reading and Writing, Mathematics and Science Education, Social and Behavioral Context for Academic Learning), or potential mechanisms of intervention (Cognition and Student Learning, Education Leadership, Education Technology, Effective Teachers and Effective Teaching, Improving Education Systems). Through all of its standing topics, the Institute supports field-generated research, each with a set of specific Sample, Outcomes, and Setting requirements. The Institute also identifies critical research gaps within each of the 11 standing topics to encourage applications in areas where research is lacking.

New this year, the Institute is introducing a set of Special Topics to provide additional encouragement for research in under-studied areas that appear promising for improving student education outcomes and that are of interest to policymakers and practitioners. In some cases, a special topic may be a research gap that had been identified in a standing topic but that had not received much attention from the research field. Other special topics are intended to encourage research in areas that are not obviously supported through the standing topics. In FY 2017, the Institute is accepting applications under three special topics: Arts in Education, Career and Technical Education, and Systemic Approaches to Educating Highly Mobile Students.

Each of the standing and special topics has one (or more) dedicated Program Officers who can offer advice on which topic provides the better fit for your work. Program Officer contact information is provided in Part II Topic Requirements and is listed in Part VI.H. Your application must be directed to one of the fourteen topics accepting applications for the FY 2017 competition.

4. Goals

The Institute uses a goal structure to encourage focused research along the continuum of research, development, and evaluation activities necessary for building a scientific education research enterprise. Therefore, your application must be directed to one of five research goals (see Part III Goal Requirements): [Exploration](#); [Development and Innovation](#); [Efficacy and Replication](#); [Effectiveness](#); or [Measurement](#). The research goal identifies the type and purpose of the work you will be doing within the topic-defined field. These goals are aligned with the Common Guidelines for Education Research and Development released by the Institute and the National Science Foundation (<http://ies.ed.gov/pdf/CommonGuidelines.pdf>). You should select the research goal that most closely aligns with the purpose of the research you propose, regardless of the specific methodology you plan to use.

- The Exploration goal supports the identification of [malleable factors](#) associated with student education outcomes and/or the factors and conditions that mediate or moderate that relationship. By doing so, Exploration projects are intended to build and inform theoretical foundations for (1) the development of interventions or the evaluation of interventions, or (2) [assessment frameworks](#) for the development and [validation](#) of [assessments](#).
- The Development and Innovation goal (Development/Innovation) supports the development of new [interventions](#) and the further development or modification of existing interventions that are intended to produce beneficial impacts on student education outcomes when implemented in authentic education settings.

- The Efficacy and Replication goal (Efficacy/Replication) supports the evaluation of fully developed education interventions with evidence of promise for improving student education outcomes, as well as education interventions that are widely used but not yet rigorously tested, to determine whether they produce a beneficial impact on student education outcomes relative to a counterfactual when they are implemented under [ideal](#) or [routine conditions](#) by the [end user](#) in authentic education settings. Under this goal, the Institute also supports [replication studies](#) of interventions that show evidence of positive benefits for students to identify the range of conditions, samples, and methods of implementation that support these beneficial impacts. The Institute is interested in a variety of replication studies including direct replications (Makel and Plucker, 2014) as well as those that vary setting, sample, and implementation conditions.
- The Effectiveness goal supports the independent evaluation of fully developed education interventions with prior evidence of efficacy to determine whether they produce a beneficial impact on student education outcomes relative to a counterfactual when they are implemented by the end user under routine conditions in authentic education settings.
- The Measurement goal supports (1) the development of new assessments or refinement of existing assessments (Development/Refinement Projects) or (2) the [validation](#) of existing assessments for specific purposes, contexts, and populations (Validation Projects).

The Institute reminds applicants that mixed-methods approaches (a combination of high quality quantitative and qualitative methods) are welcome in all goals and topics. These two approaches can complement one another and, when combined in a way that is appropriate to the research questions, can inform the research process at every stage from exploration through evaluation.

C. APPLICANT REQUIREMENTS

1. Eligible Applicants

Applicants that have the ability and capacity to conduct scientific 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.

2. The Principal Investigator and Authorized Organization Representative

The Principal Investigator

The Principal Investigator (PI) is the individual who 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.

Your institution is responsible for identifying the PI on a grant application and may elect to designate more than one person to serve in this role. In so doing, your institution identifies these PIs as sharing the authority and responsibility for leading and directing the research project intellectually and logistically. All PIs will be listed on any grant award notification. However, institutions applying for funding must designate a single point of contact for the project. The role of this person is primarily for communication purposes on the scientific and related budgetary aspects of the project and should be listed as the PI. All other PIs should be listed as co-Principal Investigators.

The PI will attend one meeting each year (for up to 2 days) in Washington, DC with other Institute grantees and Institute staff. The project's budget should include this meeting. Should the PI not be able to attend the meeting, he/she can designate another person who is key personnel on the research team to attend.

The Authorized Organization Representative

The Authorized Organization Representative (AOR) for the applicant institution is the official who has the authority to legally commit the applicant to (1) accept federal funding and (2) execute the proposed project. When your application is submitted through Grants.gov, the AOR automatically signs the cover sheet of the application, and in doing so, assures compliance with the Institute's policy on public access to scientific publications and data as well as other policies and regulations governing research awards (see [Part IV.B Additional Award Requirements](#)).

3. Common Applicant Questions

- *May I submit an application if I did not submit a Letter of Intent?* Yes, but the Institute strongly encourages you to submit one. If you miss the deadline for submitting a Letter of Intent, contact the appropriate Program Officer for the topic you are interested in and that seems to best fit your research. Please see [Part IV.C.1 Submitting a Letter of Intent](#) for more information.
- *Is there a limit on the number of times I may revise and resubmit an application?* No. Currently, there is no limit on resubmissions. Please see [Part IV.C.2 Resubmissions and Multiple Submissions](#) for important information about requirements for resubmissions.
- *May I submit the same application to more than one of the Institute's grant programs?* No.
- *May I submit multiple applications?* Yes. You may submit multiple applications if they are substantively different from one another. Multiple applications may be submitted within the same topic, across different topics, or across the Institute's grant programs.
- *May I apply if I work at a for-profit developer or distributor of an intervention or assessment?* Yes. You may apply if you or your collaborators develop, distribute, or otherwise market products or services (for-profit or non-profit) that can be used as interventions, components of interventions, or assessments in the proposed research activities. However, the involvement of the developer or distributor must not jeopardize the objectivity of the research. In cases where the developer or distributor is part of the proposed research team, you should discuss how you will ensure the objectivity of the research in the Project Narrative.
- *May I apply if I intend to copyright products (e.g., curriculum) developed using grant funds?* Yes. Products derived from Institute-funded grants may be copyrighted and used by the grantee for proprietary purposes, but the Department reserves a royalty-free, non-exclusive, and irrevocable right to reproduce, publish, or otherwise use such products for Federal purposes and to authorize others to do so [2 C.F.R. § 200.315(b) (2014) (http://www.ecfr.gov/cgi-bin/text-idx?SID=114a76aaaec6398e1309d731056ee2df&node=pt2.1.200&rgn=div5#se2.1.200_1315).
- *May I apply to do research on non-U.S. topics or using non-U.S. data?* Yes, but research supported by the Institute must be relevant to education in the United States and you should justify the relevance of such research in your application.
- *May I apply if I am not located in the United States or if I want to collaborate with researchers located outside of the United States?* Yes, you may submit an application if your institution is not located in the territorial United States. You may also propose working with sub-awardees who are not located in the territorial United States. In both cases, your proposed work must be relevant to education in the United States. Also, institutions not located in the territorial United States (both primary grantees and sub-awardees) cannot charge indirect costs.
- *I am submitting an application to one of the two goals (Efficacy/Replication or Effectiveness) for which a Data Management Plan (DMP) is required in Appendix E. How will IES review my Data Management Plan?* Program Officers will review the DMP for completeness and clarity. Please be sure to address all parts of the DMP as described under Part III.B.3 Goal 3: Efficacy and

Replication and clearly describe your justification for your proposed plans and how they meet the expectations of the IES Data Sharing Policy. Please visit <http://ies.ed.gov/funding/researchaccess.asp> for information on the IES Data Sharing Policy and information on preparing your DMP.

D. CHANGES IN THE FY 2017 REQUEST FOR APPLICATIONS

A limited number of changes were made to the RFA for the Education Research Grants program (CFDA 84.305A) competition in FY 2017. While the major changes are listed below, applicants (submitting new applications or resubmissions) should carefully read the requirements and recommendations listed under each topic (see Part II Topics) and each goal (see Part III Research Goals), as well as the instructions for preparing your application (see Part V Preparing your Application) to ensure that you understand and follow these changes. Major changes include the following:

- The Development and Innovation goal is being competed in FY 2017.
- The Improving Education Systems: Policy, Organization, Management and Leadership topic has been split into two separate topics: 1) Improving Education Systems and 2) Education Leadership.
- Three Special Topics (Arts in Education, Career and Technical Education, and Systemic Approaches to Educating Highly Mobile Students) are being competed in FY 2017 in addition to the Institute's Standing Topics (see [Part II Topics](#)).
- You have the option of using [SciENCy](#) to create an IES Biosketch for each key person and significant contributor to include in your application as an attachment on the Research & Related Senior/Key Person Profile (Expanded) form. See Part V.D.10 Biographical Sketches of Senior/Key Personnel for information about page limitations, format requirements, and content to be included in the biosketch.

E. READING THE REQUEST FOR APPLICATIONS

The Institute encourages both **Principal Investigators and Authorized Organization Representatives** to read this Request for Applications to learn how to prepare an application that meets three types of criteria:

1. Criteria required for an application to be sent forward for peer review (Requirements).
2. Criteria that make for a strong (competitive) application and are used by the peer reviewers (Recommendations for a Strong Application).
3. Criteria required for a highly-rated application to receive funding (Pre-Award Requirements).

1. Requirements

The Institute will examine all applications and determine whether they meet the following criteria. Applications that do not meet these criteria will not be sent forward for peer review.

- **RESPONSIVENESS**

- Meets **Sample, Outcomes, and Setting requirements** for the selected *Topic* (see Part II).
- Meets **Project Narrative requirements** for the selected *Research Goal* (see Part III).
- Meets the following **Award requirements** for the selected *Research Goal* (see Part III).

Research Goal	Maximum Grant Duration	Maximum Grant Award
Exploration	Secondary Data Analysis only: 2 years	\$600,000
	Primary Data Collection: 4 years	\$1,400,000
Development and Innovation	4 years	\$1,400,000
Efficacy and Replication	Efficacy: 5 years	\$3,300,000
	Replication: 5 years	\$3,300,000
	Follow-up: 3 years	\$1,100,000
	Retrospective: 3 years	\$700,000
Effectiveness	Effectiveness: 5 years	\$3,800,000
	Follow-up: 3 years	\$1,400,000
Measurement	4 years	\$1,400,000

- **COMPLIANCE** (see Part V)
 - Follows **formatting and font size requirements** (see Part V.C).
 - Follows **page limits** (see Part V.D).
 - Includes only **allowable content** (see Part V.D).
 - Includes all **required content** including Appendix A (if a resubmission) and a Data Management Plan (if submitted under the Efficacy and Replication research goal or the Effectiveness research goal - see Part III.B.3 Data Management Plan) (see Part V.D).
- **SUBMISSION** (see Parts V and VI)
 - Submitted electronically via Grants.gov no later than **4:30:00 pm**, Washington, DC time, on August 4, 2016.
 - Completed using the **correct application package** downloaded from Grants.gov (see Part V.B).
 - Includes **PDF files** that are **named and formatted appropriately** and that are **attached to the proper forms** in the application package (see Part V.D and Part VI).

2. Recommendations for a Strong Application

Applications that meet the required criteria discussed above will be forwarded to peer review http://ies.ed.gov/director/sro/peer_review/index.asp for an evaluation of their scientific and technical merit (see Part IV.C). Under each of the Research Goals (see Part III), the Institute provides recommendations to improve the quality of your application. The peer reviewers are asked to consider these recommendations in their evaluation of your application. The Institute strongly encourages you to incorporate the recommendations into your Project Narrative and relevant appendices.

3. Pre-Award Requirements

Applications that are being considered for funding following peer review may be required to provide further information on their proposed research activities before a grant award is made (see Part IV.B). For example, you may be required to provide updated Letters of Agreement showing access to the authentic education settings where your work is to take place or to the secondary data sets you have proposed to analyze. You may be asked for additional detail regarding your capacity to disseminate research findings or your data management plan (the former is required for all applications and the latter is required for applications submitted under the Efficacy & Replication and Effectiveness goals). In addition, you may be required to provide greater detail regarding your proposed work. Significant revisions to the project that arise from these information requests will have to be addressed under the original budget.

PART II: TOPICS

A. APPLYING TO A TOPIC

For the FY 2017 Education Research Grants program, you must submit your application to one of the fourteen research topics (11 standing, three special) described in Part II. You must identify your chosen topic area on the SF-424 Form (Item 4b) of the Application Package (see Part VI.E.1), or the Institute may reject your application as nonresponsive to the requirements of this RFA. Each topic has specific Sample, Outcomes, and Setting requirements that must be met for an application to be found responsive and sent forward to peer review.

The Institute developed the topic structure to help focus the work proposed by researchers. Topics are defined by specific populations of learners (Early Learning Programs and Policies, English Learners, Postsecondary and Adult Education), salient student education outcomes (Reading and Writing, Mathematics and Science Education, Social and Behavioral Context for Academic Learning), or mechanisms (i.e., process and level) of intervention (Cognition and Student Learning, Education Leadership, Education Technology, Effective Teachers and Effective Teaching, Improving Education Systems). The three Special Topics being competed in FY 2017 (Arts in Education, Career and Technical Education, and Systemic Approaches to Educating Highly Mobile Students) are meant to highlight understudied areas that need research because they offer promise for improving student education outcomes and are of interest to policymakers and practitioners

The Institute recognizes that some of the topics overlap with one another and that in some cases any one application could meet the Sample, Outcomes, and Setting requirements of more than one topic. If your application meets the requirements of more than one of the topics accepting applications in FY 2017, the Institute recommends that you consider the key student outcomes, the grade(s) from which data will be collected, the setting in which the research will be most relevant, the expertise of your research team, and the alignment of your primary research questions to the purpose of a particular topic to choose the best topic for your application. The Institute strongly encourages you to contact the Institute's program officers (listed under each topic) if you have questions regarding the appropriateness of a particular project for submission under a specific topic. You will get feedback on your topic choice from the Institute's program officers when you submit your letter of intent (see Part IV.C.1 Submitting a Letter of Intent).

If you propose to conduct research that focuses on students with or at risk for disabilities from birth through high school, you should apply to the separate grant programs run by the Institute's National Center for Special Education Research (<http://ies.ed.gov/ncser>).

For each of the 11 standing topics and the three special topics identified for FY 2017, the following pages describe the purpose and requirements, list the Program Officer(s), and (for the 11 standing topics) describe some Institute-identified gaps in the research.

1. Cognition and Student Learning

Program Officer: Dr. Erin Higgins (202-245-6541; Erin.Higgins@ed.gov)

a) Purpose

The Cognition and Student Learning (CASL) topic supports research that capitalizes on our understanding of how the mind works to inform and improve education practice in reading, writing, mathematics, science, and study skills.

Through this topic, the Institute is interested in applying theories of how the mind acquires, processes, and uses information to the improvement of education practice, including study strategies (e.g., the timing and ordering of studying, the type of practice), instructional approaches (e.g., optimal ways to present information, the role of feedback and error correction), curricula (e.g., the type and order of content presented, optimal activities and assignments), and [assessment](#) (e.g., the optimal format for questions). Under the CASL topic, the Institute also supports exploring the cognitive processes underlying the acquisition of one or multiple content areas, such as reading, writing, mathematics knowledge and skills, and science knowledge and skills. The Institute encourages applicants to the CASL topic to be actively engaged with prekindergarten and/or K-12 practitioners when formulating their research plans to facilitate the identification of research questions that are meaningful and practical in [authentic education settings](#). Involvement of practitioners helps to ensure that the materials, tasks, assessments, and interventions developed and evaluated through the CASL topic are appropriate for the age of the students and the setting in which the research is being conducted and/or the setting in which the intervention or assessment is intended for use.

The long-term outcome of this research will be an array of tools and strategies (e.g., instructional approaches, curricula, assessments) based on principles of learning and information processing gained from cognitive science and cognitive neuroscience and documented to be efficacious for improving learning in authentic education settings.

b) Requirements

Applications under the CASL topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on students at any level from **prekindergarten through high school**.
- A limited portion of your research may include typically developing college students (e.g., those found in university subject pools) under the [Exploration](#) and [Development/Innovation](#) goals, if you can justify that college students will provide information that generalizes to your student population of interest (students at any level from prekindergarten through high school). However, research **must** be conducted with the student population of interest within the award period. If your student population of interest spans high school and postsecondary education, you may apply to this topic or to the Postsecondary and Adult Education topic.
 - For Development/Innovation projects, the [pilot study](#) must be conducted with your student population of interest.

(2) Outcomes

- Your research **must** include measures of students' pre-reading, reading, pre-writing, writing, early mathematics, mathematics, early science, science, or study skills.

(3) Setting

- Your research **must** be conducted in authentic PreK or K-12 education settings or on data collected from such settings.

- A limited amount of laboratory research may be done under Goals 1, 2 and 5 (see Part III Goal Requirements); however, you may not propose to conduct 100 percent of your research in the laboratory. A portion of the proposed research **must** take place in the setting(s) outlined for this topic. Applications with 100 percent of the research taking place in laboratory settings will be deemed non-responsive and will not be sent forward for peer review.

c) Gaps in Cognition and Student Learning Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the CASL topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the CASL domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- As researchers continue to identify cognitive processes that underlie reading, writing, mathematics, and/or science and that could be changed through intervention, there is a growing need for measurement tools that can validly and reliably capture students' skills in these areas in authentic education settings (e.g., measures of executive function, spatial thinking).
- Through many years of high quality research, the learning sciences community has identified a large set of principles of learning that have the potential to improve student education outcomes. Most of the research to date has focused on a single principle at a time to examine its unique contribution to learning. However, in the classroom, these principles interact. Research is needed that examines groups of learning principles to figure out optimal ways to implement them in classrooms as well as to determine the best ways to combine principles in order to achieve the largest impact on student education outcomes (Koedinger, Booth, and Klahr, 2013).
- In recent years, neuroscientists have dramatically increased our knowledge of healthy brain function and development and have identified numerous environmental factors that impact it. However, in education practice, many products are being identified as 'brain-based' without any grounding in neuroscience research. Research is needed that bridges the education community's excitement about the brain with the science of how the brain works. Such research has the potential to provide more insights into how students learn and will contribute to the development and evaluation of interventions that are grounded in the science of how the brain works.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=5>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

2. Early Learning Programs and Policies

Program Officer: Dr. Caroline Ebanks (202-245-8320; Caroline.Ebanks@ed.gov)

a) Purpose

The Early Learning Programs and Policies (Early Learning) topic supports research on the improvement of school-readiness skills (e.g., pre-reading, pre-writing, early science, early mathematics, and social and behavioral competencies) of prekindergarten children (i.e., 3- to 5-year-olds).

Through this topic, the Institute supports research to reduce the academic disadvantage that many children from low-income families face when they begin formal schooling. This work must be conducted in [center-based prekindergarten settings](#) and may address curricula, teacher professional development, or instructional practices; early childhood policy and systems-level initiatives implemented at the federal-, state-, or local-level; and/or [assessments](#) of children, teachers, classrooms, or program quality.

The long-term outcome of this research will be an array of tools and strategies (e.g., assessments, instructional approaches, programs, and policies) that have been documented to be effective for improving school readiness skills for prekindergarten children in center-based prekindergarten settings.

b) Requirements

Applications under the Early Learning topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on **prekindergarten children** 3 to 5 years old.
- If you are interested in conducting research on children taking part in prekindergarten to kindergarten transition programs that are implemented the summer before the start of kindergarten, you **must** apply to the Early Learning topic.
- Research focused on early childhood educators (including professional development or assessment) **must** be submitted to the Early Learning topic.
- Research on early childhood educator preparation (pre-service training) **must** be submitted under the Exploration goal. Research submitted under any other goal will be considered nonresponsive and will not be sent forward for peer review.¹

(2) Outcomes

- Your research **must** include children's school readiness outcome measures (i.e., pre-reading, pre-writing, early science, early mathematics, or [social and behavioral competencies](#)).
- Research addressing early childhood educators (e.g., their professional development or assessment) **must** include measures of the educators' knowledge, skills, beliefs, behaviors, and/or practice that are the focus of your research in addition to the required measures of children's school readiness outcomes.

(3) Setting

- Research **must** be conducted in center-based prekindergarten programs or use data collected from such programs.
- Applicants working with center-based prekindergarten programs that have a home/parenting component may propose research in the center-based program alone or in both the center-based program and in the child's home environment.

¹ This restriction is due to the time necessary to research the impact of pre-service pedagogical training, the time limits of these funding opportunities, and the need for knowledge about the relations between training components and student academic outcomes.

- Applicants may not propose research in home-based child care settings (e.g., family child care, relative or nonrelative care) or research in the home to examine home/parenting interventions not linked to a center-based prekindergarten program. Applications proposing research that is not linked to a center-based prekindergarten program will be considered nonresponsive and will not be accepted for review.

c) Gaps in Early Learning Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Early Learning topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Early Learning domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Recent research (Colwell et al., 2013; Diamond et al., 2013; Gordon et al., 2013; Sabol et al., 2013; and Weiland et al., 2013) suggests that the early learning field would benefit from advances in measurement, as described below:
 - Current school readiness measures often focus on one domain (e.g., language or literacy) and require intensive professional development to be administered reliably. There is a need for measures that assess school readiness across multiple domains and that are reliably and easily administered by practitioners.
 - There is a need for measures linked to state guidelines and program quality standards for early learning. Research could be done in collaboration with states to develop such measures for use in state early childhood accountability systems.
 - There is also a need for early screening measures that can be used by early childhood educators (e.g., child care workers, Head Start teachers, and prekindergarten teachers) and other early childhood program staff to identify young children in need of in-depth assessment. These early screening measures could lead to the provision of intervention services in time to make a difference for kindergarten entry.
- Research is needed to understand the impact of early childhood policy initiatives (e.g., quality rating and improvement systems, prekindergarten to kindergarten transition practices, integration of service delivery across different prekindergarten settings) and variations in the structure of prekindergarten programs (e.g., 1 versus 2 years, universal versus targeted) on children's school readiness skills (Sabol et al., 2013; Sarama et al., 2012; Weiland and Yoshikawa, 2013).
- Recent research suggests that early childhood educators need a substantial amount of training and ongoing support to foster young children's acquisition of pre-academic and social skills (Diamond et al., 2013; Domitrovich et al., 2009; Pianta et al., 2008; Pianta and Hadden, 2008; Powell et al., 2010). Research is needed to understand the mechanisms and processes by which training and support of early childhood educators (e.g., lead teachers, teaching assistants, mentors, and coaches) lead to improvement of instructional practices and children's school readiness skills.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=7>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

3. Education Leadership

Program Officers: Dr. Corinne Alfeld (202-245-8203; Corinne.Alfeld@ed.gov)
Dr. Katina Stapleton (202-245-6566; Katina.Stapleton@ed.gov)

a) Purpose

The Education Leadership (Leadership) topic supports research on programs, policies, and practices to support leaders in K-12 education systems at the school-, district-, or state-level in order to improve leadership in ways that can lead to beneficial [student education outcomes](#).

Education leaders include district superintendents and administrators, school principals, and other personnel in leadership roles such as teacher-leaders, vice- and assistant principals, school boards, turn-around specialists, curriculum supervisors, talent management specialists, assessment directors, and principal supervisors. The Leadership topic recognizes the critical role education leaders play in creating safe and supportive learning environments for students, improving the skills of their staffs, implementing policies and programs, managing systems efficiently, and leading organizational change. Education leaders are also seen as key to the successful implementation of improvements in education systems (Leithwood, et al., 2004). The Institute is interested in research to better understand the roles of leaders in managing and improving systems and how their leadership capacity can be improved.

The long-term outcome of this research will be an array of leadership practices, programs (e.g., in-service principal training on conducting teacher observations and providing feedback), assessments, and policies (e.g., recruitment, retention, and principal evaluation) that have been demonstrated to be effective for improving and assessing leading and leaders in ways that are linked to improvement in student achievement.

b) Requirements

Applications under the Leadership topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- The Education Leadership topic allows research on practicing education leaders (in-service) and/or people training to become education leaders (pre-service) within the following guidelines:
 - **In-Service:** Your research **must** focus on practicing education leaders in public education systems at the school-, district-, state-, or regional-level that serve students from **kindergarten through high school**.
 - **Pre-service:** Your research **must** focus on people enrolled in preparation programs designed to train leaders to work education systems at the school-, district-, state-, or regional-level that serve students from kindergarten through high school. There are no restrictions on the type (e.g. certificate or masters) of leadership preparation program that your sample is enrolled in, but **the length of the program must be no more than 24 months**.

(2) Outcomes

- Your research **must** include measures of whether the changes in education leadership expected to improve student outcomes are occurring (e.g., a project evaluating the effectiveness of professional development for principals should measure the principals' knowledge, skills, and/or behaviors targeted for improvement by the professional development).
- Your research **must** include measures of [student academic outcomes](#) alone or in conjunction with student [social and behavioral competencies](#). Your student education outcomes should be chosen because of their expected links to the intermediate outcomes you are examining. Aggregated outcomes (e.g., at the student subgroup-, school-, or district-level) are acceptable.

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

c) Gaps in Education Leadership Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Education Leadership topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Education Leadership domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- There is a growing body of exploratory research on the full range of knowledge, skills, and abilities *generally* needed by education leaders to support student learning (Osborne-Lampkin, Folsom, and Herrington, 2015; Grissom and Loeb, 2011; Grissom, Loeb, and Master, 2013; Sebastian and Allensworth, 2012), but there is less on the *specific* competencies and behaviors needed by leaders to support at- or high-risk students and improve student outcomes in challenging educational settings (e.g., persistently low-performing schools, high-poverty schools and districts). The Institute is interested in research identifying, improving, and assessing these specific competencies and behaviors.
- Implicit in many theories about school reform is the idea that "having the right leader(s) in the right school at the right time" matters (Leithwood, et al., 2010). The Institute is interested in exploratory research on the relationship between student education outcomes and district policies regarding identification and selection of education leaders, assignment of leaders to specific schools, leadership turnover, and the distribution of leadership roles and responsibilities among multiple individuals within a school (i.e., distributed leadership).
- There are many interventions for education leaders (e.g., professional development programs, tools to support daily work), but few that have been rigorously evaluated to determine whether they ultimately produce a beneficial impact on student education outcomes. The Institute invites applications to evaluate fully developed leadership interventions that have the potential to improve student education outcomes, including those developed and/or implemented through one of the U.S. Department of Education's discretionary grant programs (e.g., [School Leadership, Supporting Effective Educator Development](#), or [Turnaround School Leaders](#)).
- Education leaders are increasingly being held responsible for the academic success of students in the schools and districts they serve (Clifford, 2015; Grissom, Kalogrides, and Loeb, 2014; McMahon, Peters, and Schumacher, 2014). Judgments about the effectiveness of leaders in improving student outcomes are dependent on having reliable, validated measures of leadership competencies and behaviors. The Institute is interested in the validation of existing leadership measures and the development and validation of new leadership measures for research, formative assessment and accountability purposes. The Institute is also interested in efficacy studies that evaluate whether the use of leadership evaluation systems leads to improved student education outcomes.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=8>. Please contact the Program Officers for this topic to discuss your choice of topic and goal and to address other questions you may have.

4. Education Technology

Program Officer: Dr. Edward Metz (202-245-7550; Edward.Metz@ed.gov)

a) Purpose

The Education Technology topic supports research on innovative and emerging forms of education technology, with the goal of improving academic performance among students in pre-kindergarten through grade 12. Through the Education Technology topic, the Institute is interested in exploration, development, measurement, and evaluation of education technologies intended for use in authentic education settings (e.g., schools, after-school programs, distance learning programs, on-line programs).

The Institute supports research on a wide range of education technology products (e.g., apps, intelligent tutors, assessments, robotics, manipulatives, wearable technology), tools, technology-dependent interventions (i.e., the intervention could not work without the technology), and social media innovations (e.g., texting, video outlets such as YouTube, peer social networking websites, user-generated content websites, curation websites, open education resources and materials). The Institute is particularly interested in understanding how technology may be used to expand educational opportunities in underserved areas (such as low-income and rural communities) and to close achievement gaps between higher- and lower-performing students. The Institute is also interested in how technologies may be used to provide better and quicker feedback to school administrators, teachers, and students on student performance and areas for improvement. The distinguishing component of research under the Education Technology topic is the innovative use of technology; other topics may be a better fit if the technology is already well-established or if the main focus of the research is to improve student outcomes in a specific content area, such as reading, writing, math, or science, in ways that do not require innovative uses of technology.

The long-term outcome of this research will be to advance the field's understanding of the potential of education technology to improve student education outcomes, and a deeper understanding of who benefits from technology under what conditions.

b) Requirements

Applications under the Education Technology topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on students at any level from **prekindergarten through high school**.

(2) Outcomes

- Your research **must** include student outcome measures of pre-reading, reading, pre-writing, writing, early mathematics, mathematics, early science, science, or study skills.

(3) Setting

- Your research **must** be conducted in authentic PreK or K-12 [education settings](#) or on data collected from such settings.

c) Gaps in Education Technology Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Education Technology topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Education Technology domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to

applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Testing in school usually happens at the end of the school year or after a unit of study is completed, providing limited opportunities to inform further instruction or support ongoing learning. The Institute is interested in research on dynamic forms of technology-delivered assessments that could be used in schools to provide adaptive, personalized, and real-time feedback to support learning (i.e., formative assessments) as well as those that measure knowledge and understanding of complex concepts (i.e., diagnostic or summative assessments). In particular, little is known about the types of data that could be gathered through education technologies to provide valid and reliable information about student learning. Further, more research is needed to identify and optimize features of dynamic assessment that may improve the usability and acceptability of technologies such as games, virtual environments, audio or video cues, and user-designed interfaces.
- Games for learning are gaining support among many educators who recognize that effectively designed games can facilitate student engagement and persistence and stimulate learning. A recent meta-analysis indicated that digital games significantly enhanced student learning relative to non-game control conditions (Clark, Tanner-Smith, and Killingsworth, 2014). The Institute is interested in research to understand the elements, mechanics, and conditions where games can promote learning across prekindergarten through grade 12. The Institute is also interested in research on learning games that embed assessments to automatically measure student performance during gameplay, provide scaffolding to enhance individualized learning, and replace traditional forms of paper-based tests.
- In 2010, over 4 million students participated in online learning programs (Staker, 2011), and those numbers continue to rise. Despite the popularity of these types of programs, minimal research has been done on their effectiveness. The Institute is interested in research on hybrid learning models, which blend classroom instruction with technology delivery. The Institute is also interested in research on widely used educational platforms that could be employed out-of-school to supplement students' understanding of concepts covered in class, or that flip the classroom environment by preparing students ahead of classroom instruction.
- Given the pervasive integration of technology into school practice and the widespread use of web-based technology products, the infrastructure now exists to recruit district, state-level, or even a nationwide sample of students and teachers and administer large efficacy trials to evaluate many of these education technologies that are in wide use but have not been evaluated. Indeed, there are relatively few rigorous evaluations of technology products (e.g., Campuzano et al., 2009; Steenbergen-Hu and Cooper, 2013). The Institute encourages rigorous evaluations of education technology interventions, both newly developed and in wide use, under the Efficacy and Replication goal.
- Since 2002, the Institute has invested approximately \$80 million in education technology products through its [Small Business Innovation Research \(SBIR\) program](#), some of which show promise of effectiveness for supporting student learning and for supporting teacher instruction. The Institute is interested in further research to determine the effectiveness of these products, particularly as they are adopted by districts or large numbers of schools for routine use in classrooms.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=10>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

5. Effective Teachers and Effective Teaching

Program Officer: Dr. Wai-Ying Chow (202-245-8198; Wai-Ying.Chow@ed.gov)

a) Purpose

The Effective Teachers and Effective Teaching (Effective Teachers) topic supports research on strategies for improving the performance of classroom teachers in ways that promote student learning and achievement in reading, writing, mathematics, science, and - for English Learners - English language proficiency, from kindergarten through high school.

Through this topic, the Institute is interested in identifying and understanding (1) the specific knowledge and skills a K-12 teacher must possess to promote student learning; (2) effective approaches to assess teacher knowledge and skills; (3) strategies to help teachers acquire the knowledge and skills they need to improve classroom instruction; and (4) effective programs and policies for teacher recruitment, retention, certification, and evaluation that lead to the promotion of student learning. Applicants to the Effective Teachers topic are encouraged to employ methodologies from a variety of disciplines, such as industrial-organizational psychology and cognitive science, to identify the micro-level and context-specific teaching behaviors linked to student outcomes. For instance, the field of industrial-organizational psychology utilizes a number of approaches to understanding and measuring the key aspects of a job (e.g., job analysis, identification of relevant job performance dimensions, and development and validation of measures to assess the knowledge and skills needed in performing the specific job (Gatewood, Field, and Barrick, 2010) that could be applied to understanding and measuring the key constructs of teaching.

The long-term outcome of this research will be an array of instructional practices, programs (e.g., professional development interventions), assessments, and policies (e.g., recruitment, retention, and teacher evaluation) that have been demonstrated to be effective for improving and assessing teaching and teachers in ways that are linked to improvement in student achievement.

b) Requirements

Applications under the Effective Teachers topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on teachers or other instructional personnel (e.g., coaches of teachers) at any level from **kindergarten through high school**.
- Research focused on pre-service teachers (teacher preparation) **must** be submitted under the Exploration goal. Research on pre-service teachers submitted under other goals will be considered nonresponsive and will not be sent forward for peer review.²

(2) Outcomes

- Your research **must** include measures of the teaching and/or teacher (or other instructional personnel) constructs that are the focus of your research.
- Your research **must** include measures of [student academic outcomes](#) that are theoretically-aligned with your proposed theory of change.

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

² This restriction is due to the time necessary to research the impact of pre-service pedagogical training, the time limits of these funding opportunities, and need for knowledge about the relations between training components and student academic outcomes.

c) Gaps in Effective Teachers Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Effective Teachers topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Effective Teachers domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- The field needs a more comprehensive and testable theoretical framework for understanding how teaching affects student outcomes (e.g., Gitomer, 2009). Specifically, the field would benefit from understanding the key constructs of teaching and the processes by which these constructs are interconnected. This knowledge would help pinpoint the specific knowledge and skills needed by a K-12 teacher to promote student learning, focus efforts to develop psychometrically strong measures of teaching, and focus professional development interventions.
- The field would benefit from research examining the basic cognitive processes of professional learning and the developmental sequence of the major skills necessary for teaching. Researchers are encouraged to consider cognitive science research that identifies basic principles of knowledge acquisition and memory and that elaborates distinct differences in the ways that experts and novices organize and use information (e.g., Anderson, Reder, and Simon, 2000; Carver and Klahr, 2001) as they consider the professional learning of instructional personnel.
- As the diversity of the U.S. student population continues to grow and educational disparities persist, educator capacity to provide effective instruction to students from various backgrounds (sometimes referred to as cultural and linguistic competence, cultural proficiency, or responsiveness) becomes ever more crucial. Results from the 2012 National Survey of Science and Mathematics Education indicated that few teachers reported feeling prepared to provide instruction to students from low socioeconomic backgrounds, racial or ethnic minorities, or English learners (Banilower et al., 2013). Although there is consensus regarding the importance of these skills (e.g., Gay, 2002; Pacheco, 2009), rigorous empirical study of these skills and ways to promote them is extremely limited and needed (e.g., APA Presidential Task Force on Educational Disparities, 2012; National Research Council, 2000).
- There is a need for evaluations of various approaches to teacher recruitment, retention, certification, assessment, and compensation implemented by states and school districts, and the relation between these approaches and student education outcomes. For example, with the implementation of the [Every Student Succeeds Act](#), federal requirements related to teacher evaluation have changed. The Institute is interested in research to understand how these changes in teacher evaluation may affect teaching and student education outcomes.
- The field would benefit from research exploring which aspects of pre-service training (e.g., timing, duration, and student population of supervised field experience) are associated with K-12 student academic outcomes in the teacher's first classrooms post-graduation.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncер/projects/program.asp?ProgID=75>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

6. English Learners

Program Officer: Dr. Elizabeth Albro (202-245-8495; Elizabeth.Albro@ed.gov)

a) Purpose

The English Learners topic supports research to improve the educational outcomes of English Learners (ELs) from kindergarten through high school. The Institute uses the term *English Learner* under a broad definition encompassing all students whose home language is not English and whose English language proficiency hinders their ability to meet learning and achievement expectations for students at their grade level.

Through this topic, the Institute is interested in reducing the academic achievement gap for the growing number of EL students across the primary and secondary grades. The context in which ELs experience schooling varies greatly regarding diversity of language backgrounds and concentration of ELs, as do the criteria used by states and districts to identify a student as an EL (CCSSO, 2014). In addition, ELs' language and literacy skills in both their home languages and in English may be important contributors to their academic development (August and Shanahan, 2006; Goldenberg, 2010; Connor et al., 2014). Several studies that report findings by characteristics such as language proficiency and native language present a more nuanced picture of factors that may influence the learning of ELs (Albers and Mission, 2014; Hwang et al, 2014; Umansky and Reardon, 2014). The value of future research is increased through careful attention to how ELs will be selected for study and the linguistic and cultural setting in which studies will take place.

The long-term outcome of this research will be an array of tools and strategies (e.g., [assessments](#), instructional approaches, programs, and policies) that have been documented to be effective for improving academic outcomes for EL students.

b) Requirements

Applications under the English Learners topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on **EL students** at any level from **kindergarten through high school** and may include non-ELs to serve as a comparison group. In addition, your research may also include a focus on **EL educators** (e.g., professional development or assessment).
- Research focused on pre-service teachers (teacher preparation) **must** be submitted under the Exploration goal. Research on pre-service teachers submitted under other goals will be considered nonresponsive and will not be sent forward for peer review.³

(2) Outcomes

- Your research **must** include [student academic outcome](#) measures.
- Research addressing EL educators (e.g., their professional development or assessment) **must** include measures of the educators' knowledge, skills, beliefs, behaviors, and/or practices that are the focus of your research in addition to the required measures of student academic outcomes.

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

³ This restriction is due to the time necessary to research the impact of pre-service pedagogical training, the time limits of these funding opportunities, and need for knowledge about the relations between training components and student academic outcomes.

c) Gaps in English Learner Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the English Learners topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the English Learners domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- English Learners face the dual challenge of simultaneously learning English and academic content. The revision of standards and curricula underway in many U.S. schools to better prepare students for college and career poses particular challenges for ELs and emphasizes the need to better understand how English language proficiency develops in the support of learning in all content areas (CCSSO, 2012).
- There is interest across the United States in the value of helping ELs to maintain skills in their first language while also becoming proficient in English. Schools across the country provide many different types of instructional programs (such as transitional bilingual, two-way dual language immersion, early exit bilingual) that offer instruction in two languages. Just as English Learners vary widely in their skills in multiple languages, so do the components of instructional programs provided for ELs. Research is needed to describe the characteristics of instruction (such as the amount and focus of instruction that is offered in each language) in order to build knowledge of the characteristics of effective programs for ELs.
- Little research has addressed potential supports for immigrant ELs as they learn English and challenging academic content while at the same time acclimating to the U.S. school system. Studies are needed to understand how best to support ELs and their families during this important transition in order to improve their academic outcomes.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=59>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

7. Improving Education Systems

Program Officer: Dr. Corinne Alfeld (202-245-8203; Corinne.Alfeld@ed.gov)

a) Purpose

The Improving Education Systems (Systems) topic supports research on system-level improvements of K-12 education at the school-, district-, state-, or national-level. Systems projects can explore, develop, measure, or evaluate specific practices, programs, and policies intended to improve education at the system level or to improve the system's ability to implement reforms (e.g., whole school reforms for low-performing schools; reallocation of resources across schools/districts based on student need).

Because of the multiple actors and complexities involved in education systems, the Institute is especially interested in understanding the processes underlying the successful implementation of programs and policies to better understand how and why they may or may not impact [student academic outcomes](#). To this end, the Institute encourages applicants to be actively engaged with stakeholders (e.g., practitioners, students, parents) when planning research. By actively working with education stakeholders, research supported under the Systems topic has the potential to clarify the types of policies and systems that are indeed beneficial for students, the necessary conditions to support systemic improvements, and the factors that may enhance or impede systems-level change. The Institute encourages work that explores heterogeneity within and across schools and/or districts and examines potential variation in outcomes of different policies.

The long-term outcome of research under the Systems topic will be an array of practices, programs, and policies that improve the operation of districts and schools in ways that improve student academic outcomes.

b) Requirements

Applications under the Systems topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on a public education system at the school-, district-, state-, or national-level that serves students in **kindergarten through high school**.

(2) Outcomes

- Your research **must** include measures of whether the systemic changes expected to improve student outcomes are occurring (e.g., a project examining a policy that increases curriculum requirements should measure how those requirements are actually being implemented by schools).
- Your research **must** include measures of student academic outcomes alone or in conjunction with student [social and behavioral competencies](#). Your student education outcomes should be chosen because of their expected links to the intermediate outcomes you are examining. Aggregated outcomes (e.g., at the student subgroup, school, or district level) are acceptable.

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

c) Gaps in Improving Education Systems Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Systems topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Improving Education Systems domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- The Institute is interested in research on how states use the flexibility provided by the [Every Student Succeeds Act](#) (ESSA) and their links to improved student education outcomes, particularly for disadvantaged students (e.g., state-designed accountability systems; flexibility for rural districts' use of federal funding).
- Many states have adopted or revised existing college- and career-readiness standards in reading, math, and science to increase the rigor of curriculum, instruction, and assessment. The Institute is interested in research on the implementation and effects of such standards, especially for students who may be struggling academically, and whether policies or programs designed to provide these students with extra support can indeed be beneficial.
- Because failing students may be disproportionately grouped in low-performing schools (Balfanz and Letgers, 2004), the Institute encourages research on policies or initiatives aimed at improving low-performing schools (e.g., school turnaround programs, comprehensive school reform models); providing educational alternatives to help low-performing students be more successful (e.g., transfer policies, charter schools, alternative schools, small schools); or reducing unequal access to resources (e.g., redistricting policies or court rulings designed to minimize funding disparities between schools).
- Achievement gaps occur for at-risk children at all levels of schooling, and the gap in achievement by income is widening (Reardon, 2011). Inequities are particularly large for low-income, especially black, students in urban schools (DeArmond et al., 2015). In addition, such achievement gaps are larger within schools than between schools (Bohrnstedt, Kitmitto, Ogu, Sherman, and Chan, 2015; Schmidt, Burroughs, Zoido, and Houang, 2015). The Institute is interested in research on systems-level programs and policies designed to reduce achievement gaps throughout K-12 education (e.g., coordinating school improvement with community services that have the potential to ameliorate socioeconomic disadvantage; providing access to advanced courses as well as remediation; expansion of instructional time).
- The Institute is interested in the development and evaluation of policies, programs, and practices to better identify and educate gifted students from traditionally underserved populations such as minority students, low-income students, those in small-town or rural communities, English learners, and students with disabilities (Ford, Grantham, and Whiting, 2008; Wyner, Bridgeland, and DiIulio, 2007).
- The Institute encourages research on programs and policies to keep students at-risk of dropout in school and to attract recent dropouts back to school (e.g., early warning systems combined with additional supports, alternative programs under state or local education agency control within or outside of comprehensive high school).
- The coordination of multiple city, county, or state agencies (such as social service, public health, or juvenile justice systems) is necessary to meet the multiple needs of students at high risk for education failure (Culhane, Fantuzzo, Rouse, Tam, and Lukens, 2010). The Institute is interested in understanding how to achieve coordination across systems to support better education outcomes.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=76>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

8. Mathematics and Science Education

Program Officer: Dr. Christina Chhin (202-245-7736; Christina.Chhin@ed.gov)

a) Purpose

The Mathematics and Science Education (Math/Science) topic supports research on the improvement of mathematics and science knowledge and skills of students from kindergarten through high school.

The Institute encourages researchers to explore [malleable factors](#) (e.g., children's abilities and skills) that are associated with better mathematics or science outcomes, as well as [mediators](#) and [moderators](#) of the relations between these factors and student outcomes, for the purpose of identifying potential targets of [intervention](#). The Institute also encourages the development and rigorous evaluation of promising interventions to improve mathematics and science learning. In addition, the Institute invites applications to develop and validate new [assessments](#) of, as well as applications to validate existing measures of, mathematics or science learning.

The long-term outcome of this research will be an array of tools and strategies (e.g., curricula, programs, assessments) that are documented to be effective for improving or assessing mathematics and science learning and achievement.

b) Requirements

Applications under the Math/Science topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on students at any level from **kindergarten through high school**.

(2) Outcomes

- Your research **must** include student mathematics and/or science outcome measures. You may do research on STEM (science, technology, engineering, and mathematics) education, but student learning in mathematics and/or science **must** be directly addressed and measured.

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

c) Gaps in Mathematics and Science Education Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Math/Science topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Math/Science domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- Since 2002, Institute-funded research in mathematics education has made significant progress in helping to support rigorous, scientifically valid research that is relevant to education practice and policy (see [Compendium of Math and Science Research Funded by NCER and NCSE: 2002-2013](#)); however, there is still room for growth. Understudied areas in mathematics and science in which the Institute encourages additional research include the following:

- Exploration, development and measurement work in mathematics topics typically taught during high school (e.g., geometry, trigonometry, calculus);
- Rigorous evaluations of mathematics interventions across K to 12, but particularly at the high school level;
- The development and validation of measures in science across grades K to 12 that address the progressive nature of learning and take into consideration the recommendations for developing science assessments published by the National Research Council (2014a); and
- Rigorous evaluations of science interventions across grades K to 12.
- Results from the 2015 National Assessment of Educational Progress (NAEP) show a slight, but significant, decline in mathematics scores from 2013, and it is also the first time mathematics scores on the NAEP have declined since 1990. Further research to better understand this decline and to improve the mathematics knowledge and skills of students is needed.
- Improving science, technology, engineering, and math (STEM) education can take many forms, ranging from improving domain specific instructional practices and pedagogy to integrating several components of STEM as part of instruction. There is limited research, however, on how to best foster teaching, learning, and engagement across the STEM disciplines. A recent National Research Council (2014b) report suggests that the integration of STEM concepts and practices is promising in terms of improving learning. There are, however, practical challenges to integrating STEM disciplines in teaching and learning, including the fact that many teachers are not trained or prepared to teach across STEM disciplines, and the majority of assessments measure learning in only a single discipline. While it is important to continue to conduct research in domain specific areas of mathematics and science, the Institute encourages new research exploring ways in which STEM education can be successfully integrated in grades K to 12.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=12>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

9. Postsecondary and Adult Education

Program Officers: Dr. James Benson (202-245-8333; James.Benson@ed.gov)
Dr. Meredith Larson (202-245-7037; Meredith.Larson@ed.gov)

a) Purpose

The Postsecondary and Adult Education topic supports research on the improvement of education outcomes for students in college and in adult education programs.

Through this topic, the Institute is interested in understanding how to increase student access to, persistence in, progress through, and completion of postsecondary and adult education programs. The Institute is also interested in understanding how to improve specific student academic outcomes in developmental education, adult education, [gateway science and math courses](#), and introductory composition courses.

The long-term outcome of this program will be an array of tools and strategies (e.g., practices, assessments, programs, policies) that have been documented to be effective for improving education outcomes of postsecondary students at the college level and adult learners.

b) Requirements

Applications under the Postsecondary and Adult Education topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on individuals who are 16-years-old or older and are preparing for, transitioning into, or currently enrolled in postsecondary or adult education.
- Your sample may include students with or without disabilities. If your focus is on students with disabilities, you should discuss the specific type(s) of disability to be examined and how you will determine that students have such a disability.

(2) Outcomes

- Your research **must** include at least one [student education outcome](#) measure from the following categories:
 - Access to, persistence in, progress through, or completion of a postsecondary or adult education program.
 - Academic outcomes for students enrolled in introductory English composition courses or in gateway courses for mathematics and science.
 - Reading, writing, English language proficiency, or mathematic skills for students in developmental or adult education programs.
- Your research may also include labor market outcomes (e.g., employment, earnings) in addition to the required student education outcomes.

(3) Setting

- Your research **must** be conducted in authentic [postsecondary and adult education settings](#) or on data collected from such settings. These settings may provide in-person or virtual instruction.

c) Gaps in Postsecondary and Adult Education Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Postsecondary and Adult Education topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Postsecondary and Adult Education domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- In 2014, the Workforce Innovation and Opportunity Act (WIOA) was signed into law, potentially changing the way agencies at the federal, state, and local level are coordinating services for out-of-school youth, adults with low skills, dislocated workers, incarcerated adults, and individuals with disabilities. Research is needed to understand the types of changes states and programs are adopting (e.g., greater use of career pathways, integrating education into one-stop career centers) and their impacts on practitioners and students.
- Professional development for postsecondary and adult education instructors has the potential to improve the quality of instruction in ways that support student learning and persistence (Weimer and Lenz, 1997, NRC, 2012), yet the research base on improving postsecondary and adult education instruction is small. Research is needed to determine effective professional development and support strategies for instructors in a variety of settings, from adult education and developmental classrooms to STEM undergraduate courses.
- Research is needed to assess promising curriculum reform strategies, at both the postsecondary and adult education levels, such as re-designing postsecondary gateway and general education courses to adapt to individual students' learning needs, incorporating competency-based approaches, and streamlining programs of study (Barker et al. 2004; Bell and Federman, 2013; Reddy et al. 2013).
- The proportion of nontraditional postsecondary students (e.g., veterans, returning, and older students) is increasing at a faster rate than that of traditional postsecondary students (e.g., those coming directly from the secondary system). By 2022, a projected 10.1 million postsecondary students will be over 24 years old as compared to the projected 13.6 million that will be of traditional age (Hussar and Bailey, 2013). Research is needed to understand nontraditional students' postsecondary trajectories and challenges so that appropriate interventions can be developed and evaluated.
- On the path from postsecondary enrollment to completion, students interact with multiple divisions within their college and often with multiple institutions. Complex institutional rules regarding course selection, sequencing, and transfer of credits can create unnecessary bottlenecks and pose barriers that impede students' degree completion. Research is needed into institutional reforms including improvements in information delivered to students about their credential and course options, simplification of course selection and scheduling procedures, use of administrative data to address bottlenecks for students as they move through the postsecondary pipeline, and systemic policies and procedures that facilitate credit accumulation and degree completion (Rosenbaum et al., 2015).
- Research on the impact of student advising and support services on postsecondary persistence has found mixed results (Bettinger, Boatman and Long, 2013). There is a need for exploration into the specific conditions for and components of effective advising and support interventions. Given the cost of face-to-face advising, research is also needed to develop and evaluate alternative approaches that utilize technology or other modes of delivering advising and support.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=15>. Please contact the Program Officers for this topic to discuss your choice of topic and goal and to address other questions you may have.

10. Reading and Writing

Program Officer: Dr. Rebecca Kang McGill-Wilkinson (202-245-7613; Rebecca.McGill@ed.gov)

a) Purpose

The Reading and Writing (Read/Write) topic supports research on the improvement of reading and writing skills of students from kindergarten through high school.

Through this topic, the Institute is interested in improving learning, higher-order thinking, and achievement in reading and writing. The Institute encourages researchers to explore [malleable factors](#) (e.g., children's behaviors, instructional practices) that are associated with better reading and writing outcomes, as well as [mediators](#) and [moderators](#) of the relations between these factors and student outcomes, for the purpose of identifying potential points of [intervention](#). The Institute is also interested in the development and rigorous evaluation of reading and writing interventions. The Institute also continues to solicit research to develop and validate [assessments](#) of reading and writing appropriate for students from kindergarten through high school.

The long-term outcome of this research will be an array of tools and strategies (e.g., curricula, assessments, instructional approaches) that are documented to be effective for improving or assessing reading and writing.

b) Requirements

Applications under the Read/Write topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on students at any level from **kindergarten through high school**.

(2) Outcomes

- Your research **must** include student measures of reading and/or writing outcomes.

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

c) Gaps in Reading and Writing Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Read/Write topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Read/Write domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- The vast majority of projects to date in the Read/Write portfolio have focused on reading; only a few projects incorporate an explicit focus on writing. Although advances have been made in understanding how children learn to write, we have less systematic knowledge about how individuals become proficient writers (Graham, McKeown, Kiuvara, and Harris, 2012; Miller and McArdle, 2011; Shanahan, 2015). On the 2011 NAEP writing assessment, only 27 percent of 8th graders were at or above the proficient level in writing and 20 percent could not write at the basic level. These numbers were similar for 12th grade students (27 percent at or above proficient

and 21 percent below basic). The field would benefit from research on writing achievement and interventions designed to increase writing proficiency.

- The number of computers and other electronic devices is rising rapidly in both U.S. homes and schools. However, some research shows that while children and adolescents spend a lot of time on their devices and may be skilled at social networking and texting, they are not necessarily skilled at reading online (Bennett, Maton, and Kervin, 2008; Coiro and Dobler, 2007; Leu, Zawilinski, Castek, Banerjee, Housand, Liu, and O'Neil, 2007; Leu, Forzani, Rhoads, Maykel, Kennedy, and Timbrell, 2015) or on electronic devices. More research is needed regarding the skills needed to read on the Internet and on electronic devices, including whether these skills are synonymous with the skills needed to read on paper.
- Research on college- and career-ready standards has high relevance for K-12 practitioners and policymakers. The field could benefit from research related to college- and career-ready standards including, but not limited to
 - Research on the impact of increased text complexity on students' reading outcomes;
 - Research related to reading/writing in the content areas (see below); and
 - Development and/or evaluation of interventions aligned with college- and career-ready standards.
- Over recent decades, public attention has shifted from the teaching of beginning reading to adolescent literacy (Shanahan and Shanahan, 2008; Shanahan and Shanahan, 2012). U.S. middle and high schools separate content areas into distinct class periods, none of which are specifically intended to teach reading and writing (Moje, 2008). Thus, reading and writing are mainly taught in content-area classes such as math, science, history and social studies. While there has been research suggesting that reading and writing in the content areas may serve to improve reading and writing outcomes (Guthrie et al., 2004; Simmons et al., 2010; Vitale and Romance, 2012), more research is needed. The Institute would welcome research including, but not limited to
 - The best instructional techniques and materials for teaching reading and writing in math, science, history and social studies; and
 - Whether there are different reading and writing skills needed for literacy in different content areas.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=18>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

11. Social and Behavioral Context for Academic Learning

Program Officer: Dr. Emily Doolittle (202-245-7833; Emily.Doolittle@ed.gov)

a) Purpose

The Social and Behavioral Context for Academic Learning (Social/Behavioral) topic supports research on social skills, attitudes, and behaviors (i.e., [social and behavioral competencies](#)) to improve student achievement and progress through the education system.

Through this topic, the Institute is interested in understanding ways to support the development of social/behavioral competencies such as social skills (e.g., responsibility, cooperation), learning strategies (e.g., goal-setting, self-regulated learning), dispositions or attitudes (e.g., motivation, academic self-concept), and behaviors (e.g., constructive participation, attendance) that research suggests may help students succeed in school and work (for examples, see Farrington et al., 2012 and Rosen et al., 2010).

Research supported through this topic will lead to an array of tools and strategies to improve or assess students' social/behavioral competencies, and teacher practices that support them, that in the long-run will improve student academic achievement.

b) Requirements

Applications under the Social/Behavioral topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

(1) Sample

- Your research **must** focus on students at any level from **kindergarten through high school**.
- Research on professional development interventions **must** be designed to provide **in-service, school system staff** (e.g., teachers, guidance counselors, school psychologists) with supports and skills to improve the social and behavioral context for academic learning.

(2) Outcomes

- Your research **must** include measures of student social and behavioral competencies (i.e., **social skills, attitudes, or behaviors**) that, based on prior research, are known to be correlated with [student academic outcomes](#).

(3) Setting

- Your research **must** be conducted in authentic K-12 [education settings](#) or on data collected from such settings.

c) Gaps in Social/Behavioral Research

Through this funding mechanism, the Institute supports field-generated research that meets the requirements for the Social/Behavioral topic and the requirements for one of the Institute's research goals (see [Part III Goal Requirements](#)).

While the Institute supports field-generated research, the Institute has also identified critical research gaps in the Social/Behavioral domain (described below) and encourages applications that address these issues. The Institute's peer-review process is not designed to give preferential treatment to applications that address these issues; rather, the Institute encourages such applications because, if found to have scientific merit by the Institute's independent peer reviewers, they have the potential to lead to important advances in the field.

- School safety and violence prevention continue to be a major concern for educators, parents, and the nation, yet progress in addressing these concerns is hampered by disagreement on conceptual foundations to guide research (see the 2010 Special Issue of the *Educational Researcher*, "New Perspectives on School Safety and Violence Prevention"). The field could

benefit from research that builds theory for the study of school safety and violence prevention through the Exploration goal.

- Inadequate measures present many barriers to progress in social/behavioral research. As one example, self-report is the standard (e.g., school safety, bullying, grit, motivation), yet an overreliance on self-report measures may lead to biased results and an inability to generalize findings beyond a specific study (e.g., Mayer and Furlong, 2010; Swearer et al., 2010). The field could benefit from research to develop and validate other types of measures of social skills, attitudes, and behaviors that support learning in schools. The need for measurement work in this domain is particularly urgent given changes in the education law under the [Every Student Succeeds Act](#) that allow for states to use social/behavioral outcomes such as student engagement and school climate for accountability purposes.
- Minority students continue to be disproportionately represented in disciplinary referrals and behavioral suspensions (Krezmien, Leone, and Achilles, 2006; Wallace et al., 2008; <http://csgjusticecenter.org/youth/breaking-schools-rules-report/>). The Institute encourages applications to explore the potential causes of discipline disparities in schools and to develop new approaches to discipline to minimize these disparities in schools.
- School-based service learning is a potentially important means of supporting students' academic achievement and civic engagement. In the most recent national survey of principals of K-12 public schools, 68 percent report that their students participate in community activities that are recognized by the school and 24 percent report that the school actively integrates service-learning into the curriculum (Corporation for National and Community Service, 2008). Although service-learning is theorized to afford opportunities for applied learning of academic content and to foster civic values by engaging students in community problem solving, the Institute encourages applications to explore the critical features of service learning programs and the mechanisms by which such programs might improve student outcomes.

For more information on this topic and to view the abstracts of previously funded projects, please visit <http://ies.ed.gov/ncer/projects/program.asp?ProgID=21>. Please contact the Program Officer for this topic to discuss your choice of topic and goal and to address other questions you may have.

12. Special Topics in Education Research

The Institute has identified special topics to encourage research in understudied areas that are not attracting applications under one of the 11 standing topics. For FY 2017, the Institute invites applications to three special topics: Arts in Education, Career and Technical Education, and Systemic Approaches to Educating Highly Mobile Students. Each special topic has a dedicated Program Officer(s) who can answer questions and help you determine if the special topic is appropriate for your application. The Institute will accept applications to the three special topics under all five research goals (see [Part III Research Goals](#)).

➤ *Arts in Education*

Program Officers: Dr. James Benson (202-245-8333; James.Benson@ed.gov)
Dr. Erin Higgins (202-245-6541; Erin.Higgins@ed.gov)

a) Purpose

The Arts in Education special topic supports research to understand the implementation and effects of arts programs and policies at the K-12 level in order to improve the [education outcomes of students](#). Research connecting student participation in the arts to [academic](#) outcomes and [social/behavioral competencies](#) has the potential to inform contemporary policy debates regarding the benefits of arts programming in schools. Advocates of the arts have long argued for their inclusion in schools, for their general benefits, such as improved innovation, creativity, and communication (Winner, Goldstein, and Vincent-Lancrin, 2013), as well as for their perceived positive effects on literacy (Walker, Tabone, and Weltsek 2011; Podlozny 2000), math achievement (Courey, Balogh, and Siker 2012; Kinney and Forsythe 2005), critical thinking (Montgomerie and Ferguson 1999), and engagement in school (Smithrim and Upitis 2005). In addition, there is some evidence from cognitive psychology and neuroscience suggesting a relationship between participation in the arts and improved cognitive and neural processing (e.g., Catterall, 2002; Tierney, Krizman, and Kraus 2015; Kraus, Hornickel, Strait, Slater, and Thompson, 2014).

States and school districts often feel the need to make tradeoffs between instruction in core subjects (e.g., math, reading) and instruction in the arts, in part because of the emphasis on testing in core subjects as well as because of budgetary pressure. Given the potential of the arts to contribute positively to students' success in school, new research is needed to rigorously assess the effect of arts participation on education outcomes, including a close look at potential mediators of any effects, the types of outcomes impacted, and the conditions under which these relationships hold.

Other important research questions about arts participation include identifying how best to incorporate the arts to ensure the broadest impact on student achievement in other academic areas (i.e., math, science, reading, writing). For example, arts programming varies in type, intensity, and quality. Research is needed to identify which forms are clearly linked to improved student outcomes, and when in the course of schooling they are most impactful. Finally, some researchers have noted strong correlations between arts participation for at-risk youth and high school graduation as well as attending postsecondary schooling (Catterall, Dumais, and Hampden-Thompson, 2012). Subgroup analysis is needed to assess whether arts programming can reduce disparities in academic outcomes.

b) Requirements

Applications under the Arts in Education topic **must** meet the Sample, Setting, and Outcomes requirements listed below in order to be responsive and sent forward for scientific peer review.

Sample

- Your research **must** focus on students at any level from **kindergarten through high school**.

Outcomes

- Your research **must** include measures of [student academic outcomes](#) and/or measures of student [social and behavioral competencies](#) (i.e., social skills, attitudes, or behaviors) that, based on prior research, are known to be correlated with student academic outcomes.
- Your research **must also** include measures of students' arts outcomes (for example, see the National Core Arts Standards <http://www.nationalartsstandards.org/>).
- The Institute strongly recommends that you develop a plan to measure implementation fidelity of arts programs, policies, and/or practices. Without data on the quality of the arts program, policy, and/or practice that was administered as well as data on whether it improved students' knowledge and understanding of the arts, it is difficult to interpret any effects, or lack of effects, on students' academic and social/behavioral outcomes.

Setting

- Your research **must** be conducted in [authentic K-12 education settings](#) or on data collected from such settings.

➤ **Career and Technical Education**

Program Officer: Dr. Corinne Alfeld (202-245-8203; Corinne.Alfeld@ed.gov)

a) Purpose

The Career and Technical Education (CTE) special topic supports research to understand the implementation and effects of CTE programs and policies at the K-12 level in order to improve the education and career outcomes of students. K-12 CTE has been evolving and expanding with new and updated career areas (e.g. mechatronics, graphic design), connections with employers and postsecondary institutions, increased emphasis on industry credentials, innovative delivery structures such as career academies and pathways (Visher and Stern, 2015), and increases in state funding to enact policies to support CTE expansion ([http://www.actonline.org/uploadedFiles/Who_We_Are/Press/2015_State-Policy-Review_FINAL%20\(1\).pdf](http://www.actonline.org/uploadedFiles/Who_We_Are/Press/2015_State-Policy-Review_FINAL%20(1).pdf)). However, while CTE has become increasingly considered as a way to improve high school students' career readiness prior to graduating from high school, there is little consensus about what it means for a student to be "career ready."

Through this special topic, the Institute seeks primarily to explore and evaluate policies, programs, and practices implemented at the K-12 level that are aimed at increasing students' career readiness. Specifically, the Institute encourages research to understand the variety of CTE programs, students' exposure to and experience with CTE opportunities, what constitutes high quality CTE, and what effect participation in different types of programs has on a variety of career- and college-readiness indicators. The Institute is particularly interested in understanding what types of programs work best for whom and under what conditions.

The Institute encourages research that explores the relationships between specific career-focused school, program, or curricular features and student education outcomes, as well as the longitudinal pathways and outcomes for students enrolled in K-12 CTE programs (e.g., postsecondary education and employment). Such studies could make use of existing administrative datasets from school districts, institutions of higher education, states, industries, employers, and other relevant organizations. There is also a need for research on CTE teacher qualifications, recruitment, training/professional development, and retention. In addition, research is needed to develop and pilot new career-oriented programs or policies designed to support students' education and career outcomes. At the same time, there is a need for the development

or improvement of measures of students' technical, occupational, and career readiness skills. Finally, there are a number of existing career-focused schools or programs and state or district policies or reforms to support CTE that need to be evaluated to determine their impact on student education outcomes: e.g., awarding of vocational diplomas, district use of career-readiness measures, implementation of career academy models, awarding academic credit for CTE courses, schools' offering of online career exploration tools, and CTE teacher certification requirements.

b) Requirements

Applications under the Career and Technical Education topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

Sample

- Your research **must** focus on students at any level from **kindergarten through high school**.

Outcomes

- Your research **must** include measures of [student academic outcomes](#) and at least one CTE outcome (e.g., grades in CTE courses, CTE credits earned, technical skills assessment, industry certification).
- Your research may also include measures of [student social and behavioral competencies](#) (i.e., social skills, attitudes, or behaviors) and/or measures of labor market outcomes (e.g., employment, earnings).
- If your research focuses on CTE teachers (e.g., their professional development or assessment), you **must** include measures of the educators' knowledge, skills, beliefs, behaviors, and/or practices that are the focus of your research in addition to the required measures of student academic outcomes.

Setting

- Your research **must** be conducted in [authentic K-12 education settings](#), or on data collected from such settings. Data may be collected from work sites (e.g., in the case of work-based learning) if data are also collected from relevant authentic education settings.

➤ Systemic Approaches to Educating Highly Mobile Students

Program Officer: Dr. Katina Stapleton (202-245-6566; Katina.Stapleton@ed.gov)

a) Purpose

The Systemic Approaches to Educating Highly Mobile Students (Highly Mobile Students) special topic supports research to improve the education outcomes of students who face social/behavioral and academic challenges because they frequently move from school to school because of changes in residence and/or unstable living arrangements. This category of students, typically referred to as highly-mobile students, includes students who are [homeless](#), [in foster care](#), from [migrant backgrounds](#), or [military-dependent](#). Definitions of highly mobile students vary and can be based on the number of times students change schools and/or residences. For example, according to the U.S. Government Accountability Office, about 13 percent of all K-8 students change schools four or more times in a given school year, and these students are disproportionately poor, African American, and from families that do not own their home (<http://www.gao.gov/new.items/d1140.pdf>).

Through this special topic, the Institute seeks to support research on systemic policies and practices that help highly mobile students succeed in school despite residential and/or school mobility. The long-term

For awards beginning in FY 2017

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outcome of this research will be a body of evidence on effective policies and practices that support the educational needs of highly mobile students.

There are a number of factors that can potentially negatively impact the education outcomes of highly mobile students. For example, while federal policies such as the [McKinney-Vento Homeless Education Assistance Improvements Act of 2001](#) and the [Fostering Connections to Success and Increasing Adoptions Act of 2008](#) give students enrollment rights, frequent changes in schools and districts cause students to face changing curricula and subject matter, and older students may have difficulty accruing credits. Highly mobile students may also struggle with other family issues that accompany the source of their mobility (e.g. parental deployment, transferring between foster families, the need to work to help support family or self). More research is needed on support services that reduce these barriers in order to increase student achievement. More research is also needed on policies to stabilize school placements of highly mobile students.

Because highly mobile students interact with multiple education systems, the Institute encourages collaboration amongst these systems to develop and evaluate practices and policies to assist highly mobile students in enrolling in, attending, and succeeding in school. For example, the Institute invites research on policies that facilitate students receiving credit for full or partial coursework completed while attending their previous schools. Researchers could also propose to study policies that facilitate the transfer of student records across jurisdictions or policies designed to help students navigate standards, course, and graduation requirements that change from state to state. The Institute also invites research on policies and programs that address the physical, psychological, and social needs of highly mobile students who may have experienced deprivation or trauma in addition to addressing required academic outcomes.

The Institute encourages studies that create or utilize shared/integrated data systems (such as records exchanges⁴) to identify and track highly mobile students and also to identify factors that could potentially be used to improve these students' outcomes (see, for example, Culhane et al., 2010; Fantuzzo et al., 2013; Walker, Farley, and Polin, 2012).⁵ The Institute also encourages the development and evaluation of state and local policies and programs to implement services for highly mobile student populations required by federal law, or provided through federally funded programs (e.g., Migrant Education Program) or interstate agreements (e.g., Military Interstate Children's Compact Commission).

b) Requirements

Applications under the Highly Mobile Students topic **must** meet the Sample, Outcomes, and Setting requirements listed below in order to be responsive and sent forward for scientific peer review.

Sample

- Your research **must** focus on highly mobile students from kindergarten through high school that fall into at least one of the following subgroups:
 - [Homeless students](#), including [unaccompanied youth](#).
 - Students who live in [foster care settings](#).
 - [Migratory students](#).

⁴ For example, the Migrant Student Records Exchange Initiative allows states to share educational and health information on migrant children who travel from state to state and who as a result, have student records in multiple states' information systems <http://www2.ed.gov/admins/lead/account/recordstransfer.html>.

⁵ The Uninterrupted Scholars Act (Public Law 112-278) amends the Family Educational Rights and Privacy Act (FERPA) to permit educational agencies and institutions to disclose a student's education records, without parental consent, to a caseworker or other representative of a state or local child welfare agency or tribal organization authorized to access a student's case plan "when such agency or organization is legally responsible, in accordance with state or tribal law, for the care and protection of the student." For more information, see the U.S. Department of Education 2014 policy guidance at <https://www2.ed.gov/policy/gen/guid/fpco/ferpa/uninterrupted-scholars-act-guidance.pdf>.

- [Military-dependent students](#), including children of active-duty and/or reserve units.
- Students who are otherwise designated as being highly mobile based on a reasonable threshold (e.g., changing residences or schools more than three times per 12-month period).

Outcomes

- Your research **must** include measures of [student academic outcomes](#) alone or in conjunction with student [social and behavioral competencies](#).

Setting

- Your research must be conducted in [authentic K-12 education settings](#) and/or be conducted on data collected from an authentic K-12 education setting.

PART III: RESEARCH GOALS

A. APPLYING UNDER A GOAL

For the FY 2017 Education Research Grants program, you must select one of the five research goals described below. You must identify the specific research goal for your application on the SF-424 Form (Item 4b) of the Application Package (see Part VI.E.1.) or the Institute may reject the application as nonresponsive to the requirements of this Request for Applications. The Institute strongly encourages you to contact the Program Officer listed under the topic you intend to apply to in order to discuss your choice of research goal.

The research goals are designed to span the range from basic research with practical implications to applied research (the latter includes the development of education [interventions](#) and [assessments](#) and the evaluation of the impact of interventions when implemented under [ideal conditions](#) and conditions of [routine practice](#)).

- The Institute considers interventions to encompass the wide range of education curricula; instructional approaches; professional development; technology; and practices, programs, and policies that are implemented at the student-, classroom-, school-, district-, state-, or federal-level to improve student education outcomes.
- The Institute considers assessments to include “any systematic method of obtaining information, used to draw inferences about characteristics of people, objects, or programs; a systematic process to measure or evaluate the characteristics or performance of individuals, programs, or other entities, for purposes of drawing inferences; sometimes used synonymously with test” (AERA, 2014).

You should select the research goal that most closely aligns with the purpose of the research you propose, regardless of the specific methodology you plan to use. In other words, let your research questions guide your choice of research goal. If you are not sure which of the five research goals is most appropriate for your application, contact one of the Institute’s program officers for help in selecting a research goal (see [Part II Topic Requirements](#) and [Part VI.H Program Officer Contact Information](#)). You will also get feedback on your goal choice from the Institute’s program officers when you submit your letter of intent (see Part IV.C.1 Submitting a Letter of Intent).

For each research goal, the Purpose, Project Narrative Requirements, Recommendations for a Strong Application, and Award Requirements are described. Please note the following:

- The requirements for each goal are the minimum necessary for an application to be sent forward for peer review. **Your application must meet all Project Narrative and Award requirements listed for the goal you select in order for your application to be considered responsive and sent forward for peer review.**
- In order to improve the quality of your application, the Institute offers Recommendations for a Strong Application following each set of Project Narrative Requirements. The peer reviewers are asked to consider the recommendations in their evaluation of your application. **The Institute strongly encourages you to incorporate the recommendations into your project narrative.**

1. Goal One: Exploration

a) Purpose

The Exploration goal supports projects that will identify [malleable factors](#) associated with [student education outcomes](#) and/or the factors and conditions that [mediate](#) or [moderate](#) that relationship. Exploration projects are intended to build and inform theoretical foundations to support future applied research efforts such as (1) the development of [interventions](#) (see [Goal Two: Development and Innovation](#)) or the evaluation of interventions (see [Goal Three: Efficacy and Replication](#)) or (2) [assessment frameworks](#) for the development and [validation](#) of [assessments](#) (see [Goal Five: Measurement](#)). If you plan to develop or evaluate an intervention or assessment, you must apply under one of the other appropriate research goals or your application will be deemed nonresponsive and will not be forwarded for peer review.

Projects under the Exploration goal analyze primary data, secondary data, or both and will result in a conceptual framework that identifies the following:

- A relationship between a malleable factor and a student education outcome;
- Factors that mediate or moderate this relationship; or
- Both a relationship between a malleable factor and a student education outcome *and* the factors that mediate or moderate this relationship.

Malleable factors

Things that can be changed by the education system to improve student education outcomes.

b) Requirements and Recommendations

Applications under the Exploration goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for an Exploration project application **must** include four sections: Significance, Research Plan, Personnel, and Resources.

- a. **Significance** – The purpose of this section is to explain why it is important to study these particular malleable factors and their potential association with student education outcomes.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** include

- (i) A description of the factors to be studied.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed exploratory work.

Project Aims:

- Describe how the factors are malleable and under the control of the education system, the relationships you expect them to have with specific student education outcomes, and any mediators or moderators you will be studying.

Rationale:

- Include your theory and evidence for the malleable factors that may be associated with beneficial student education outcomes or for the mediators and moderators may influence such an association.

Practical Importance:

- Discuss how the results will go beyond what is already known and how the results will be important both to the field of education research and to education practice and education stakeholders (e.g., practitioners and policymakers). If you are studying an existing intervention (or a major component of an intervention), discuss how widely the intervention is used and why an Exploration study, in contrast to an Efficacy/Replication evaluation, will have practical importance.

Future Work:

- Discuss how the results of this work will inform the future development of an intervention or assessment or the future decision to evaluate an intervention.

- b. Research Plan** – The purpose of this section is to describe the methodology you will use to study these particular malleable factors (and mediators or moderators, if applicable) and their potential association with better student education outcomes. Include a description of your research design, sample, measures, and data analysis procedures.

A variety of methodological approaches are appropriate under the Exploration goal including, but not limited to, the following: (1) primary data collection and analyses, (2) secondary data analyses, (3) meta-analyses that go beyond a simple identification of the mean effect of interventions (Shadish, 1996), or (4) some combination of these three approaches.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** describe the following:

- (i) The research design; and
- (ii) Data analysis procedures.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed exploratory work.

Research Design:

- Describe your research design with enough detail to show how it is appropriate for addressing your research aims.
- Note whether your project is based solely on secondary data analysis or includes primary data collection and analysis alone or in conjunction with secondary data analysis (as this will affect the maximum duration and award you may request). If you plan to code unstructured data (e.g., video files, audio files, transcripts, etc.), this is considered a form of primary data collection for the purposes of this RFA. In contrast, if you plan to

Secondary data analyses are often based on nationally representative surveys or evaluations (e.g., <http://nces.ed.gov/pubsearch/licenses.asp>); administrative data from federal, state, or district agencies or non-public organizations; and/or data from previous research studies.

analyze structured data files that do not require coding prior to analysis, this is considered secondary data analysis only.

- Exploration projects involving primary data collection can include a limited amount of [laboratory research](#) as long as it adheres to the sample and outcomes requirements outlined for the topic you select; however, applicants may not propose to conduct 100 percent of their research in the laboratory. A portion of the research must take place in the setting required for the chosen topic. Applications with 100 percent of the research taking place in laboratory settings will be deemed nonresponsive and not sent forward for peer review.
 - If you propose laboratory research, you should justify the amount that you are choosing to do and describe how it will provide relevant evidence for identifying malleable factors that could improve education outcomes in [authentic education settings](#). In addition, the materials and procedures should allow for generalizability to authentic education settings.

Sample:

- Consider your sample and its relation to addressing the overall aims of the project (e.g., what population the sample represents).
- For primary data collection and secondary data analysis, include the following:
 - Describe the base population, the sample, and the sampling procedures (including justification for any exclusion and inclusion criteria).
 - For all quantitative inferential analyses, demonstrate that the sample provides sufficient power to address your research aims.
- For longitudinal studies using primary data collection, describe strategies to reduce attrition.
- If you intend to link multiple data sets, provide sufficient detail for reviewers to be able to judge the feasibility of the linking plan.
- For meta-analysis, include the following:
 - Describe and justify the criteria for including or excluding studies.
 - Describe the search procedures for ensuring that a high proportion of eligible studies (both published and unpublished) will be located and retrieved.
 - Describe the coding scheme and procedures that will be used to extract data from the respective studies and the procedures for ensuring the reliability of the coding.
 - Demonstrate that sufficient numbers of studies are available to support the meta-analysis and that the relevant information is reported frequently enough and in a form that allows an adequate data set to be constructed.

Measures:

- Describe the measures and key variables you will be using in the study. For the outcome measures, discuss their validity and reliability for the intended purpose and population.
- For secondary data, note the response rate or amount of missing data for the measures.
 - If the data will be transformed to create any of the key variables, describe this process.

- For primary data collection, include the following:
 - Describe the data to be collected and the procedures for data collection.
 - If the data will be transformed to create any of the key variables, describe this process.
 - If observational data or qualitative data are to be collected and analyzed statistically, describe how the data will be collected and coded (including the procedures for monitoring and maintaining inter-rater reliability), and describe the mechanism for quantifying the data if one is needed.
- For meta-analysis, include the following:
 - Define the effect size statistics to be used, along with the associated weighting function, procedures for handling outliers, and any adjustments to be applied (e.g., reliability corrections).
 - Describe the procedures for examining and dealing with effect size heterogeneity.

Data Analysis:

- Describe the statistical models to be used. Discuss why they are the best models for testing your hypotheses, how they address the multilevel nature of education data, and how well they control for selection bias.
- Discuss analyses to explore alternative hypotheses.
- Discuss how you will address exclusion from testing and missing data. Propose to conduct sensitivity tests to assess the influence of key procedural or analytic decisions on the results.
- Provide separate descriptions for any mediator or moderator analyses.
- For qualitative data, describe the intended approach to data analysis, including any software that will be used.

Timeline:

- Provide a timeline for each step in your project including such actions as sample selection and assignment, data collection, and data analysis.
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

- c. Personnel** – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** describe

- (i) The research team.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.

- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and to policymaker or practitioner audiences.
 - Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out coordinated or integrated tasks.
 - Key personnel may be from for-profit entities; however, you should include a plan describing how their involvement will not jeopardize the objectivity of the research.
 - If you have previously received an Exploration award, indicate whether your work under that grant has contributed to (1) the development of a new or refinement of an existing intervention, (2) the rigorous evaluation of an intervention, or (3) the development, refinement or validation of an assessment.
- d. Resources** – The purpose of this section is to describe how you have both the institutional capacity to complete a project of this size and complexity and access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Exploration goal **must** describe the following:

- (i) Conduct the project; and
- (ii) Disseminate the results.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Exploration work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include Letters of Agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
 - Include information about teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include Letters of Agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Exploration projects are expected to identify potentially important associations between malleable factors and student education outcomes.
- Exploration projects are not intended to evaluate the impact of interventions. Therefore, your findings are likely to be most useful in pointing out potentially fruitful areas for further attention from researchers, policymakers and practitioners rather than providing proof or strong evidence for adopting specific interventions.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project.

(2) Awards

An Exploration project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of an Exploration award that solely involves secondary data analysis or meta-analysis is 2 years.** An application of this type proposing a project length of greater than 2 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum duration of an Exploration award that involves primary data collection is 4 years.** An application of this type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for an Exploration project solely involving secondary data analysis or meta-analysis is \$600,000 (total cost = direct + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum award for an Exploration project involving primary data collection is \$1,400,000 (total cost = direct + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

2. Goal Two: Development and Innovation

a) Purpose

The Development and Innovation goal (Development/Innovation) supports the development of new [interventions](#) and the further development or modification of existing interventions that are intended to produce beneficial impacts on [student education outcomes](#) when implemented in [authentic education settings](#). The Institute will not accept applications under Development/Innovation that propose only minor development activities and are mainly focused on testing the intervention's impacts. Instead, if you have an intervention that is ready to be tested for efficacy, you should apply to the [Efficacy and Replication](#) goal.

Projects under the Development/Innovation goal will result in the following:

- A fully developed version of the proposed intervention.
- A well-specified [theory of change](#) for the intervention.
- Data that demonstrates that [end users](#) understand and can [feasibly](#) implement the intervention in an authentic education setting.
- A [fidelity of implementation](#) measure (or measures) to assess whether the intervention is delivered as intended by the end users in an authentic education setting.
- Pilot data regarding the intervention's promise for generating the intended beneficial student education outcomes and reaching the level of fidelity of implementation considered necessary to generate the intended beneficial student education outcomes.

Intervention

The wide range of education curricula; instructional approaches; professional development; technology; and practices, programs, and policies that are implemented at the student-, classroom-, school-, district-, state-, or federal-level to improve student education outcomes.

Fully developed intervention

An intervention is fully developed when all materials, products, and supports required for its implementation by the end user are ready for use in authentic education settings.

b) Requirements and Recommendations

Applications under the Development/Innovation goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for a Development/Innovation project application **must** include four sections: Significance, Research Plan, Personnel, and Resources.

- a. Significance** – The purpose of this section is to explain why it is important to develop this intervention.

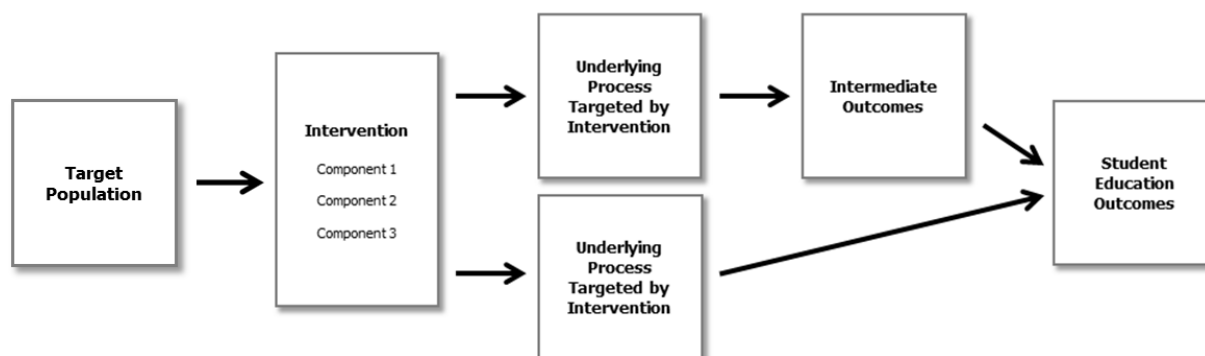
Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** describe the following:

- (i) The new or existing intervention that will be developed or revised; and
- (ii) A rationale for the proposed work.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Development/Innovation work.

- Clearly describe the specific issue or problem your work will address including the overall importance of this issue/problem and how its resolution will contribute to the improvement of student education outcomes. Strong applications will discuss the importance of the issue or problem to education stakeholders, such as practitioners and policymakers.
- Clearly describe current typical practice to address this issue or problem and why current practice is not satisfactory.
- Clearly describe your proposed intervention, its key components, and how it is to be implemented. Contrast these with current typical practice and its identified shortcomings. Your description of the proposed intervention should show that it has the potential to produce substantially better student education outcomes because 1) it is sufficiently different from current practice and does not suffer from the same shortcomings; 2) it has key components that can be justified, using theoretical or empirical reasons, as powerful agents for improving the outcomes of interest; and 3) its implementation appears feasible for teachers, other education personnel, and/or schools given their resource constraints (e.g., time, funds, personnel, schedules).
- Clearly describe the initial theory of change for your proposed intervention (Figure 1 provides an example of one way that you could conceptualize a simple theory of change), along with theoretical justifications and empirical evidence that support it. Keep in mind that you may need to revise your theory over the course of the project.
 - Your theory of change should describe the component or components of the planned intervention that are to lead to changes in one or multiple underlying processes, which in turn will foster better student education outcomes directly or through intermediate outcomes (e.g., changed teacher practices). A more complete theory of change could include further details such as the sample representing the target population, level of exposure to the components of the intervention, key moderators (such as setting, context, student and their family characteristics), and the specific measures used for the outcomes.
 - For interventions designed to directly affect the teaching and learning environment and, thereby, indirectly affect student education outcomes, be clear in your theory of change to identify any intermediate outcomes that the intervention is designed to affect (e.g., teacher practices) and how these outcomes impact the student education outcomes of interest.

Figure 1. A diagram of a simple theory of change.



- Discuss the expected practicality of the intervention including why the intervention is likely to be accepted and implemented and how it can contribute to resolving the issue or problem that forms the basis of the project. You should also note the level of resources expected for the implementation of the intervention (e.g., teacher training, classroom time, materials).
- If you are applying for a Development/Innovation award to further develop an intervention that was the focus of a previous Development/Innovation or Efficacy/Replication project, you should 1) justify the need for another award, 2) describe the results and outcomes of prior or currently held awards to support the further development of the intervention (e.g., evidence that the intervention in its current form shows promise for improving education outcomes for students or evidence from a prior efficacy study indicates the need for further development), and 3) indicate whether what was developed has been (or is being) evaluated for efficacy and describe any available results from those efficacy evaluations and their implications for the proposed project.

b. Research Plan – The purpose of this section is to describe the methodology you will use to develop your intervention, document its feasibility, and determine its promise for improving the targeted student education outcomes and reaching the level of fidelity of implementation necessary to improve those outcomes.

Development Process

The method for developing the intervention to the point where it can be used by the intended end users.

Pilot Study

A study designed to provide evidence of the promise of the fully developed intervention for achieving its intended outcomes when it is implemented in an authentic education setting.

Note that a pilot study is different from studies conducted during the development process. The latter are designed to inform the iterative development process (e.g., by identifying areas of further development, testing individual components of the intervention).

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** include the following:

- (i) The method for developing the intervention ([development process](#));
- (ii) A plan for a [pilot study](#); and
- (iii) A data analysis plan.

Recommendations for a Strong

Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed Development/Innovation work.

Measures:

- Your measures should address (a) [usability](#), (b) feasibility, (c) fidelity of implementation, (d) student education outcomes, and (e) expected intermediate outcomes.
- Discuss the procedures for administering these measures. For pre-existing measures of student education outcomes or fidelity, discuss each measure's psychometric properties (e.g., reliability and validity). If you need to develop a measure, you should describe what will be developed, why it is necessary, how it will be developed, and, as appropriate, the process for checking its reliability and validity.

Development Process:

- As you describe the development process, make clear what will be developed, how it will be developed to ensure usability, and the chronological order of development (e.g., by providing a timeline either in the Project Narrative or Appendix B).
 - Discuss how you will develop the initial version of the intervention or indicate that there is already an initial version that you intend to revise.
 - Discuss how you will refine and improve upon the initial version of the intervention by implementing it (or components of it), observing its functioning, and making necessary adjustments to ensure usability and feasibility. Lay out your plan for carrying out a systematic, iterative, development process.

Usability

The extent to which the intended user understands or can learn how to use the intervention effectively and efficiently, is physically able to use the intervention, and is willing to use the intervention.

Feasibility

The extent to which the intervention can be implemented within the requirements and constraints of an authentic education setting.

Fidelity of implementation

The extent to which the intervention is being delivered as it was designed to be by end users in an authentic education setting.

- The Institute does not require or endorse any specific model of iterative development and suggests that you review models that have been used to develop interventions (e.g., Fuchs and Fuchs, 2001; Diamond and Powell, 2011) to identify processes appropriate for your work.
 - There is no ideal number of iterations (revise, implement, observe, revise). Instead, identify and justify your proposed number of iterations based on the complexity of the intervention and its implementation. This process should continue until you determine that the intervention can be successfully used by the intended end users.
- You may propose to do some [laboratory research](#) during the development process as long as it adheres to the sample and outcome requirements outlined in the topic you select; however, you may not propose to conduct 100 percent of your research in the laboratory. A portion of the research must take place in the setting required for the chosen topic. Applications with 100 percent of the research taking place in laboratory settings will be deemed nonresponsive and not sent forward for peer review.
 - If you propose laboratory research, you should justify the amount that you are choosing to do and describe how it will contribute to the development of an intervention for use in [authentic education settings](#). In addition, the materials and procedures should allow for generalizability to authentic education settings.

Evidence of Feasibility of Implementation:

- To determine whether the intervention can be implemented within the requirements and constraints of an authentic education setting (e.g., classroom, school, district), collect feasibility data both in the type of setting (e.g., classroom or school) and with the end users for which the intervention is intended.
- You can collect feasibility evidence at any point during the project.

Fidelity of Implementation:

- Discuss how you will develop the fidelity of implementation measures that will be used to monitor the implementation of the intervention. Information collected on the usability and feasibility of implementation can contribute to the development of fidelity of implementation measures. Prototype fidelity measures can be tested and refined in separate studies or in the pilot study.
- If your intervention includes a training component for end users, you should also develop a measure of the fidelity of implementation for the training.

Pilot Study:

- Describe the design of the pilot study, the data to be collected, the analyses to be done, and the criteria you will use to determine whether any change in student education outcomes is consistent with your underlying theory of change and is large enough to be considered a sign of promise of the intervention's success.
- To ensure that Development/Innovation projects focus on the development process, a maximum of 35 percent of project funds should be used for the pilot study (i.e., its implementation, data collection, and analysis of pilot data).
- The type of pilot study you propose will depend upon the intervention, the level at which the intervention is implemented (i.e., student, classroom, school), and the need to stay within the maximum 35 percent of grant funds that can be used for the pilot study. As a result, pilot studies may range along a continuum of rigor that includes the following.

This list is meant to be illustrative and not exhaustive, as other designs may be appropriate.

- Efficacy studies (e.g., fully powered, randomized controlled studies are possible especially when randomization occurs at the student level).
- Underpowered efficacy studies (e.g., randomized controlled studies with a small number of classrooms or schools that provide unbiased effect size estimates of practical consequence which can stand as evidence of promise while not statistically significant).
- Single-case studies that meet the design standards for individual single-case studies set by the What Works Clearinghouse (Kratochwill et al., 2010).
- Quasi-experimental studies based on the use of comparison groups with additional adjustments to address potential differences between groups (e.g., use of pretests, control variables, matching procedures).
- Identify the measures to be used for all outcomes identified in your theory of change. Give careful consideration to the measures of student education outcomes used to determine the intervention's promise, and consider the inclusion of both those sensitive to the intervention as well as those of practical interest to students, parents, education practitioners, and policymakers.
- Describe how you will measure fidelity of implementation during the pilot and how you will determine whether fidelity is high enough to expect beneficial student education outcomes. Discuss possible responses if you find lower than expected fidelity (e.g., efforts to increase fidelity). In addition, if a training component is included in the intervention, then evidence of promise will also address the fidelity of implementation of the training component and whether it is high enough to expect end users to implement the intervention as planned.
- Address whether the comparison group is implementing something similar to the intervention during the pilot and, if so, provide a determination of whether the treatment and comparison groups are different enough to expect the predicted student education outcomes.

Timeline:

- Provide a timeline for each step in your project including such actions as the development process, pilot study sample selection and assignment, data collection, and data analysis.
- Timelines may be placed in either the Project Narrative or Appendix B, but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

- c. Personnel** – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** describe

- (i) The research team at both the primary applicant institution and any subaward institutions.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and to policymaker or practitioner audiences.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out different tasks that must be coordinated and/or integrated.
- Key personnel may be from for-profit entities. However, if these entities are to be involved in the commercial production or distribution of the intervention to be developed, include a plan describing how their involvement will not jeopardize the objectivity of the research.
- If you have previously received an award from IES to develop an intervention and are applying for a grant to develop a new intervention, you should indicate whether the previous intervention has been evaluated for its efficacy (by yourself or another research team).

- d. **Resources** – The purpose of this section is to describe how you have both the institutional capacity to complete a project of this size and complexity and access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Development/Innovation goal **must** describe the resources to do the following:

- (i) Conduct the project; and
- (ii) Disseminate the results.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Development/Innovation work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include letters of agreement in Appendix D documenting the

participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).

- Include information about teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include letters of agreement, data licenses, or existing MOUs in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Development/Innovation projects are expected to develop new or revise existing interventions. For example, if the results of your pilot study indicate the intervention is promising, dissemination efforts should focus on letting others know about the availability of the new intervention for testing and further adaptation. Dissemination efforts from these projects could also provide useful information on the design process, how intervention development can be accomplished in partnership with practitioners, and what type of new practices are feasible or not feasible for use by practitioners.
- Your pilot study will normally not provide evidence of the impact of the interventions, and the Institute does not expect dissemination efforts that encourage broad implementation of interventions until such evidence is obtained.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project.

(2) Awards

A Development/Innovation project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of a Development/Innovation project is 4 years.** An application of this type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
 - The development and piloting of an intervention may vary in time due to the complexity of the intervention, the length of its implementation period, and the time expected for its implementation to result in changed student outcomes. Your proposed length of project should reflect these factors. For example, if you are proposing to develop a lengthy intervention (e.g., a year-long curriculum) or an intervention that requires a long pilot study because it is expected to take additional time to affect students (e.g., a principal training program that is intended to improve instruction), requesting a 4-year project is appropriate.

Cost Maximums:

- **The maximum award for a Development/Innovation project is \$1,400,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
 - Your pilot study should require no more than 35 percent of your total budget. You should note the budgeted cost of the pilot study (i.e., its implementation, data collection, and analysis of pilot data) and its percentage of the total budget in your Budget Narrative.

3. Goal Three: Efficacy and Replication

a) Purpose

The Efficacy/Replication goal supports the evaluation of fully developed education [interventions](#) to determine whether they produce a beneficial impact on [student education outcomes](#) relative to a counterfactual when they are implemented under [ideal](#) or [routine conditions](#) by the [end user](#) in [authentic education settings](#).

Projects under the Efficacy/Replication goal will result in the following:

- Evidence regarding the impact of a fully developed intervention on relevant student education outcomes relative to a comparison condition using a research design that meets the Institute's What Works Clearinghouse evidence standards (with or without reservations) (<http://ies.ed.gov/ncee/wwc>).
- Conclusions about and revisions to the [theory of change](#) that guides the intervention and a discussion of the broader contributions to the theoretical and practical understanding of education processes and procedures.
- Information needed for future research on the intervention.
 - If a beneficial impact is found, the identification of the organizational supports, tools, and procedures needed for sufficient implementation of the core components of the intervention under a future Replication study or Effectiveness study.

Intervention

The wide range of education curricula; instructional approaches; professional development; technology; and practices, programs, and policies that are implemented at the student-, classroom-, school-, district-, state-, or federal-level to improve student education outcomes.

Fully developed intervention

An intervention is fully developed when all materials, products, and supports required for its implementation by the end user are ready for use in authentic education settings.

Ideal conditions

Conditions that provide a more controlled setting, such as greater implementation support or a more homogeneous sample, under which the intervention may be more likely to have beneficial impacts.

Routine conditions

Conditions under which an intervention is implemented that reflect (1) the everyday practice occurring in classrooms, schools, and districts and (2) the heterogeneity of the target population.

End user

The person intended to be responsible for the implementation of the intervention.

- If no beneficial impact is found, a determination of whether and how to revise the intervention and/or its implementation under a future Development/Innovation project.

The Institute supports four types of studies under the Efficacy/Replication goal:

- [Efficacy](#) - A study that tests an intervention's beneficial impacts on student education outcomes in comparison to an alternative practice, program, or policy.
- [Replication](#) – An efficacy study designed to generate additional evidence that an intervention improves student education outcomes by testing an intervention that has been shown to have beneficial impacts on student education outcomes in a previous efficacy study. The Institute is interested in a variety of replication efforts including direct replications (Makel and Plucker, 2014) as well as those that vary setting, sample, and implementation conditions.
- [Efficacy Follow-Up](#) – An efficacy study that tests the longer-term impacts of an intervention that has been shown to have beneficial impacts on student education outcomes in a previous or ongoing efficacy study. Efficacy follow-up studies are of two types:
 - Follow students who took part in the original study as they enter later grades (or different places) where they do not continue to receive the intervention in order to determine if the beneficial effects are maintained. These studies examine the sustainability of the intervention's implementation and impacts after the additional resources provided by the original study are withdrawn. If the students will continue to receive the intervention in the later grades, you should propose a replication study rather than a follow-up study.
 - Follow the education personnel who implemented the intervention under the original efficacy study to determine if their continued implementation of the intervention will benefit a new group of students.
- [Retrospective](#) – An efficacy study that analyzes retrospective (historical) secondary data to test an intervention implemented in the past, and, as a result, may not be able to meet the requirements for Efficacy/Replication projects regarding [fidelity of implementation](#) of the intervention and comparison group practice or cost analysis.

Data Management Plan

A required plan for making the [final research data](#) from the proposed project accessible to others.

b) Requirements and Recommendations and Data Management Plan

Applications under the Efficacy/Replication goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

Applications under the Efficacy/Replication goal **must** include a Data Management Plan as described in **(3) Data Management Plan**.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for an Efficacy/Replication project application **must** include four sections: Significance, Research Plan, Personnel, and Resources.

- a. Significance** – The purpose of this section is to explain why it is important to test the impact of the intervention on student education outcomes under the proposed conditions and sample.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** describe:

- (i) The intervention to be evaluated and
- (ii) For a Follow-up study, the evidence from the original Efficacy study.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Efficacy/Replication work.

- Note the type of study proposed (Efficacy, Replication, Follow-Up, or Retrospective) early in the Significance section.
- Include the following in your description of the fully developed intervention that you propose to evaluate:
 - The intervention's components;
 - Processes and materials (e.g., manuals, websites, training, coaching) that will be used to support implementation of the intervention; and
 - Evidence that the intervention is fully developed and ready for implementation in authentic education settings (e.g., all materials and implementation supports such as professional development are available). If the intervention you wish to test and/or its implementation processes and materials are not yet fully developed, you should apply under Development/Innovation to complete it. Applications to evaluate newly developed and non-widely used interventions often require more of this type of evidence than those evaluating widely used interventions.
- Describe the intervention's context:
 - Identify the target population and where implementation will take place.
 - Identify who the end users of the intervention are and describe how implementation will be carried out by them.
 - Describe the ideal or routine conditions under which the intervention will be implemented.
 - Ideal conditions provide a more controlled setting under which the intervention may be more likely to have beneficial impacts. For example, ideal conditions could include more implementation support than would be provided under routine practice in order to ensure adequate fidelity of implementation. Ideal conditions could also include a more homogeneous sample of students, teachers, schools, and/or districts than would be expected under routine practice in order to reduce other sources of variation that may contribute to outcomes.
 - Routine conditions reflect the everyday practice occurring in classrooms, schools, and districts including the expected level of implementation that would take place if no study was being done and a sample that represents the heterogeneity of the students, teachers, schools, and districts being studied.

- Clearly describe the initial [theory of change](#) for your proposed intervention (Figure 1 provides an example of one way that you could conceptualize a simple theory of change) along with the theoretical justifications and empirical evidence that support it. Keep in mind that you may need to revise your theory over the course of the project.
 - Your theory of change should describe the component or components of the planned intervention that are to lead to changes in one or multiple underlying processes, which in turn will foster better student education outcomes directly or through intermediate outcomes (e.g., changed teacher practices). A more complete theory of change could include further details such as the sample representing the target population, level of exposure to the components of the intervention, key moderators (such as setting, context, student and their family characteristics), and the specific measures used for the outcomes.
 - For interventions designed to directly affect the teaching and learning environment and, thereby, indirectly affect student education outcomes, in your theory of change clearly identify any intermediate outcomes that the intervention is designed to affect (e.g., teacher practices) and how these outcomes impact the student education outcomes of interest.

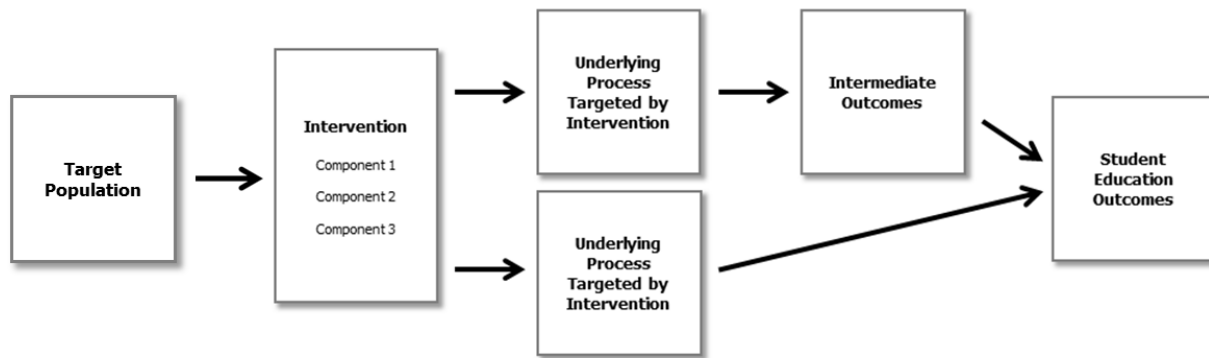


Figure 1. A diagram of a simple theory of change.

- To provide a compelling rationale for testing the impact of the intervention on student education outcomes in the proposed manner, address why the intervention is likely to produce better student outcomes relative to current practice (or argue that the intervention is current practice if widely used) and discuss the overall practical importance of the intervention (i.e., why education practitioners or policymakers should care about the results of the proposed evaluation). The specifics of your rationale will differ by the type of study you propose:
 - For an efficacy study of a **widely used intervention** that has not been rigorously evaluated (e.g., a commercial curriculum or a specific state program), provide evidence that it is currently in widespread use (across the country or within a state, large district, or multiple districts) and the history of its use (e.g., if the program was developed several decades ago, is it still being used today?). If available, also provide information about implementation fidelity and the underlying theory of change for the widely used intervention. In addition, describe any prior studies that have attempted to evaluate the intervention, note their findings, and discuss why your proposed study would improve on past work. Widely used interventions may not have evidence of impact or promise of impact on student education outcomes, but their use may be so currently

widespread that their evaluation could have important implications for practice and policy.

- For an efficacy study of a **not widely used intervention** that has not been rigorously evaluated (e.g., an intervention produced by a Development/Innovation project), focus more on the intervention's potential versus its current practical importance. Also, focus on the evidence showing the intervention's readiness for implementation, [feasibility](#), fidelity of implementation, and promise for achieving its intended outcomes.
- For a **replication study**, describe the existing evidence of the intervention's fidelity of implementation and beneficial impact on student outcomes from at least one prior study that would meet the methodological requirements of the Institute's Efficacy/Replication goal. Clearly describe the prior efficacy study (or studies), including the sample, design, measures, fidelity of implementation, analyses, and results so that reviewers have sufficient information to judge its quality. Also, justify why the impact found in the prior study would be considered of practical importance. Second, describe the practical and theoretical importance of carrying out another efficacy study on the intervention, compare your study to the prior efficacy studies, and describe the additional contribution your study will make. Replication studies are intended to generate additional evidence that an intervention improves student education outcomes. They may generate this evidence in conditions similar to the original efficacy study or in different contexts. They may also identify ways to increase the impact of the intervention, improve its efficiency, or reduce its cost in comparison to what was done in the prior efficacy study. For example, your study may do one of the following:
 - Attempt to replicate exactly the earlier efficacy study to provide more robust evidence of the intervention's beneficial impact (i.e., a direct replication).
 - Evaluate the impacts of the intervention with different samples or implementation contexts in order to determine if similar impacts are found when conditions like the following apply:
 - The intervention is used with different populations of students (e.g., differences in socio-economic status, race/ethnicity, prior achievement level), teachers (e.g., specialists vs. generalists), and/or schools (e.g., those in state improvement programs vs. those not, rural vs. urban).
 - The intervention is somewhat modified (e.g., adding supportive components, varying emphases among the components, changing the ordering of the components). Testing modifications of the intervention should not require further development of the intervention (such work is supported under Development and Innovation). If you intend to evaluate an intervention that has been significantly changed from an earlier efficacy study, you should propose another efficacy study, rather than a replication study, and discuss the reasons for the changes.
 - The implementation of the intervention is modified (e.g., changing the level of support, providing support in alternative ways such as in-person vs. online).

- For an **efficacy follow-up study**, describe the existing evidence of the intervention's beneficial impact on student outcomes from a previous efficacy study (either completed or ongoing) that would meet the methodological requirements of the Institute's Efficacy/Replication goal. To this end, clearly describe the completed or ongoing efficacy study, including the sample, design, measures, fidelity of implementation, analyses, and results so that reviewers have sufficient information to judge its quality. Explain why the original impacts would be expected to continue into the future (this may require revising the original theory of change) and why the impacts found would be considered of practical importance. In addition, provide evidence that you have access to research participants for successful follow up (e.g., Letters of Agreement from schools or districts to be included in Appendix D). Grant funds should not be used to support implementation of the intervention in an efficacy follow-up project. However, districts and schools can support implementation through their own funds. Additional recommendations apply to the two types of Efficacy Follow-up studies:
 - **Following Students:** You should discuss student attrition during the prior study and your ability to follow students into later grades (especially at key transition points that entail changing schools). It is helpful to include a CONSORT flow diagram (<http://www.consort-statement.org/consort-statement/overview0/>) showing the numbers of participants at each stage of the prior study. Also, you should discuss the expected level of attrition in the follow-up study, how it will be reduced, and its impact on the interpretation of the results.
 - **Following Education Personnel:** You should include a CONSORT flow diagram showing the numbers of education personnel at each stage of the prior study in both treatment and control groups, and show that you will have enough personnel to maintain the intervention's fidelity of implementation. You should discuss expected attrition in the follow-up study, how it will be reduced, its impact on the interpretation of the results, and how you plan to address differential attrition if it occurs. In addition, you should discuss how you will determine whether the incoming cohort of students is similar to the original student cohort, whether the incoming cohort of treatment and control students are similar enough to compare to the prior cohort (e.g., schools or parents are not selecting specific students to receive the treatment in a manner that could impact the student outcomes), and what you will do if they are not similar in either way.
- For a **retrospective study** relying on secondary analysis of historical data, discuss how widespread the intervention's use was and provide conceptual arguments for the importance of evaluating the intervention including the intervention's relevance to current education practice and policy. If the intervention is ongoing, discuss why a historical evaluation would be relevant compared to an evaluation using prospective data. If the intervention is no longer in use, address how the results of your evaluation would be useful for improving today's practice and policy. Be clear on what the existing data will allow you to examine and what issues you will not be able to address due to a lack of information. This discussion should include what is known or could be determined about the intervention's fidelity of implementation and comparison group practice. Discuss the implications for interpreting your results due to a lack or absence of such information.

b. Research Plan – The purpose of this section is to describe the evaluation of the intervention.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** describe the following:

- (i) Research design;
- (ii) Power analysis;
- (iii) Data analysis procedures; and
- (iv) Cost analysis.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed Efficacy/Replication work.

Sample and Setting:

- Discuss the population you intend to study and how your sample and sampling procedures will allow you to draw inferences for this population.
- Define your sample and sampling procedures for the proposed study, including justification for exclusion and inclusion criteria.
- Describe strategies to increase the likelihood that participants (e.g., schools, teachers, and/or students) will join the study and remain in the study over the course of the evaluation.
- Describe the setting in which the study will take place (e.g., the size and characteristics of the school and/or the surrounding community) and how this may affect the generalizability of your study.
- Efficacy and effectiveness studies must take place in authentic education settings. The Institute does not support efficacy and effectiveness studies in laboratories.

Research Design:

- Describe how you will be able to make causal inferences based on the results from your design and how potential threats to internal validity will be addressed. Typical designs for Efficacy/Replication projects include the following:
 - Randomized controlled trials are preferred whenever feasible because they have the strongest internal validity for causal conclusions. Clearly identify and present a convincing rationale for the unit of randomization (e.g., student, classroom, teacher, or school) and explain the procedures for random assignment to intervention or comparison conditions, including how the integrity of the assignment process will be ensured.
 - Regression discontinuity designs can also provide unbiased estimates of the effects of education interventions. Explain the appropriateness of the assignment variable, show that there is a true discontinuity, document that no manipulation of the assignment variable has occurred and that the composition of the treatment and comparison group does not differ in ways that would indicate selection bias, and include sensitivity analyses to assess the influence of key procedural or analytic decisions on the results.

- Quasi-experimental designs (other than a regression discontinuity design) can be proposed when randomization is not possible. Justify how the proposed design permits drawing causal conclusions about the effect of the intervention on the intended outcomes, explain how selection bias will be minimized or modeled (see Shadish, Cook, and Campbell, 2002), and discuss those threats to internal validity that are not addressed convincingly by the design and how conclusions from the research will be tempered in light of these threats. Because quasi-experimental designs can meet the WWC's standards for evidence with reservations only, it is also important to detail how you will ensure that the study meets these standards (e.g., by establishing baseline equivalence between treatment and comparison groups and preventing high and/or non-equivalent attrition).
- For all types of research designs, including those using random assignment, explain how you will document that the intervention and comparison conditions are equivalent at the outset of the study and how you will document the level of bias occurring from overall and differential attrition rates.
- Describe and justify the counterfactual. In evaluations of education interventions, individuals in the comparison group typically receive some kind of treatment. It may be a well-defined alternative treatment or a less well-defined standard or frequent practice across the district or region. A clear description of the intervention and the counterfactual helps reviewers decide whether the intervention is sufficiently different from what the comparison group receives to produce different student education outcomes.
- Describe strategies or existing conditions that will reduce potential contamination between treatment and comparison groups.

Include power analyses for all proposed causal analyses.

Include enough information so that reviewers can duplicate your power analysis.

Power Analysis:

- Discuss the statistical power of the research design to detect a reasonably expected and minimally important effect of the intervention on the student education outcomes and consider how the clustering of participants (e.g., students in classrooms and/or schools) will affect statistical power.
- Identify the minimum effect of the program or policy that you will be able to detect, justify why this level of effect would be expected, and explain why this would be a practically important effect.
- Detail the procedure used to calculate either the power for detecting the minimum effect or the minimum detectable effect size. Include the following:
 - The statistical formula you used;
 - The parameters with known values used in the formula (e.g., number of clusters, number of participants within the clusters);
 - The parameters whose values are estimated and how those estimates were made (e.g., intraclass correlations, role of covariates);
 - Other aspects of the design and how they may affect power (e.g., stratified sampling/blocking, repeated observations); and
 - Predicted attrition and how it was addressed in the power analysis.

- Provide a similar discussion regarding power for any causal analyses to be done using subgroups of the proposed sample and any tests of mediation or moderation, even if those analyses are considered exploratory/secondary.

Outcome Measures:

- Include student education outcome measures that will be sensitive to the change in performance that the intervention is intended to bring about (e.g., researcher-developed measures that are aligned with the experiences of the treatment group); outcome measures that are not strictly aligned with the intervention and that, therefore, could capture change in the control group; and measures of student outcomes that are of practical interest to students, parents, and educators. For example, applications to evaluate interventions to improve academic outcomes should include measures of achievement and/or measures of progress. Applications to evaluate interventions designed to improve behavioral outcomes should include practical measures of behaviors that are relevant to schools, such as attendance, tardiness, drop-out rates, disciplinary actions, or graduation rates.
- For interventions designed to directly change the teaching and learning environment and, in doing so, indirectly affect student outcomes, provide measures of student education outcomes, as well as measures of the intermediate outcomes (e.g., teacher or leader behaviors) that are hypothesized to be directly linked to the intervention.
- Describe the psychometric properties (reliability and validity) of your student education outcome measures and intermediate outcome measures.

Moderators and Mediators:

- While not required, the analysis of [moderators](#) and [mediators](#) can strengthen your application. Such analyses can make your research more useful to policymakers and practitioners by helping to explain how or under what conditions a program or policy improves student education outcomes. Such analyses can also improve the quality and usefulness of future research syntheses or meta-analysis that may draw upon your work.
- Focus on a small set of moderators for which there is a strong theoretical and/or empirical base to expect they will moderate the impact of the intervention on the student education outcomes measured. Give particular consideration to factors that may affect the generalizability of the study (e.g., whether the intervention works for some groups of students but not others or in schools or neighborhoods with particular characteristics).
- Conduct exploratory analyses of potential mediators of the intervention. Most Efficacy/Replication studies are not designed or powered to rigorously test the effects of specific mediating variables; however, exploratory analyses can be used to better understand potential mediators of the intervention.
- Describe the measures for the moderators and mediators you will examine, how they will be collected, and how they will be analyzed.

Determining Fidelity of Implementation of the Intervention and Comparison Group Practice:

- Identify the measures of the fidelity of implementation of the intervention and describe how they capture the core components of the intervention.
- If the intervention includes training of the intervention's end users, also identify the measures of fidelity of implementation of the training/trainers.
- Identify the measures of comparison group practices so that you can compare intervention and comparison groups on the implementation of critical features of the intervention and determine whether there was clear distinction in what the groups received or whether both groups received key elements of the intervention.
- Show that measures of fidelity of implementation of the intervention and comparison group practice are sufficiently comprehensive and sensitive to identify and document critical differences between what the intervention and comparison groups receive.
- If needed, you can propose devoting a short period of time (e.g., 2-6 months) to develop a measure of fidelity of implementation of the intervention or comparison group practice.
- Describe your plan for determining the fidelity of implementation of the intervention within the treatment group and the identification of practice (especially practices that are similar to the treatment) in the comparison group.
 - Include initial studies of fidelity of implementation of the intervention and comparison group practice to be completed within the first year that end users are to implement the intervention.
 - Include studies on the fidelity of training and coaching provided to those implementing the intervention.
 - Include a plan for how you would respond if either low-fidelity (of implementation or training) or similar comparison group practice is found in the initial studies. As Efficacy studies may take place under ideal conditions, an early finding of low fidelity during the first year of implementation can be addressed (e.g., by increasing implementation support and monitoring activities, addressing obstacles to implementation, replacing or supplementing the sample in ways that preserve the design). Findings of unexpected similar practice in the comparison group may also be addressed (e.g., by further differentiation of the intervention or additional data collection to determine how similar practice is in both groups). Such actions are to prevent studies that find no impacts of an intervention but cannot determine whether the finding was due to the intervention or its implementation.
- Retrospective studies may, but are not required to, include information on fidelity of implementation of the intervention and comparison group practices. If available, the inclusion of this information strengthens the application.

Measuring fidelity of implementation of the intervention and comparison group practice early on are essential to preventing a confounding of implementation failure and intervention failure.

Data Analysis:

- Detail your data analysis procedures for all analyses (e.g., impact study, subgroup analyses, fidelity of implementation study), including both quantitative and qualitative methods.

- Make clear how the data analyses directly answer your research questions.
- Address any clustering of students in classes and schools.
- Discuss how exclusion from testing and missing data will be handled in your analysis.
- If you intend to link multiple data sets, provide sufficient detail for reviewers to judge the feasibility of the linking plan.

Cost Analysis:

- Include a description of your plan to conduct a cost analysis. The cost analysis should help schools and districts understand the monetary costs of implementing the intervention (e.g., expenditures for personnel, facilities, equipment, materials, training, and other relevant inputs). Annual costs should be assessed to adequately reflect expenditures across the lifespan of the program (e.g., start-up costs and maintenance costs). Intervention costs can be contrasted with the costs of comparison group practice to reflect the difference between them. The Institute is not asking for an economic evaluation of the program (e.g., cost-benefit, cost-utility, or cost-effectiveness analyses), although such analyses can be proposed.

- In your plan, you should include information about the following:
 - how you will identify all potential expenditures;
 - how you will compute per-unit costs for each expenditure;
 - how you will separate start-up costs from annual maintenance costs and how you will estimate the total cost of each; and
 - the degree to which your cost analysis, based on your study's sample, will generalize to other schools and districts.
- Retrospective studies may, but are not required to, include a plan to conduct a cost analysis. If information about implementation cost is available, the inclusion of a plan to analyze those costs strengthens the application.

Timeline:

- Provide a timeline for each step in your evaluation including such actions as sample selection and assignment, baseline data collection, intervention implementation, ongoing data collections, fidelity of implementation and comparison group practice study, impact analysis, and dissemination.
- Indicate procedures to guard against bias entering into the data collection process (e.g., pretests occurring after the intervention has been implemented or differential timing of assessments for treatment and control groups).
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed in the Project Narrative (Appendix B cannot include narrative).

- c. Personnel** – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** describe:

- (i) The research team.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and to policymaker and practitioner audiences.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out different tasks that must be coordinated and/or integrated.
- Include a plan to ensure the objectivity of the research if key personnel were involved in the development of the intervention, are from for-profit entities (including those involved in the commercial production or distribution of the intervention), or have a financial interest in the outcome of the research. Such a plan might include how assignment of

units to treatment and comparison conditions, supervision of outcome data collection and coding, and data analysis are assigned to persons who were not involved in the development of the intervention and have no financial interest in the outcome of the evaluation.

- If you have previously received an award from any source to evaluate an intervention, discuss any theoretical and practical contributions made by your previous work. By demonstrating that your previous evaluation was successful, you provide a stronger case for your evaluation of another intervention.

d. Resources – The purpose of this section is to describe how you have both the institutional capacity to complete a project of this size and complexity and access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Efficacy/Replication goal **must** include describe the resources to do the following:

- (i) Conduct the project and
- (ii) Disseminate the results

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Efficacy/Replication work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include Letters of Agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
 - Include information about student, teacher, and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include Letters of Agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Efficacy/Replication projects are intended to causally evaluate the impact of intervention on student outcomes. The Institute considers all types of findings from these projects to be potentially useful to researchers, policymakers, and practitioners.
 - Findings of a beneficial impact on student outcomes could support the wider use of the intervention, given the availability of any ideal conditions if used, and the further adaptation of the intervention to conditions that are less ideal or quite different.
 - Findings of no impacts on student outcomes (with or without impacts on more intermediate outcomes such as a change in teacher instruction) are important for decisions regarding the ongoing use and wider dissemination of the intervention, further revision of the intervention and its implementation, and revision of the theory of change underlying the intervention.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project. These should include the following:
 - Publication in scientific, peer-reviewed journals and presentations at academic conferences;
 - Reporting findings to any education agencies and schools that provided the project with data and data-collection opportunities; and
 - Publications and presentations in venues designed for policymakers, practitioners, and the general public, including electronic venues (e.g., websites, webinars, podcasts, videos).

Disseminate findings of impact and findings of no impact.

Ensure that dissemination goes beyond the researcher audience in ways that are of use to practitioners and policymakers.

(2) Awards

An Efficacy/Replication project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of an Efficacy or a Replication project is 5 years.** An application of either type proposing a project length of greater than 5 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

- **The maximum duration of an Efficacy Follow-Up or a Retrospective project is 3 years.** An application of either type proposing a project length of greater than 3 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for an Efficacy or a Replication project is \$3,300,000 (total cost = direct costs + indirect costs).** An application of either type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum award for an Efficacy Follow-Up project is \$1,100,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
 - Grant funds for follow-up projects cannot be used for implementation of the intervention.
- **The maximum award for a Retrospective project is \$700,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

(3) Data Management Plan

Applications under the Efficacy/Replication goal must include a Data Management Plan (DMP; no more than five pages in Appendix E) that describes your plans for making the [final research data](#) from the proposed project accessible to others. **Applications that do not contain a DMP in Appendix E will be deemed nonresponsive to the Request for Applications and will not be accepted for review.** Resources that may be of interest to researchers in developing a data management plan can be found at <http://ies.ed.gov/funding/researchaccess.asp>.

DMPs are expected to differ depending on the nature of the project and the data collected. By addressing the items identified below, your DMP describes how you will meet the requirements of the Institute's policy for data sharing. The DMP should include the following:

- Type of data to be shared.
- 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 access, including how long the data will remain accessible (at least 10 years) and acknowledgement that the timeframe of data accessibility will be reviewed at the annual progress reviews and revised as necessary.
- Format of the final dataset.
- Dataset documentation to be provided.
- Method of data access (e.g., provided by the Project Director/Principal Investigator, through a data archive) and how those interested in using the data can locate and access them.

- Whether or not a data agreement that specifies conditions under which the data will be shared will be required.
- Any circumstances that prevent all or some of the data from being made accessible. This includes data that may fall under multiple statutes and, hence, must meet the confidentiality requirements for each applicable statute (e.g., data covered by Common Rule for Protection of Human Subjects, FERPA, and HIPAA).

The costs of the DMP can be covered by the grant and should be included in the budget and explained in the budget narrative. The peer-review process will not include the DMP in the scoring of the scientific merit of the application. The Institute's Program Officers will be responsible for reviewing the completeness of the proposed DMP. If your application is being considered for funding based on the scores received during the peer-review process but your DMP is determined incomplete, you will have to complete your DMP before an award will be made.

4. Goal Four: Effectiveness

a) Purpose

The Effectiveness goal supports the independent evaluation of fully developed education [interventions](#) with prior evidence of efficacy to determine whether they produce a beneficial impact on [student education outcomes](#) relative to a counterfactual when they are implemented by the [end user](#) under [routine conditions](#) in [authentic education settings](#). Unlike [Efficacy/Replication projects](#), Effectiveness projects evaluate only interventions with prior evidence of efficacy when implemented without special support. Effectiveness studies differ from Efficacy/Replication studies in several ways: (1) the intervention must already have been found to have beneficial impacts on student education outcomes by at least one prior efficacy study; (2) the intervention must be implemented under routine conditions; (3) retrospective studies based on secondary data analyses are not allowed; (4) the project team involved in the evaluation activities must be independent of the intervention development and distribution; and (5) the award duration is longer, cost maximums are higher, and a limit is placed on the percent of funds that can be used for implementing the intervention.

Projects under the Effectiveness goal will result in the following:

- Evidence regarding the impact of a fully developed intervention on relevant student education outcomes relative to a comparison condition using a research design that meets the Institute's What Works Clearinghouse evidence standards (with or without reservations, <http://ies.ed.gov/ncee/wwc>).
- Conclusions on and revisions to the [theory of change](#) that guides the intervention and a discussion of the broader contributions to the theoretical and practical understanding of education processes and procedures.
- Information needed for future research on the intervention.
 - If a beneficial impact is found, the identification of the organizational supports, tools, and procedures needed for sufficient implementation of the core components of the intervention under routine conditions.
 - If no beneficial impact is found, an examination of why the findings differed from those of the previous efficacy studies on the intervention and a determination of whether and what type of further research would be useful to revise the intervention and/or its implementation.

Intervention

The wide range of education curricula; instructional approaches; professional development; technology; and practices, programs, and policies that are implemented at the student-, classroom-, school-, district-, state-, or federal-level to improve student education outcomes.

Fully developed intervention

An intervention is fully developed when all materials, products, and supports required for its implementation by the end user are ready for use in authentic education settings.

End user

The person intended to be responsible for the implementation of the intervention with routine implementation support from the developer.

Routine conditions

Conditions under which an intervention is implemented that reflect (1) the everyday practice occurring in classrooms, schools, and districts and (2) the heterogeneity of the target population.

Independent evaluation

An evaluation carried out by individuals who did not and do not participate in the development or distribution of the intervention and have no financial interest in the outcome of the evaluation.

The Effectiveness goal also supports [Effectiveness Follow-Up](#) studies to determine the long-term impacts of an intervention for students who showed beneficial results during an [Effectiveness study](#) as they enter later grades (or different authentic education settings) in which they do not continue to receive the intervention.

[Retrospective studies](#) based on secondary analysis of historical data are not allowed under the Effectiveness goal and should be submitted under Efficacy/Replication. However, applications under Effectiveness may include secondary analysis of historical data to supplement the primary analysis.

b) Requirements and Recommendations and Data Management Plan

Applications under the Effectiveness goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

Applications under the Effectiveness goal **must** include a Data Management Plan as described in **(3) Data Management Plan**.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

Data Management Plan

A required plan for making the [final research data](#) from the proposed project accessible to others.

(1) Project Narrative

The 25-page project narrative for an Effectiveness project application **must** include four sections: Significance, Research Plan, Personnel, and Resources.

- a. Significance** – The purpose of this section is to explain why it is important to independently test the impact of the intervention on student education outcomes under the proposed routine conditions and with the proposed sample.

Requirements: In order to be responsive and sent forward for peer review, applications under the Effectiveness goal **must** describe the following:

- (i) The intervention to be evaluated;
- (ii) The evidence from one previous study (that meets the Requirements and Recommendations for Efficacy/Replication Studies); and
- (iii) For a Follow-up Study, the evidence from the original Effectiveness study.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Effectiveness work.

- Note the type of study proposed (Effectiveness or Follow-up) early in the Significance section.
- Describe the fully developed intervention:
 - The intervention's components;
 - Processes and materials (e.g., manuals, websites, training, coaching) that will be used to support implementation of the intervention; and
 - Evidence that the intervention is fully developed and ready for implementation in authentic education settings (e.g., all materials and implementation supports)

such as professional development are available, the intervention is being implemented).

- Describe the intervention's context:
 - Identify the target population and where implementation will take place.
 - Identify who the end users of the intervention are and describe how implementation will be carried out by them.
 - Describe the routine conditions under which the Effectiveness study will take place, including the following details:
 - The implementation of the intervention, making clear that it would be the same as for any similar school or district intending to use the intervention.
 - The heterogeneity of the sample in comparison with that of the target population.
 - Explain how [fidelity of implementation](#) will be maintained in the Effectiveness study at least at the same levels found in the prior evaluations.
 - Identify the implementation supports to be used in this project compared to those used under the previous efficacy evaluation(s) of the intervention.
- Clearly describe the initial [theory of change](#) for your proposed intervention (Figure 1 provides an example of one way that you could conceptualize a simple theory of change), along with theoretical justifications and empirical evidence that support it. Keep in mind that you may need to revise your theory over the course of the project.
 - Your theory of change should describe the component or components of the planned intervention that are to lead to changes in one or multiple underlying processes, which in turn will foster better student education outcomes directly or through intermediate outcomes (e.g., changed teacher practices). A more complete theory of change could include further details such as the sample representing the target population, level of exposure to the components of the intervention, key moderators (such as setting, context, student and their family characteristics), and the specific measures used for the outcomes.
 - For interventions designed to directly affect the teaching and learning environment and, thereby, indirectly affect student education outcomes, clearly identify any intermediate outcomes that the intervention is designed to affect (e.g., teacher practices) and how these outcomes impact the student education outcomes of interest.

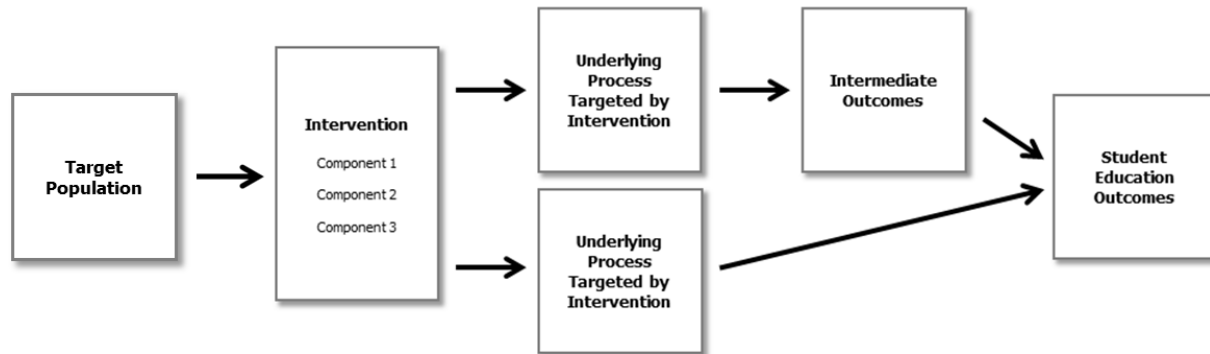


Figure 1. A diagram of a simple theory of change.

- When describing the prior study that provides evidence of the intervention’s efficacy and justification for an Effectiveness study, detail the conditions under which the intervention was implemented, the sample, research design, measures, fidelity of implementation, analysis, and results of the studies. In addition, describe the size and statistical significance of the effects that were found, indicate how any reported effect sizes were calculated, and discuss how the results show a practically important impact on student outcomes large enough to justify an Effectiveness study. The prior studies are not required to have been from Institute-funded projects. Prior studies may have taken place under ideal or routine conditions.
- For an Effectiveness Follow-Up study, describe the existing evidence of the intervention’s beneficial impact on student outcomes from a previous evaluation (either completed or ongoing) that would meet the requirements of the Institute’s Effectiveness goal. To this end, clearly describe the Effectiveness study, including the sample, research design, measures, analyses, and results (including the size and significance of the effects and their practical importance).
 - Student attrition during the prior study and the ability to follow students into later grades (especially at key transition points that entail moving schools) are key factors in the success of Follow-Up studies. Show that you have access to research participants for successful follow up (e.g., Letters of Agreement from schools or districts to be included in Appendix D). Discuss attrition during the Effectiveness study (a CONSORT flow diagram is recommended <http://www.consort-statement.org/consort-statement/overview0/>) and how it will be addressed in the Follow-Up study.
- To provide a compelling rationale for testing the impact of the intervention on student education outcomes in the proposed manner, address why the intervention is likely to produce better student outcomes relative to current practice under routine conditions and the overall practical importance of the intervention (i.e., why education practitioners or policymakers should care about the results of the proposed evaluation).
 - For Follow-Up studies, also discuss why those students who received the intervention would be expected to continue having beneficial impacts in future grades or sites when they no longer receive it.

- b. Research Plan** – The purpose of this section is to describe the independent evaluation of the intervention. The Requirements and Recommendations for the Research Plan are the same as those for Efficacy/Replication. Like Efficacy/Replication studies, Effectiveness studies should analyze fidelity of implementation of the intervention and comparison group practice in the first year the intervention is implemented. An Effectiveness study can disseminate findings of low fidelity of implementation of the intervention (or similar comparison group practice) but cannot provide additional resources for implementation beyond what would be provided under the routine conditions established for implementation.

Effectiveness Research Plan

The requirements and recommendations for the Research Plan are the same as those for the Efficacy and Replication goal.

- c. Personnel** – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member's time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Effectiveness goal **must** describe

- (i) The research team

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to competently implement the proposed research.

- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and other venues targeting policymakers and practitioners.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out different tasks that must be coordinated and/or integrated.
- Show that the PI and key personnel involved in the design of the evaluation, the assignment to treatment and comparison groups, and the data analysis did not and do not participate in the development or distribution of the intervention and do not have a financial interest in the intervention.
- The developer or distributor of the intervention may provide the routine implementation support they would provide under the routine adoption of the intervention (e.g., professional development). If included, discuss how their involvement will not jeopardize the objectivity of the research.
- If you have previously received an award from any source to evaluate an intervention, discuss any theoretical and practical contributions made by your previous work. By

Personnel

Establish the independence of the key personnel carrying out evaluation activities.

demonstrating that your previous evaluation was successful, you provide a stronger case for your evaluation of another intervention.

- d. Resources** – The purpose of this section is to describe how you have both the institutional capacity to complete a project of this size and complexity and access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Effectiveness goal **must** describe the resources to do the following:

- (iii) Conduct the project; and
- (iv) Disseminate the results.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Effectiveness work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include Letters of Agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
 - Include information about student, teacher, and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include Letters of Agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. Effectiveness projects are to causally evaluate the impact of intervention on student outcomes. The Institute considers all types of findings from these projects to be potentially useful to researchers, policymakers, and practitioners.
 - Findings of a beneficial impact on student outcomes could support the wider use of the intervention and the further adaptation of the intervention to conditions that are quite different. Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.

- Findings of no impacts on student outcomes (with or without impacts on more intermediate outcomes such as a change in teacher instruction) are important for decisions regarding the ongoing use and wider dissemination of the intervention, further revision of the intervention and its implementation, and revision of the theory of change underlying the intervention.
- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project. These should include the following:
 - Publication in scientific, peer-reviewed journals and presentations at academic conferences;
 - Reporting findings to any education agencies and schools that provided the project with data and data-collection opportunities; and
 - Publications and presentations in venues designed for policymakers, practitioners, and the general public including electronic venues (e.g., websites, webinars, podcasts, videos).

(2) Awards

An Effectiveness project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of an Effectiveness project is 5 years.** An application of this type proposing a project length of greater than 5 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
- **The maximum duration of an Effectiveness Follow-Up project is 3 years.** An application of this type proposing a project length of greater than 3 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for an Effectiveness project is \$3,800,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
 - No more than 25 percent of the award may be allocated to the cost of the intervention. The cost of the intervention includes any materials, textbooks, software, computers, or training required to implement the intervention. When calculating the cost of the intervention, you should not include salaries for school or district staff who implement the intervention as part of their regular duties or funds allocated to pay teachers or other participants for time involved in completing questionnaires, surveys, or any other assessments that are part of the evaluation. Note the budgeted cost of the intervention and the percentage of the project's total funding represented by the cost of the intervention in your budget narrative.

- **The maximum award for an Effectiveness Follow-Up project is \$1,400,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.
 - Grant funds should not be used for purchase or implementation of the intervention.

(3) Data Management Plan

Applications under the Effectiveness goal must include a Data Management Plan (DMP) of no more than five pages placed in Appendix E. **Applications that do not contain a DMP in Appendix E will be deemed nonresponsive to the Request for Applications and will not be accepted for review.** The items to be described in your DMP are the same as those listed for Efficacy/Replication.

Effectiveness Data Management Plan

The requirements and recommendations for the DMP are the same as those for the Efficacy/Replication goal.

5. Goal Five: Measurement

a) Purpose

The Measurement goal supports (1) the development of new [assessments](#) or refinement of existing assessments (Development/Refinement Projects) or (2) the [validation](#) of existing assessments for specific purposes, contexts, and populations (Validation Projects). Measurement projects can address a wide variety of measures, depending on the topic, such as academic tests, behavioral measures, observational tools, informal assessments, and school quality indicators. Measurement projects can address a range of purposes, such as measuring knowledge, skills, and abilities; guiding instruction; improving educator practice; evaluating educator job performance; or assessing the effectiveness of schools or school systems. **All measurement projects must link the assessment to [student education outcomes](#).**

Development/Refinement Projects will result in the following:

- A fully developed version of the proposed assessment or refinement of an existing assessment.
- A detailed description of the assessment or refinements to an existing assessment and their intended use.
- A detailed description of the iterative development processes used to develop or refine the assessment, including field-testing procedures and processes for item revision.

All projects under the Measurement goal will result in the following:

- A well-specified [assessment framework](#) that provides the rationale for the assessment, the theoretical basis that underlies its design, and its validation activities.
- A detailed description of the validation activities.
- Evidence of the [reliability](#) and validity of the assessment for the specified purpose(s), populations, and contexts.

b) Requirements and Recommendations

Applications under the Measurement goal **must meet the requirements set out under (1) Project Narrative and (2) Awards** in order to be responsive and sent forward for scientific peer review. The requirements are the minimum necessary for an application to be sent forward for peer review.

In order to improve the quality of your application, the Institute offers recommendations following each set of Project Narrative requirements.

(1) Project Narrative

The 25-page project narrative for a Measurement project application **must** include four sections: Significance, Research Plan, Personnel, and Resources.

Assessment

Refers to “any systematic method of obtaining information, used to draw inferences about characteristics of people, objects, or programs; a systematic process to measure or evaluate the characteristics or performance of individuals, programs, or other entities, for purposes of drawing inferences; sometimes used synonymously with test” (AERA, 2014).

Validation

Refers to the use of a measure for a specific purpose and population.

Refinement

Includes changing existing assessments or changing the delivery of existing assessments in order to increase efficiency, improve measurement, improve accessibility, or provide accommodation for test takers.

- a. **Significance** – The purpose of this section is to explain why it is important either to develop/refine the assessment or to validate the assessment for a specific purpose and/or population.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** include

- (i) A description of the assessment to be developed/refined and/or validated.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Significance section to provide a compelling rationale for the proposed Measurement work.

Development/Refinement Projects:

- Describe the specific need for developing or refining the assessment. Discuss how the results of this work will be important both to the field of education research and to education practice and education stakeholders (e.g., practitioners and policymakers).
- Identify any current assessments that address this need and explain why they are not satisfactory. Contrast the new assessment with current typical assessment practice and its identified shortcomings. A detailed description of the assessment will clearly show that it has the potential to provide a better measure of the intended construct(s) because (1) it is sufficiently different from current assessments practice and does not suffer from the same shortcomings; (2) it has a strong theoretical or empirical basis; and (3) its implementation appears feasible for researchers, teachers and schools given their resource constraints (e.g., time, funds, personnel, schedules).

Validation Projects:

- Describe the specific need for validating an existing assessment. Discuss how the results of this work will be important both to the field of education research and to education practice and education stakeholders (e.g., practitioners, policymakers).
- Identify current validation evidence for this assessment and explain why it is not satisfactory for the proposed purpose(s).

All Measurement Projects:

- Describe the assessment framework and the fit between validation activities and the assessment framework.
- If you are applying for a second Measurement award to further develop or validate an assessment that was the focus of a previous Measurement award, justify the need for a second award and describe the results and outcomes of the previous award (e.g., the status of the assessment and its validation).

The assessment framework includes the following:

- Operational definition(s) of the [construct](#)(s) of measurement.
- Theoretical model showing how construct(s) are related to each other and/or external variables.
- Description of how the assessment provides evidence of the construct(s) identified in the rationale.
- Description of the processes for reasoning from assessment items and scores to the intended inferences regarding the construct(s) of measurement.
- Description of the intended use(s) and population(s) for which the assessment is meant to provide valid inferences.

- b. Research Plan** – The purpose of this section is to describe the methodology you will use to develop, refine, and/or establish the validity of your assessment.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** describe the following:

- (i) Development/refinement and/or validation process; and
- (ii) Data analysis procedures.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Research Plan section to strengthen the methodological rigor of the proposed measurement project.

Development/Refinement Projects:

- Describe the iterative procedures for developing, field testing, and selecting items to be used in the assessment and for obtaining representative responses to items.
- Describe the procedures for scoring the assessment, including justification for the scaling model that will be used to create scores. For example, if item response theory will be used to create scores, describe the model that will be applied.
- Describe the procedures for demonstrating adequate [construct coverage](#) and minimizing the influence of factors irrelevant to the construct.
- Provide the plans for establishing the fairness of the test for all members of the intended population (e.g., [differential item functioning](#)).
- Describe the procedures for determining the administrative procedures for conducting the assessment (e.g., mode of administration, inclusion/exclusion of individual test takers, accommodations, and whether make-ups or alternative administrative conditions will be allowed).
- Describe the plans for examining the feasibility of use of the assessment for the intended purpose.
- If alternate forms will be developed, describe the procedures for establishing the equivalency of the forms (i.e., [horizontal equating](#)).
- If the proposed assessment is used to measure growth, describe the procedures for establishing a developmental scale (i.e., [vertical equating](#)).

All Measurement Projects:

- Identify the theoretical and analytic steps that you will undertake to provide evidence that an assessment measures the intended construct for a given purpose and population.
- Describe the procedures for determining the reliability of the assessment for the intended purpose and population.
- Identify the types of validity evidence that will be used and provide justification for the adequacy of the selected types of evidence to support use of the assessment (e.g., [predictive](#), [concurrent](#), [convergent](#), [discriminant](#)).
- You may propose to do a limited amount of [laboratory research](#) as long as it adheres to the sample and outcomes requirements outlined for the topic you select; however, applicants may not propose to conduct 100 percent of their research in the laboratory. A portion of the research must take place in the setting required for the chosen topic.

Applications with 100 percent of the research taking place in laboratory settings will be deemed nonresponsive and not sent forward for peer review.

- If you propose to do laboratory research, justify the amount that you are choosing to do and describe how it will provide relevant evidence for the validation or development/refinement of the assessment and how it will improve use of the assessment in [authentic education settings](#). In addition, the materials and procedures should allow for generalizability to authentic education settings.
- Describe the statistical models and analyses that will be used (e.g., structural equation modeling, type of IRT model).

Timeline:

- Provide a timeline for each step in your project including such actions as measurement development (if applicable), sample selection and assignment, data collection, validation activities, data analysis, and dissemination.
- Timelines may be placed in either the Project Narrative or Appendix B but may only be discussed only in the Project Narrative (Appendix B cannot include narrative).

- c. **Personnel** – The purpose of this section is to describe the relevant expertise of your research team, the responsibilities of each team member, and each team member’s time commitments.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** include a Personnel section that describes the following:

- (i) Research team.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Personnel section to demonstrate that your team possesses the appropriate training and experience and will commit sufficient time to implement the proposed research competently.

- Describe a research team that collectively demonstrates the expertise in content domain(s), assessment development and administration, psychometrics, and statistical analysis as appropriate to support your scope of work. In many projects it will also be important to include staff with expertise working with teachers, in schools, or in other education delivery settings in which the proposed assessment is intended to be used.
- Describe personnel at the primary applicant institution and any subaward institutions along with any consultants.
- Identify and briefly describe the following for all key personnel (i.e., Principal Investigator, co-Principal Investigators, co-Investigators) on the project team: qualifications to carry out the proposed work, roles and responsibilities within the project, percent of time and calendar months per year (academic plus summer) to be devoted to the project, and past success at disseminating research findings in peer-reviewed scientific journals and to policymaker and practitioner audiences.
- Identify the management structure and procedures that will be used to keep the project on track and ensure the quality of its work. This is especially important for projects involving multiple institutions carrying out different tasks that must be coordinated and/or integrated.
- Key personnel may be from for-profit entities. However, if these entities are to be involved in the commercial production or distribution of the assessment being developed

and/or validated, include a plan describing how their involvement will not jeopardize the objectivity of the research.

- If you have previously received a Measurement award and are applying for a grant to develop/refine and/or validate a new assessment, indicate the status of the previous assessment, its current use in education research, and/or the citing of your validation work in studies that use the assessment.

- d. Resources** – The purpose of this section is to describe how you have both the institutional capacity to complete a project of this size and complexity and access to the resources you will need to successfully complete this project.

Requirements: In order to be responsive and sent forward for peer review, applications under the Measurement goal **must** describe the resources to do the following:

- (i) Conduct the project and
- (ii) Disseminate the results.

Recommendations for a Strong Application: In order to address the above requirements, the Institute recommends that you include the following in your Resources section to demonstrate that your team has a plan for acquiring or accessing the facilities, equipment, supplies, and other resources required to support the completion and dissemination of the proposed Measurement work and the commitments of each partner for the implementation and success of the project.

Resources to conduct the project:

- Describe your institutional capacity and experience to manage a grant of this size.
- Describe your access to resources available at the primary institution and any subaward institutions.
- Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project (e.g., equipment, test materials, curriculum or training materials).
- Describe your access to the schools (or other authentic education settings) in which the research will take place. Include Letters of Agreement in Appendix D documenting the participation and cooperation of the schools. Convincing letters will convey that the organizations understand what their participation in the study will involve (e.g., annual student and teacher surveys, student assessments, classroom observations).
 - Include information about teacher and school incentives, if applicable.
- Describe your access to any data sets that you will require. Include Letters of Agreement, data licenses, or existing Memoranda of Understanding in Appendix D to document that you will be able to access the data for your proposed use.

Resources to disseminate the results:

- Be cognizant of the particular research goal of your project and how this affects the type and use of your findings. The Institute expects that the dissemination of Development/Refinement Projects would clearly specify the validity evidence for the appropriate users. Validation Projects should be tied to wider use for an existing or new purpose and/or population.
- Describe your capacity to disseminate information about the findings from your research. For example, your university or research firm may have a communications office that can

assist with disseminating the results of your project, or you may have members of your research team who have experience disseminating research to nontechnical audiences.

- Identify the audiences that you expect will be most likely to benefit from your research (e.g., other researchers, federal or state policymakers, state and local school system administrators, principals, teachers, counselors, parents, students, and others).
- Discuss the ways in which you intend to reach these audiences through the major publications, presentations, and products you expect from your project.
- Findings that assessments are not validated for specific uses or populations should be disseminated to support decision-making regarding those assessments.

(2) Awards

A Measurement project **must** conform to the following limits on duration and cost:

Duration Maximums:

- **The maximum duration of a Measurement project is 4 years.** An application of this type proposing a project length of greater than 4 years will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

Cost Maximums:

- **The maximum award for a Measurement project is \$1,400,000 (total cost = direct costs + indirect costs).** An application of this type proposing a budget higher than the maximum award will be deemed nonresponsive to the Request for Applications and will not be accepted for review.

PART IV: COMPETITION REGULATIONS AND REVIEW CRITERIA

A. FUNDING MECHANISMS AND RESTRICTIONS

1. Mechanism of Support

The Institute intends to award grants pursuant to this Request for Applications.

2. Funding Available

Although the Institute intends to support the research topics and goals 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. The Institute makes its awards to the highest quality applications, as determined through scientific peer review, regardless of topic or goal.

The size of the award depends on the research goal and scope of the project. Please attend to the duration and budget maximums set for each goal in [Part III Goal Requirements](#). If you request a project length longer than the maximum or a budget higher than the maximum, your application will be deemed nonresponsive and will not be reviewed.

Research Goal	Maximum Grant Duration	Maximum Grant Award
Exploration	Secondary Data Analysis only: 2 years	\$600,000
	Primary Data Collection: 4 years	\$1,400,000
Development and Innovation	4 years	\$1,400,000
Efficacy and Replication	Efficacy: 5 years	\$3,300,000
	Replication: 5 years	\$3,300,000
	Follow-up: 3 years	\$1,100,000
	Retrospective: 3 years	\$700,000
Effectiveness	Effectiveness: 5 years	\$3,800,000
	Follow-up: 3 years	\$1,400,000
Measurement	4 years	\$1,400,000

3. Special Considerations for Budget Expenses

Indirect Cost Rate

When calculating your expenses for research conducted in field settings, you should apply your institution's federally negotiated off-campus indirect cost rate. Questions about indirect cost rates should

be directed to the U.S. Department of Education's Indirect Cost Group
<http://www2.ed.gov/about/offices/list/ocfo/fipao/icgindex.html>.

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

Meetings and Conferences

If you are requesting funds to cover expenses for hosting meetings or conferences, please note that there are statutory and regulatory requirements in determining whether costs are reasonable and necessary. Please refer to OMB's Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), 2 CFR, [§200.432 Conferences](#).

In particular, 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 (e.g., working lunches); however, the Institute 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. 9501 et seq., the "Education Sciences Reform Act of 2002," Title I of Public Law 107-279, November 5, 2002. This program is not subject to the intergovernmental review requirements of Executive Order 12372.

5. Applicable Regulations

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) codified at CFR Part 200. The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 77, 81, 82, 84, 86 (part 86 applies only to institutions of higher education), 97, 98, and 99. In addition 34 CFR part 75 is applicable, except for the provisions in 34 CFR 75.100, 75.101(b), 75.102, 75.103, 75.105, 75.109(a), 75.200, 75.201, 75.209, 75.210, 75.211, 75.217, 75.219, 75.220, 75.221, 75.222, and 75.230.

B. ADDITIONAL AWARD REQUIREMENTS

1. Public Availability of Data and Results

You must include a Data Management Plan (DMP) in Appendix E if you are submitting an Efficacy and Replication application or an Effectiveness application. The peer-review process will not include the DMP in the scoring of the scientific merit of the application. Instead, the Institute's Program Officers will be responsible for reviewing the completeness of the proposed DMP. The costs of the DMP can be covered by the grant and should be included in the budget and explained in the budget narrative.

Recipients of awards are expected to publish or otherwise make publicly available the results of the work supported through this program. Institute-funded investigators must submit [final manuscripts](#) resulting from research supported in whole or in part by the Institute to the Educational Resources Information Center (ERIC, <http://eric.ed.gov>) upon acceptance for publication. An author's final manuscript is defined as the final version accepted for journal publication and includes all graphics and supplemental materials that are associated with the article. The Institute will make the manuscript available to the public through ERIC no later than 12 months after the official date of publication. Investigators and their institutions are

responsible for ensuring that any publishing or copyright agreements concerning submitted articles fully comply with this requirement.

2. Special Conditions on Grants

The Institute 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.

3. Demonstrating Access to Data and Authentic Education Settings

The research you propose to do under a specific topic and goal will most likely require that you have (or will obtain) access to [authentic education settings](#) (e.g., classrooms, schools, districts), secondary data sets, 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, **the Institute may require additional supporting evidence prior to the release of funds.** If you cannot provide such documentation, the Institute 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:

- *Conducting research in or with authentic education settings* - If your application is being considered for funding based on scientific merit scores from the peer-review panel and your research relies on access to authentic education settings (e.g., schools), 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 the Institute 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, the Institute may ask you to provide documentation that the settings originally recruited for the application are still willing to partner in the research.
- *Using secondary data sets* - If your application is being considered for funding based on scientific merit scores from the peer-review panel and your research relies on access to secondary data sets (such as federally collected data sets, 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 data sets in order to receive the grant. This means that if you do not have permission to use the proposed data sets at the time of application, you must provide documentation to the Institute from the entity controlling the data set(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 data set prior to submitting your application, the Institute may ask you to provide updated documentation indicating that you still have permission to use the data set to conduct the proposed research during the project period.
- *Building off of existing studies* - You may propose studies that piggyback onto an ongoing study (i.e., that require access to subjects and data from another study). 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 new project.

In addition to obtaining evidence of access, the Institute strongly advises applicants to establish a written agreement, within 3 months of receipt of an award, among all key collaborators and their institutions

(e.g., Principal and co-Principal Investigators) regarding roles, responsibilities, access to data, publication rights, and decision-making procedures.

C. OVERVIEW OF APPLICATION AND PEER REVIEW PROCESS

1. Submitting a Letter of Intent

The Institute strongly encourages potential applicants to submit a Letter of Intent by May 5, 2016. Letters of Intent are optional, non-binding, and not used in the peer review of a subsequent application. However, when you submit a Letter of Intent, one of the Institute's Program Officers will contact you regarding your proposed research to offer assistance. The Institute also uses the Letter of Intent 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. Should you miss the deadline for submitting a Letter of Intent, you still may submit an application. If you miss the Letter of Intent deadline, the Institute asks that you inform the relevant Program Officer of your intention to submit an application.

Letters of Intent are submitted online at <https://iesreview.ed.gov>. **Select the Letter of Intent form for the topic 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 project description should be single-spaced and should not exceed one page (about 3,500 characters).

- Descriptive title
- Topic and goal that you will address
- Brief description of the proposed project
- Name, institutional affiliation, address, telephone number and e-mail 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 goal)
- Estimated total budget request (attend to the Budget maximums for each goal)

2. Resubmissions and Multiple Submissions

If you intend to revise and resubmit an application that was submitted to one of the Institute's previous competitions but that was not funded, you must indicate on the [SF-424 Form of the Application Package \(Items 4a and 8\) \(see Part VI.E.1.\)](#) that the FY 2017 application is a resubmission (Item 8) and include the application number of the previous application (an 11-character alphanumeric identifier beginning "R305" or "R324" entered in Item 4a). Prior reviews will be sent to this year's reviewers along with the resubmitted application. You must describe your response to the prior reviews using [Appendix A \(see Part V.D.3.\)](#). Revised and resubmitted applications will be reviewed according to this FY 2017 Request for Applications.

If you submitted a somewhat similar application in the past and did not receive an award but are submitting the current application as a new application, you should indicate on the application form (Item 8) that your FY 2017 application is a new application. In Appendix A, you should provide a rationale explaining why your FY 2017 application should be considered a new application rather than a revision. If you do not provide such an explanation, then the Institute may send the reviews of the prior unfunded application to this year's reviewers along with the current application.

You may submit applications to more than one of the Institute's FY 2017 grant programs and to multiple topics within the Education Research Grants program. 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 2017 grant competitions (i.e., 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, the Institute 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 4:30:00 p.m., Washington, DC time on August 4, 2016 through the Internet using the software provided on the Grants.gov website <http://www.grants.gov/>. You must follow the application procedures and submission requirements described in [Part V Preparing Your Application](#) and [Part VI Submitting Your Application](#) and the instructions in the User Guides provided by Grants.gov, <http://www.grants.gov/web/grants/applicants/applicant-resources.html>.

After receiving the applications, Institute staff will review each application for [compliance](#) and [responsiveness](#) to this Request for Applications. Applications that do not address specific requirements of this request will not be considered further.

Once you formally submit an application, Institute staff will not comment on its status until the award decisions are announced (no later than July 1, 2017) except with respect to issues of compliance and responsiveness. This communication will come through the Applicant Notification System (<https://iesreview.ed.gov/>).

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

4. Peer-Review Process

The Institute 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 Institute's website, http://ies.ed.gov/director/sro/peer_review/application_review.asp, by a panel of scientists who have substantive and methodological expertise appropriate to the program of research and Request for Applications.

Each compliant and responsive application is assigned to one of the Institute's scientific review panels http://ies.ed.gov/director/sro/peer_review/reviewers.asp. 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, the Institute 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 he or she believes 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 Institute-supported research is to contribute to solving education problems and to provide reliable information about the education practices that support learning and improve academic achievement and access to education for all students. The Institute expects reviewers for all applications to assess the following aspects of an application in order to judge the likelihood that the proposed research will have a substantial impact on the pursuit of that goal. Information pertinent to each of these criteria is described in Part III Goal Requirements and in the section describing the relevant research grant topic within Part II Topic Requirements.

a) Significance

Does the applicant provide a compelling rationale for the significance of the project as defined in the Significance section for the goal under which the applicant is submitting the application?

b) Research Plan

Does the applicant meet the methodological requirements and address the recommendations described in the Research Plan section for the goal under which the applicant is submitting the application?

c) Personnel

Does the description of the personnel make it apparent that the Principal Investigator and other key personnel possess appropriate training and experience and will commit sufficient time to competently implement the proposed research?

d) Resources

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 project? Does the applicant have adequate capacity to disseminate results to a range of audiences in ways that are useful to them and reflective of the type of research done (e.g., the research goal)?

6. Award Decisions

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

- Scientific merit as determined by peer review;
- Performance and use of funds under a previous federal award;
- Contribution to the overall program of research described in this Request for Applications;
and
- Availability of funds.

PART V: PREPARING YOUR APPLICATION

A. OVERVIEW

The application contents—individual forms and their PDF attachments—represent the body of an application to the Institute. **All applications for Institute funding must be self-contained.** As an example, reviewers are under no obligation to view an internet website if you include the site address (URL) in the application. In addition, **you may not submit additional materials directly to the Institute after the application package is submitted.**

B. GRANT APPLICATION PACKAGE

The Application Package for this competition (84-305A2017) provides all of the forms that you must complete and submit. The application form approved for use in the competition specified in this Request for Applications is the government-wide SF-424 Research and Related (R&R) Form (OMB Number 4040-0001).

1. Date Application Package is Available on Grants.gov

The Application Package will be available on <http://www.grants.gov/> by May 5, 2016.

2. How to Download the Correct Application Package

To find the correct downloadable Application Package, you must first search by the CFDA number for this research competition without the alpha suffix. To submit an application to the Education Research Grants program, you must search on: CFDA 84.305.

The Grants.gov search on CFDA 84.305 will yield more than one Application Package. For the Education Research Grants program, you must download the Application Package marked

- Education Research CFDA 84.305A

You must download the Application Package that is designated for this grant competition. If you use a different Application Package, even if it is for another Institute competition, the application will be submitted to the wrong competition. Applications submitted using the incorrect application package run the risk of not being reviewed according to the requirements and recommendations for the Education Research competition.

See [Part VI Submitting Your Application](#), for a complete description of the forms that make up the application package and directions for filling out these forms.

C. GENERAL FORMATTING

For a complete application, you must submit the following as individual attachments to the R&R forms that are contained in the application package for this competition in Adobe Portable Document Format (PDF):

- Project Summary/Abstract;
- Project Narrative and, if applicable, Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E (all together as one PDF file);
- Bibliography and References Cited;
- Research on Human Subjects Narrative (i.e., Exempt or Non-Exempt Research Narrative);
- A Biographical Sketch for each senior/key person;
- A Narrative Budget Justification for the total Project budget; and

- Subaward Budget(s) that has (have) been extracted from the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form, if applicable.

Information about the formatting requirements for all of these documents except the [Subaward budget attachment \(see Part VI.E.6\)](#) is provided below.

1. Page and Margin Specifications

For all Institute research 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. The type size used must conform to all three requirements. Small type size makes it difficult for reviewers to read the application; consequently, the use of small type will be grounds for the Institute to return the application without peer review.

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. As a practical matter, if you use a 12-point Times New Roman font without compressing, kerning, condensing, or other alterations, the application will typically meet these requirements.

5. Graphs, Diagrams, and Tables

You are encouraged to use black and white in graphs, diagrams, tables, and charts. If color is used, you should ensure that the material reproduces well when 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.

D. PDF ATTACHMENTS

1. Project Summary/Abstract

a) Submission

You must submit the project summary/abstract as a separate PDF attachment at Item 7 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

The project summary/abstract is limited to one single-spaced page.

c) Content

The project summary/abstract should include the following:

- **Title** of the project.
- The **topic and goal** to which you are applying (e.g., Mathematics and Science Education, Exploration goal).
- **Purpose:** A brief description of the purpose of the project (e.g., to develop and document the feasibility of an intervention) and its significance for improving education outcomes for U.S. students.
- **Setting:** A brief description of the location (e.g., state or states) where the research will take place and other important characteristics of the locale (e.g., urban/suburban/rural).
- **Population/Sample:** A brief description of the sample that will be involved in the study (e.g., number of participants), its composition (e.g., age or grade level, race/ethnicity, SES) and the population the sample is intended to represent.
- **Intervention/Assessment:** If applicable, a brief description of the intervention or assessment to be developed, evaluated, or validated.
- **Control Condition:** If applicable, a brief description of the control or comparison condition (i.e., who the participants in the control condition are and what they will experience).
- **Research Design and Methods:** Briefly describe the major features of the design and methodology to be used. (e.g., randomized controlled trial, quasi-experimental design, mixed method design; iterative design process).
- **Key Measures:** A brief description of key measures and outcomes.
- **Data Analytic Strategy:** A brief description of the data analytic strategy that will be used to answer research questions.

Please see <http://ies.ed.gov/ncer/projects> for examples of the content to be included in your project summary/abstract.

2. Project Narrative

a) Submission

You must submit the project narrative as a separate PDF attachment at Item 8 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

The project narrative is limited to 25 pages. **If the narrative exceeds this page limit, the Institute will remove any pages after the 25th page of the narrative.**

To help reviewers locate information and conduct the highest quality review, you should write a concise and easy to read narrative, with pages numbered consecutively using the header or footer function to place numbers at the top or bottom right-hand corner.

c) Format for citing references in text

To ensure that all applicants have the same amount of available space in which to describe their projects in the project narrative, use the author-date style of citation (e.g., James, 2004), such as that described

in the Publication Manual of the American Psychological Association, 6th Ed. (American Psychological Association, 2009).

d) Content

Your project narrative **must** include four sections in order to be compliant with the requirements of this Request for Applications: (1) Significance, (2) Research Plan, (3) Personnel, and (4) Resources. Information to be included in each of these sections is detailed in [Part III Goal Requirements](#). **The information you include in each of these four sections will provide the majority of the information on which reviewers will evaluate the application.**

3. Appendix A (Required for Resubmissions)

a) Submission

If your application is a resubmission you **must** include Appendix A at the end of the project narrative. If your application is one that you consider to be new but that is similar to a previous application, you should include Appendix A. Include Appendix A after the project narrative as part of the same PDF attachment at Item 8 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

Appendix A is limited to three pages.

c) Content

Appendix A is required if you are resubmitting an application. Use Appendix A to describe how the revised application is responsive to prior reviewer comments.

If you have submitted a somewhat similar application in the past but are submitting the current application as a new application, you should use Appendix A to provide a rationale explaining why the current application should be considered a “new” application rather than a “resubmitted” application.

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

4. Appendix B (Optional)

a) Submission

If you choose to have an Appendix B, you must include it at the end of the project narrative, following Appendix A (if included), and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

Appendix B is limited to 15 pages.

c) Content

You may include figures, charts (e.g., a timeline for your research project), or tables that supplement the project narrative as well as examples of measures (e.g., tests, surveys, observation and interview protocols) to be used in the project in Appendix B. These are the only materials that may be included in Appendix B; all other materials will be removed prior to review of the application. You should include narrative text that describes your project in the 25-page project narrative, not in Appendix B.

5. Appendix C (Optional)

a) Submission

If you choose to have an Appendix C, you must include it at the end of the project narrative, following Appendix B (if no Appendix B is included, then Appendix C should follow Appendix A, if included) and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

Appendix C is limited to 10 pages.

c) Content

In Appendix C, if you are proposing to explore, develop, evaluate, or validate an intervention or assessment you may include examples of curriculum materials, computer screen shots, assessment items, or other materials used in the intervention or assessment to be explored, developed, evaluated, or validated. These are the only materials that may be included in Appendix C; all other materials will be removed prior to review of the application. You should include narrative text describing these materials in the 25-page project narrative, not in Appendix C.

6. Appendix D (Optional)

a) Submission

If you choose to have an Appendix D, you must include it at the end of the project narrative, following Appendix C (if no Appendix C is included, then Appendix D should follow Appendix B if it is included, or Appendix A) and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

Appendix D does not have a page limit.

c) Content

Include in Appendix D the Letters of Agreement from partners (e.g., schools and districts), data sources (e.g., state agencies holding administrative data), and consultants. Ensure that the letters reproduce well so that reviewers can easily read them. Do not reduce the size of the letters. Although, see [Part VI.D.4 Attaching Files](#) for guidance regarding the size of file attachments.

Letters of Agreement should include enough information to make it clear that the author of the letter understands the nature of the commitment of time, space, and resources to the research project that will be required if the application is funded. A common reason for projects to fail is loss of participating schools and districts. 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 materials will be removed prior to review of the application.

7. Appendix E (Required for Efficacy/Replication and Effectiveness Applications)

c) Submission

If you are applying under [Goal Three: Efficacy and Replication](#) or [Goal Four: Effectiveness](#), include Appendix E at the end of the project narrative, following the other Appendices included, and submit it as part of the same PDF attachment at Item 8 of the Other Project Information form (see [Part VI.E.4](#)

[Research & Related Other Project Information](#)). If you are applying under any other research goal, do not include Appendix E.

b) Page limitations

Appendix E is limited to five pages.

d) Content

Include in Appendix E your Data Management Plan (DMP). The [content of the DMP](#) is discussed under (3) Data Management Plan in Goal Three: Efficacy and Replication. These are the only materials that may be included in Appendix E; all other materials will be removed prior to review of the application.

8. Bibliography and References Cited

a) Submission

You must submit this section as a separate PDF attachment at Item 9 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

The Bibliography and References Cited does not have a page limit.

b) Content

You should include complete citations, including the names of all authors (in the same sequence in which they appear in the publication), titles (e.g., article and journal, chapter and book), page numbers, and year of publication for literature cited in the project narrative.

9. Research on Human Subjects Narrative

a) Submission

The human subjects narrative must be submitted as a PDF attachment at Item 12 of the Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)).

b) Page limitations

The human subjects narrative does not have a page limit.

c) Content

The human subjects narrative should address the information specified by the U.S. Department of Education's Regulations for the Protection of Human Subjects (see <http://www2.ed.gov/about/offices/list/ocfo/humansub.html> for additional information).

Exempt Research on Human Subjects Narrative

Provide an "exempt" narrative if you checked "yes" on Item 1 of the Research & Related Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)). The narrative must contain sufficient information about the involvement of human subjects in the proposed research to allow a determination by the Department that the designated exemption(s) are appropriate. The six categories of research that qualify for exemption from coverage by the regulations are described on the Department's website: <http://www2.ed.gov/policy/fund/guid/humansub/overview.html>.

Non-exempt Research on Human Subjects Narrative

If some or all of the planned research activities are covered by (i.e., not exempt from) the Human Subjects Regulations and you checked "no" on Item 1 of the Research & Related Other Project Information form (see [Part VI.E.4 Research & Related Other Project Information](#)), provide a "nonexempt research" narrative. The nonexempt narrative should describe the following: the

characteristics of the subject population; the data to be collected from human subjects; recruitment and consent procedures; any potential risks; planned procedures for protecting against or minimizing potential risks; the importance of the knowledge to be gained relative to potential risks; and any other sites where human subjects are involved.

Note that the U.S. Department of Education does not require certification of Institutional Review Board approval at the time you submit your application. However, if an application that involves non-exempt human subjects research is recommended/selected 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 after the formal request.

10. Biographical Sketches for Senior/Key Personnel

a) Submission

Each sketch will be submitted as a separate PDF attachment and attached to the Research & Related Senior/Key Person Profile (Expanded) form (see [Part VI.E.2 Research & Related Senior/Key Person Profile \(Expanded\)](#)). The Institute encourages you to use the biosketch template available through [SciENCv](#), or you may develop your own biosketch format.

b) Page limitations

Each biographical sketch is limited to five pages which includes Current and Pending Support.

c) Content

Provide a biographical sketch for the Principal Investigator, each co-Principal Investigator, and other key personnel that includes information sufficient to demonstrate that key personnel possess training and expertise commensurate with their specified duties on the proposed project (e.g., publications, grants, and relevant research experience). If you'd like, you may also include biographical sketches for consultants (this form will allow for up to 40 biographical sketches in total).

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 his/her time, expressed as percent effort over a 12-month calendar year, allocated to each project. Include the proposed education research grant as one of his/her pending grants in this list. If the total 12-month calendar year percent effort across all current and pending projects exceeds 100 percent, you must explain how time will be allocated if all pending applications are successful in the Narrative Budget Justification. If you use [SciENCv](#), the information on current and pending support will be entered into the biosketch template. If you use your own format, you will need to provide this information in a separate table.

11. Narrative Budget Justification

a) Submission

The narrative budget justification must be submitted as a PDF attachment at Section K of the first project period of the Research & Related Budget (SF 424) Sections A & B; C, D, & E; and F-K form for the Project (see [Part VI.E.5 Research & Related Budget \(Total Federal + Non-Federal\) - Sections A & B; C, D, & E; and F-K](#)). For grant submissions with a subaward(s), a separate narrative budget justification for each subaward must be submitted and attached at Section K of the Research & Related Budget (SF 424) for the specific Subaward/Consortium that has been extracted and attached using the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form (see [Part VI.E.6](#)).

b) Page limitations

The narrative budget justification does not have a page limit.

c) Content

A narrative budget justification must be submitted for the project budget, and a separate narrative budget justification must be submitted for any subaward budgets included in the application. Each narrative budget justification should provide sufficient detail to allow reviewers to judge whether reasonable costs have been attributed to the project and its subawards, if applicable. The budget justification should correspond to the itemized breakdown of project costs that is provided in the corresponding Research & Related Budget (SF 424) Sections A & B; C, D, & E; and F-K form for each year of the project. The narrative should include the time commitments for key personnel expressed as annual percent effort (i.e., calculated over a 12-month period) and brief descriptions of the responsibilities of key personnel. For consultants, the narrative should include the number of days of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs. A justification for equipment purchases, supplies, travel (including information regarding number of days of travel, mode of transportation, per diem rates, number of travelers, etc.), and other related project costs should also be provided in the budget narrative for each project year outlined in the Research & Related Budget (SF 424).

d) Indirect cost rate

You must use your institution's federally negotiated indirect cost rate see [Part IV.A.3 Special Considerations for Budget Expenses](#)). When calculating your indirect costs on expenses for research conducted in field settings, you should apply your institution's federally negotiated off-campus indirect cost rate.

If your institution does not have a federally negotiated indirect cost rate, you should consult a member of the Indirect Cost Group (ICG) in the U.S. Department of Education's Office of the Chief Financial Officer <http://www2.ed.gov/about/offices/list/ocfo/fipao/icgreps.html> to help you estimate the indirect cost rate to put in your application.

PART VI: SUBMITTING YOUR APPLICATION

This part of the RFA describes important submission procedures you need to be aware of to ensure your application is received on time (no later than 4:30:00pm Washington, DC time on August 4, 2016) and accepted by the Institute. Any questions that you may have about electronic submission via Grants.gov should first be addressed to the Grants.gov Contact Center at support@grants.gov, <http://www.grants.gov/web/grants/about/contact-us.html>, or call 1-800-518-4726.

Additional help with submitting an application electronically through the Grants.gov website is available at <http://www.grants.gov/web/grants/applicants/applicant-resources.html>. The Institute also offers webinars on the application submission process <http://ies.ed.gov/funding/webinars/index.asp>.

A. MANDATORY ELECTRONIC SUBMISSION OF APPLICATIONS AND DEADLINE

Applications must be submitted electronically through the Internet using the software and application package provided on the Grants.gov web site: <http://www.grants.gov/>. Applications must be received (fully uploaded and processed by Grants.gov) no later than 4:30:00 pm Washington, DC time on August 4, 2016. Applications received by Grants.gov after the 4:30:00 pm application deadline will be considered late and will not be sent forward for scientific peer review.

Electronic submission is required unless you qualify for one of the exceptions to the electronic submission requirement *and* submit, no later than 2 weeks before the application deadline date, a written statement to the Department that you qualify for one of these exceptions. A description of the Allowable Exceptions to Electronic Submissions is provided at the end of this document.

Please consider submitting your application ahead of the deadline date (the Institute recommends 3 to 4 days in advance of the closing date and time) to avoid running the risk of a late submission that will not be reviewed. **The Institute does not accept late applications.**

B. REGISTER ON GRANTS.GOV

To submit an application through Grants.gov, your institution must be registered with Grants.gov (<http://www.grants.gov/web/grants/register.html>).

Grants.gov registration involves many steps including prior registration in the System for Award Management (SAM: formerly known as the Central Contractor Registry or CCR) at <http://www.sam.gov>. Grants.gov recommends that your institution begin the registration process at least 4 weeks prior to the application deadline date.

1. Register Early

Registration involves multiple steps (described below) and takes at least 3 to 5 business days, or as long as 4 weeks, to complete. You must complete all registration steps to allow a successful application submission via Grants.gov. You may begin working on your application while completing the registration process, but you will not be permitted to submit your application until all of the registration steps are complete.

2. How to Register

- Choose "Organization Applicant" for the type of registration.
- Complete the DUNS OR DUNS+4 Number field.

- If your organization does not already have a DUNS Number, you can request one online by using the form at the Dun & Bradstreet website <http://fedgov.dnb.com/webform> or by phone (866-705-5711).
- To submit your application successfully, the DUNS number in your application must be the one that was used when you registered as an Authorized Organization Representative (AOR) on Grants.gov. This DUNS number is typically the same number used when your organization registered with the SAM. **If you don't enter the same DUNS number as the DUNS you registered with, Grants.gov will reject your application.**
- Register with the System for Award Management (SAM) <http://www.sam.gov>.
 - You can learn more about the SAM and the registration process for grant applicants in the SAM user guide: [https://www.sam.gov/sam/transcript/Quick Guide for Grants Registrations v1.7.pdf](https://www.sam.gov/sam/transcript/Quick%20Guide%20for%20Grants%20Registrations%20v1.7.pdf)
 - For further assistance, please consult the tip sheet that the U.S. Department of Education has prepared for help with the SAM system <http://www2.ed.gov/fund/grant/apply/sam-faqs.html>.
 - Registration with the SAM may take a week to complete, but could take as many as several weeks to complete, depending on the completeness and accuracy of the data entered into the SAM database by an applicant. **The SAM registration must be updated annually.**
 - Once your SAM registration is active, it will take 24 to 48 hours for the information to be available in Grants.gov. You will only be able to submit your application via Grants.gov once the SAM information is available in Grants.gov.
- Create your Username & Password
 - Complete your AOR profile on Grants.gov and create your username and password. You will need to use your organization's DUNS Number to complete this step. <https://apply07.grants.gov/apply/OrcRegister>.
- AOR Authorization
 - The E-Business Point of Contact (E-Biz POC) at your organization must login to Grants.gov to confirm you as an AOR. Please note that there can be more than one AOR for your organization. In some cases the E-Biz POC is also the AOR for an organization.

C. SUBMISSION AND SUBMISSION VERIFICATION

1. Submit Early

The Institute strongly recommends that you not wait until the deadline date to submit an application. Grants.gov will put a date/time stamp on the application and then process it after it is fully uploaded.

The time it takes to upload an application will vary depending on a number of factors including the size of the application and the speed of your internet connection. If Grants.gov rejects your application due to errors in the application package, you will need to resubmit successfully before 4:30:00 p.m. Washington, DC time on the deadline date as determined by Grants.gov. As an example, if you begin the submission process at 4:00:00 p.m. Washington, DC time on the deadline date, and Grants.gov rejects the application at 4:15:00 p.m. Washington, DC time, there may not be enough

time for you to locate the error that caused the submission to be rejected, correct it, and then attempt to submit the application again before the 4:30:00 p.m. Washington, DC time deadline. **You are strongly encouraged to begin the submission process at least 3 to 4 days before the deadline date to ensure a successful, on-time submission.**

2. Verify Submission is OK

The Institute urges you to verify that Grants.gov and the Institute have received the application on time and that it was validated successfully. To see the date and time that your application was received by Grants.gov, you need to log on to Grants.gov and click on the "Track My Application" link <http://www.grants.gov/web/grants/applicants/track-my-application.html>. For a successful submission, the date/time received should be no later than 4:30:00 p.m. Washington DC time on the deadline date, AND the application status should be: (1) Validated (i.e., no errors in submission), (2) Received by Agency (i.e., Grants.gov has transmitted the submission to the U.S. Department of Education), or (3) Agency Tracking Number Assigned (the U.S. Department of Education has assigned a unique PR/Award Number to the application).

Note: If the date/time received is later than 4:30:00 p.m. Washington, DC time on the deadline date, the application is late. If the application has a status of "Received", it is still awaiting validation by Grants.gov. Once validation is complete, the status will change either to "Validated" or "Rejected with Errors." If the status is "Rejected with Errors," the application has not been received successfully. Grants.gov provides information on reasons why applications may be rejected in its Frequently Asked Questions (FAQ) page.

- Grants.gov FAQ
<http://www.grants.gov/web/grants/support/general-support/faqs.html>
- Grants.gov Adobe Reader FAQs
<http://www.grants.gov/web/grants/support/general-support/faqs/adobe-reader-faqs.html>

You will receive four emails regarding the status of your submission; the first three will come from Grants.gov and the fourth will come from the U.S. Department of Education. Within 2 days of submitting a grant application to Grants.gov, you will receive three emails from Grants.gov:

- The first email message will confirm receipt of the application by the Grants.gov system and will provide you with an application tracking number beginning with the word "GRANT", for example GRANT00234567. You can use this number to track your application on Grants.gov using the "Track My Application" link <http://www.grants.gov/web/grants/applicants/track-my-application.html> before it is transmitted to the U.S. Department of Education.
- The second email message will indicate that the application EITHER has been successfully validated by the Grants.gov system prior to transmission to the U.S. Department of Education OR has been rejected due to errors, in which case it will not be transmitted to the Department.
- The third email message will indicate that the U.S. Department of Education has confirmed retrieval of the application from Grants.gov once it has been validated.

If the second email message indicates that the application, as identified by its unique application tracking number, is valid and the time of receipt was no later than 4:30:00 p.m. Washington DC time, then the application submission is successful and on-time.

Note: You should not rely solely on e-mail to confirm whether an application has been received on-time and validated successfully. The Institute urges you to use the "Track My Application" link on Grants.gov

to verify on-time, valid submissions in addition to the confirmation emails
<http://www.grants.gov/web/grants/applicants/track-my-application.html>.

Once Grants.gov validates the application and transmits it to the U.S. Department of Education, you will receive an email from the U.S. Department of Education.

- This fourth email message will indicate that the application has been assigned a PR/Award number unique to the application beginning with the letter R, followed by the section of the CFDA number unique to that research competition (e.g., 305A), the fiscal year for the submission (e.g., 17 for fiscal year 2017), and finally four digits unique to the application, for example R305A17XXXX. If the application was received after the closing date/time, this email will also indicate that the application is late and will not be given further consideration.

Note: The Institute strongly recommends that you begin the submission process at least 3 to 4 days in advance of the closing date to allow for a successful and timely submission.

3. Late Applications

If your application is submitted after 4:30:00 p.m. Washington, DC time on the application deadline date your application will not be accepted and will not be reviewed. **The Institute does not accept late applications.**

Late applications are often the result of one or more common submission problems that could not be resolved because there was not enough time to do so before the application deadline. Grants.gov has several resources that can help you resolve problems such as these.

- <http://www.grants.gov/web/grants/applicants/applicant-faqs.html>
- <http://www.grants.gov/web/grants/applicants/encountering-error-messages.html>

If after consulting these resources you still experience problems submitting an application through Grants.gov, contact the Grants.gov Support Desk (support@grants.gov, <http://www.grants.gov/web/grants/about/contact-us.html>, 1-800-518-4726) to obtain a Case Number (e.g., 1-12345678) that you should keep as a record of the problem(s) you experienced. If the Grants.gov Support Desk determines that a technical problem occurred with the Grants.gov system, and determines that the problem affected your ability to submit the application by the submission deadline, you may petition the Institute to review your application (email the relevant program officer with the Grants.gov case number and related information). However, if Grants.gov determines that the problem you experienced is one of those identified by Grants.gov as common application errors, do not petition the Institute to have your case reviewed because these common submission problems are not grounds for petition. **The Institute will not accept an application that was late due to failure to follow the submission guidelines provided by Grants.gov and summarized in this RFA.**

D. TIPS FOR WORKING WITH GRANTS.GOV

The Institute strongly encourages you to use the "Check Application for Errors" button at the top of the grant application package to identify errors or missing required information that can prevent an application from being processed and sent forward for review.

Note: You must click the "Save and Submit" button at the top of the application package to upload the application to the Grants.gov website. The "Save and Submit" button will become active only after you have used the "Check Package for Errors" button and then clicked the "Save" button. Once the "Save and Submit" button is clicked, you will need to enter the user name and password that were created upon registration with Grants.gov.

1. Working Offline

When you download the application package from Grants.gov, you will be working offline and saving data on your computer. You will need to logon to Grants.gov to upload the completed application package and submit the application.

2. Connecting to the Internet

- Using a dial-up connection to upload and submit an application can take significantly longer than using a high-speed connection to the internet (e.g., cable modem/DSL/T1). Although times will vary depending upon the size of the application, it can take a few minutes to a few hours to complete the grant submission using a dial-up connection.
- Browser Support: Grants.gov is a Custom Java Application that uses standard web-browsers as the client. Grants.gov leverages the latest web technologies such as Ajax which relies extensively on JavaScript, HTML, and CSS. Grants.gov recommends you use the most up-to-date web browser to ensure an on-time submission.

3. Software Requirements

You will need Adobe software to read and complete the application forms for submission through Grants.gov. Grants.gov supports Adobe Reader version 9 through 11
<http://www.grants.gov/web/grants/applicants/adobe-software-compatibility.html>.

4. Attaching Files

The forms included in the application package provide the means for you to attach Adobe Portable Document Format (PDF) files. **You must attach read-only, non-modifiable PDF files**; any other file attachment will cause your application to be rejected by Grants.gov.

If you include scanned documents as part of a PDF file (e.g., Letters of Agreement in Appendix D), scan them at the lowest resolution to minimize the size of the file and expedite the upload process. PDF files that contain graphics and/or scanned material can greatly increase the size of the file attachments and can result in difficulties opening the files. The average discretionary grant application package totals 1 to 2 MB; therefore, **check the total size of your application package before you attempt to submit it**. Very large application packages can take a long time to upload, putting the application at risk of being received late and therefore not accepted by the Institute.

PDF files included in the application **must** be:

- **In a read-only, non-modifiable format.**
- **Individual files** (attachments that contain files within a file, such as PDF Portfolio files, or an interactive or fillable PDF file will not be read).
- **Not password protected.**
- **Given a file name that is:**
 - **Unique** - Grants.gov cannot process an application that includes two or more file attachments that have the same name.
 - **No more than 50 characters.**
 - **Contains no special characters (e.g., &, -, *, %, /, #), blank spaces, periods, or accent marks in the file name** (you may use an underscore to indicate word separation in file names such as "my_Attached_File.pdf").

Please note that if these guidelines are not followed, your application will be rejected by Grants.gov and not forwarded to the U.S. Department of Education.

E. REQUIRED RESEARCH & RELATED (R&R) FORMS AND OTHER FORMS

You must complete and submit the R&R forms described below. All of these forms are provided in the application package for this competition (84-305A2017). Please note that fields marked by an asterisk, highlighted in yellow and outlined in red on these forms are required fields and must be completed to ensure a successful submission.

Note: Although not required fields, Items 4a (Federal Identifier) and b (Agency Routing Number) on the Application for Federal Assistance SF 424 (R&R) form provide critical information to the Institute and should be filled out for an application to this research grant competition.

1. Application for Federal Assistance SF 424 (R&R)

This form asks for general information about the applicant, including but not limited to the following: contact information; an Employer Identification Number (EIN); a DUNS number; a descriptive title for the project; an indication of the project topic and the appropriate goal; Principal Investigator contact information; start and end dates for the project; congressional district; total estimated project funding; and Authorized Representative contact information.

Because information on this form populates selected fields on some of the other forms described below, you should complete this form first. This form allows you to attach a cover letter; however, the Institute does not require a cover letter so you should not attach one here.

Provide the requested information using the drop down menus when available. Guidance for completing selected items follows.

- Item 1

Type of Submission. Select either "Application" or "Changed/Corrected Application." "Changed/Corrected Application" should only be selected in the event that you need to submit an updated version of an already submitted application (e.g., you realized you left something out of the first application submitted). The Institute does not require pre-applications for its grant competitions.

- Item 2

Date Submitted. Enter the date the application is submitted to the Institute.

Applicant Identifier. Leave this blank.

- Item 3

Date Received by State and State Application Identifier. Leave these items blank.

- Item 4

Note: This item provides important information that is used by the Institute to screen applications for responsiveness to the competition requirements and for assignment to the appropriate scientific peer review panel. **It is critical that you complete this information completely and accurately or the application may be rejected as nonresponsive or assigned inaccurately for scientific review of merit.**

- Item 4a: Federal Identifier. **Enter information in this field if this is a Resubmission.** If this application is a revision of an application that was submitted to an Institute grant competition in a prior fiscal year (e.g., FY 2016) that received reviewer feedback, then this

application is considered a "Resubmission" (see Item 8 Type of Application). You should **enter the PR/Award number that was assigned to the prior submission (e.g., R305A16XXXX) in this field.**

- **Item 4b: Agency Routing Number. Enter the code for the topic and goal that the application addresses in this field.** Applications to the Education Research (CFDA 84.305A) program must be submitted to a particular topic and goal (see [Part II Topic Requirements](#) and [Part III Goal Requirements](#) for additional information).

Topics	Codes
Cognition and Student Learning	NCER-CASL
Early Learning Programs and Policies	NCER-ELPP
Education Leadership	NCER-Lead
Education Technology	NCER-EdTech
Effective Teachers and Effective Teaching	NCER-Teach
English Learners	NCER-EL
Improving Education Systems	NCER-SYS
Mathematics and Science Education	NCER-MS
Postsecondary and Adult Education	NCER-PostsecAdult
Reading and Writing	NCER-RW
Social and Behavioral Context for Academic Learning	NCER-SocBeh
Arts in Education	NCER-Arts
Career and Technical Education	NCER-CTE
Systemic Approaches to Educating Highly Mobile Students	NCER-HighlyMobile
Goals	Codes
Goal 1: Exploration Projects	Exploration
Goal 2: Development and Innovation	Development
Goal 3: Efficacy and Replication Projects	Efficacy
Goal 4: Effectiveness Projects	Effectiveness
Goal 5: Measurement Projects	Measurement

Example: If your application is an Exploration project under the Effective Teachers and Effective Teaching topic, enter the codes "NCER-Teach" and "Exploration."

It is critical that you use the appropriate code in this field and that the code shown in this field agrees with the information included in the application abstract. Indicating the correct code facilitates the appropriate processing and review of the application. Failure to do so may result in delays to processing and puts your application at risk for being identified as nonresponsive and not considered for further review.

- **Item 4c: Previous Grants.gov Tracking ID.** If you are submitting a "Changed/Corrected" application (see Item 1) to correct an error, enter the Grants.gov Tracking Number associated with the application that was already submitted through Grants.gov. Contact the Program Officer listed on the application package and provide the Grants.gov tracking numbers associated with both applications (the one with the error and the one that has been corrected) to ensure that the corrected application is reviewed.
- **Item 5**

Applicant Information. Enter all of the information requested, including the legal name of the applicant, the name of the primary organizational unit (e.g., school, department, division, etc.)

that will undertake the activity, and the address, including the county and the 9-digit ZIP/Postal Code of the primary performance site (i.e., the Applicant institution) location. This field is required if the Project Performance Site is located in the United States. The field for "Country" is pre-populated with "USA: UNITED STATES." For applicants located in another country, contact the Program Officer (see Part II Topic Requirements or the [list](#) of Program Officers in Part VI.H) before submitting the application. Use the drop down menus where they are provided.

Organizational DUNS. Enter the DUNS or DUNS+4 number of the applicant organization. A **Data Universal Numbering System (DUNS)** number is a unique 9-character identification number provided by the commercial company Dun & Bradstreet (D&B) to identify organizations. If your institution does not have a DUNS number and therefore needs to register for one, a DUNS number can be obtained through the Dun & Bradstreet website:

<http://fedgov.dnb.com/webform/displayHomePage.do>.

Note: The DUNS number provided on this form must be the same DUNS number used to register on Grants.gov (and the same as the DUNS number used when registering with the SAM). **If the DUNS number used in the application is not the same as the DUNS number used to register with Grants.gov, the application will be rejected with errors by Grants.gov.**

Person to Be Contacted on Matters Involving this Application. Enter all of the information requested, including the name, telephone and fax numbers, and email address of the person to be contacted on matters involving this application. The role of this person is primarily for communication purposes on the budgetary aspects of the project. As an example, this may be the contact person from the applicant institution's office of sponsored projects. Use the drop down menus where they are provided.

- Item 6

Employer Identification (EIN) or (TIN). Enter either the Employer Identification Number (EIN) or Tax Identification Number (TIN) as assigned by the Internal Revenue Service. If the applicant organization is not located in the United States, enter 44-4444444.

- Item 7

Type of Applicant. Use the drop down menu to select the type of applicant. If Other, please specify.

Small Business Organization Type. If "Small Business" is selected as Type of Applicant, indicate whether or not the applicant is a "Women Owned" small business – a small business that is at least 51% owned by a woman or women, who also control and operate it. Also indicate whether or not the applicant is a "Socially and Economically Disadvantaged" small business, as determined by the U.S. Small Business Administration pursuant to section 8(a) of the Small Business Act U.S.C. 637(a).

- Item 8

Type of Application. Indicate whether the application is a "New" application or a "Resubmission" of an application that was submitted under a previous Institute competition and received reviewer comments. Only the "New" and "Resubmission" options apply to Institute competitions. Do not select any option other than "New" or "Resubmission."

Submission to Other Agencies. Indicate whether or not this application is being submitted to another agency or agencies. If yes, indicate the name of the agency or agencies.

- Item 9

Name of Federal Agency. Do not complete this item. The name of the federal agency to which the application is being submitted will already be entered on the form.

- Item 10

Catalog of Federal Domestic Assistance Number. Do not complete this item. The CFDA number of the program competition to which the application is being submitted will already be entered on the form. The CFDA number can be found in the Federal Register Notice and on the face page of the Request for Applications.

- Item 11

Descriptive Title of Applicant's Project. **Enter a distinctive, descriptive title for the project.** The maximum number of characters allowed in this item field is 200.

- Item 12

Proposed Project Start Date and Ending Date. Enter the proposed start date of the project and the proposed end date of the project. The start date must not be earlier than July 1, 2017, which is the Earliest Anticipated Start Date listed in this Request for Applications, and must not be later than September 1, 2017. The end date is restricted based on the duration maximums for the research goal selected (see Part III Research Goals).

- Item 13

Congressional District of Applicant. For both the applicant and the project, enter the Congressional District in this format: 2-character State Abbreviation and 3-character District Number (e.g., CA-005 for California's 5th district, CA-012 for California's 12th district). Grants.gov provides help for finding this information <http://www.grants.gov/web/grants/applicants/applicant-faqs/applying-for-grants.html> under "How can I find my congressional district code?" If the program/project is outside the U.S., enter 00-000.

- Item 14

Project Director/Principal Investigator Contact Information. Enter all of the information requested for the Project Director/Principal Investigator, including position/title, name, address (including county), organizational affiliation (e.g., organization, department, division, etc.), telephone and fax numbers, and email address. Use the drop down menus where they are provided.

- Item 15

Estimated Project Funding

- Total Federal Funds Requested. Enter the total Federal funds requested for the entire project period. The total federal funds requested must not exceed the cost maximums for the research goal selected (see Part III Research Goals).
- Total Non-Federal Funds. Enter the total Non-Federal funds requested for the entire project period.

- Total Federal & Non-Federal Funds. Enter the total estimated funds for the entire project period, including both Federal and non-Federal funds.
- Estimated Program Income. Identify any program income estimated for the project period, if applicable.

- Item 16

Is Application Subject to Review by State Executive Order 12372 Process? The Institute is not soliciting applications that are subject to review by Executive Order 12372; therefore, check the box "Program is not covered by E.O. 12372" to indicate "No" for this item.

- Item 17

This is the Authorized Organization Representative's electronic signature.

By providing the electronic signature, the Authorized Organization Representative certifies the following:

- To the statements contained in the list of certifications
- That the statements are true, complete and accurate to the best of his/her knowledge.

By providing the electronic signature, the Authorized Organization Representative also provides the required assurances, agrees to comply with any resulting terms if an award is accepted, and acknowledges that any false, fictitious, or fraudulent statements or claims may subject him/her to criminal, civil, or administrative penalties.

Note: The certifications and assurances referred to here are described in [Part VI.E.7 Other Forms Included in the Application Package](#)).

- Item 18

SF LLL or other Explanatory Documentation. Do not add the SF LLL here. A copy of the SF LLL is provided as an optional document within the application package. See [Part VI.E.7 Other Forms Included in the Application Package](#) to determine applicability. If it is applicable to the grant submission, choose the SF LLL from the optional document menu, complete it, and save the completed SF LLL form as part of the application package.

- Item 19

Authorized Representative. The Authorized Representative is the official who has the authority both to legally commit the applicant to (1) accept federal funding and (2) execute the proposed project. Enter all information requested for the Authorized Representative including name, title, organizational affiliation (e.g., organization, department, division, etc.), address, telephone and fax numbers, and email address of the Authorized Representative. Use the drop down menus where they are provided.

Signature of Authorized Representative. Leave this item blank as it is automatically completed when the application is submitted through Grants.gov.

Date Signed. Leave this item blank as the date is automatically generated when the application is submitted through Grants.gov.

- Item 20

Pre-application. Do not complete this item as the Institute does not require pre-applications for its grant competitions.

- Item 21

Cover Letter. Do not complete this item as the Institute does not require cover letters for its grant competitions.

2. Research & Related Senior/Key Person Profile (Expanded)

This form asks you to: (1) identify the Project Director/Principal Investigator and other senior and/or key persons involved in the project; (2) specify the role key staff will serve; and (3) provide contact information for each senior/key person identified. The form also requests information about the highest academic or professional degree or other credentials earned and the degree year. This form includes a "Credential/Agency Log In" box that is optional.

This form also provides the means for attaching the Biographical Sketches of senior/key personnel as PDF files. This form will allow for the attachment of a total of 40 biographical sketches: one for the project director/principal investigator and up to 39 additional sketches for senior/key staff. See [Part IV.D.10 Biographical Sketches of Senior/Key Personnel](#) for information about page limitations, format requirements, and content to be included in the biographical sketches. The persons listed on this form should be the same persons listed in the Personnel section of the Project Narrative. If consultants are listed there, you may include a biographical sketch for each one listed. As a reminder, the Institute strongly encourages the use [SciENCv](#) to create IES Biosketches for grant applications to the Institute.

3. Project/Performance Site Location(s)

This form asks you to identify the primary site where project work will be performed. You must complete the information for the primary site. If a portion of the project will be performed at any other site(s), the form also asks you to identify and provide information about the additional site(s). As an example, a research proposal to an Institute competition may include the applicant institution as the primary site and one or more schools where data collection will take place as additional sites. The form permits the identification of eight project/performance site locations in total. This form requires the applicant to identify the Congressional District for each site. See above, [Application for Federal Assistance SF 424 \(R&R\)](#), Item 13 for information about Congressional Districts. DUNS number information is optional on this form.

4. Research & Related Other Project Information

This form asks you to provide information about any research that will be conducted involving Human Subjects, including: (1) whether human subjects are involved; (2) if human subjects are involved, whether or not the project is exempt from the human subjects regulations; (3) if the project is exempt from the regulations, an indication of the exemption number(s); and, (4) if the project is not exempt from the regulations, whether an Institutional Review Board (IRB) review is pending; and if IRB approval has been given, the date on which the project was approved; and, the Human Subject Assurance number. This form also asks you: (1) whether there is proprietary information included in the application; (2) whether the project has an actual or potential impact on the environment; (3) whether the research site is designated or eligible to be designated as an historic place; and, (4) if the project involves activities outside the U.S., to identify the countries involved.

This form also provides the means for attaching a number of PDF files (see [Part V.D PDF Attachments](#) for information about page limitations, format requirements, and content) including the following:

- Project Summary/Abstract,
 - Project Narrative and Appendices,
 - Bibliography and References Cited, and
 - Research on Human Subjects Narrative.
- Item 1

Are Human Subjects Involved? If activities involving human subjects are planned at any time during the proposed project at any performance site or collaborating institution, you must check "Yes." (You must check "Yes" even if the proposed project is exempt from Regulations for the Protection of Human Subjects.) If there are no activities involving human subjects planned at any time during the proposed project at any performance site or collaborating institution, you may check "No" and skip to Item 2.

Is the Project Exempt from Federal Regulations? If all human subject activities are exempt from Human Subjects regulations, then you may check "Yes." You are required to answer this question if you answered "yes" to the first question "Are Human Subjects Involved?"

If you answer "yes" to the question "Is the Project Exempt from Federal Regulations?" you are required to check the appropriate exemption number box or boxes corresponding to one or more of the exemption categories. The six categories of research that qualify for exemption from coverage by the regulations are described on the U.S. Department of Education's website <http://www2.ed.gov/policy/fund/guid/humansub/overview.html>. Provide an Exempt Research on Human Subjects Narrative at Item 12 of this form (see [Part V.D.9 Research on Human Subjects Narrative](#)).

If you answer "no" to the question "Is the Project Exempt from Federal Regulations?" you will be prompted to answer questions about the Institutional Review Board (IRB) review.

If no, is the IRB review pending? Answer either "Yes" or "No."

If you answer "yes" because the review is pending, then leave the IRB approval date blank. If you answer "no" because the review is not pending, then you are required to enter the latest IRB approval date, if available. Therefore, you should select "No" only if a date is available for IRB approval.

Note: IRB Approval may not be pending because you have not begun the IRB process. In this case, an IRB Approval Date will not be available. However, a date must be entered in this field if "No" is selected or the application will be rejected with errors by Grants.gov. Therefore, you should check "Yes" to the question "Is the IRB review pending?" if an IRB Approval date is not available.

If you answer "no" to the question "Is the Project Exempt from Federal Regulations?" provide a Non-exempt Research on Human Subjects Narrative at Item 12 of this form (see [Part V.D.9 Research on Human Subjects Narrative](#)).

Human Subject Assurance Number: Leave this item blank.

- Item 2

Are Vertebrate Animals used? Check whether or not vertebrate animals will be used in this project.

- Item 3

Is proprietary/privileged information included in the application? Patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in applications only when such information is necessary to convey an understanding of the proposed project. If the application includes such information, check "Yes" and clearly mark each line or paragraph on the pages containing the proprietary/privileged information with a legend similar to: "The following contains proprietary/privileged information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

- Item 4

Does this project have an actual or potential impact on the environment? Check whether or not this project will have an actual or potential impact on the environment.

- Item 5

Is the research site designated or eligible to be designated as a historic place? Check whether or not the research site is designated or eligible to be designated as a historic place. Explain if necessary.

- Item 6

Does the project involve activities outside of the United States or partnerships with international collaborators? Check "Yes" or "No." If the answer is "Yes," then you need to identify the countries with which international cooperative activities are involved. An explanation of these international activities or partnerships is optional.

- Item 7.

Project Summary/Abstract. Attach the Project Summary/Abstract as a PDF file here. See [Part V.D PDF Attachments](#) for information about content, formatting, and page limitations for this PDF file.

- Item 8.

Project Narrative. Create a single PDF file that contains the Project Narrative as well as, when applicable, Appendix A (required for resubmissions), Appendix B (optional), Appendix C (optional), Appendix D (optional), and Appendix E (required for projects under the Efficacy/Replication and the Effectiveness goals). Attach that single PDF file here. See [Part V.D PDF Attachments](#) for information about content, formatting, and page limitations for this PDF file.

- Item 9.

Bibliography and References Cited. Attach the Bibliography and References Cited as a PDF file here. See [Part V.D PDF Attachments](#) for information about content, formatting, and page limitations for this PDF file.

- Item 10.

Facilities and Other Resources. The Institute does not want an attachment here. Explanatory information about facilities and other resources must be included in the Resources Section of the 25-page Project Narrative for the application and may also be included in the Narrative Budget Justification. In the project narrative of competitive proposals, applicants describe having access to institutional resources that adequately support research activities and access to schools in which to conduct the research. Strong applications document the availability and cooperation of the schools or other education delivery settings that will be required to carry out the research proposed in the application via a letter of agreement from the education organization. Include Letters of Agreement in Appendix D.

- Item 11.

Equipment. The Institute does not want an attachment here. Explanatory information about equipment may be included in the Narrative Budget Justification.

- Item 12.

Other Attachments. Attach a Research on Human Subjects Narrative as a PDF file here. You must attach either an Exempt Research on Human Subjects Narrative or a Non-Exempt Research on Human Subjects Narrative. See [Part V.D PDF Attachments](#) for information about content, formatting, and page limitations for this PDF file.

If you checked "Yes" to Item 1 of this form "Are Human Subjects Involved?" and designated an exemption number(s), then you must provide an "Exempt Research" narrative. If some or all of the planned research activities are covered by (not exempt from) the Human Subjects Regulations, then you must provide a "Nonexempt Research" narrative.

5. Research & Related Budget (Total Federal+Non-Federal)-Sections A & B; C, D, & E; F-K

This form asks you to provide detailed budget information for each year of support requested for the applicant institution (i.e., the Project Budget). The form also asks you to indicate any non-federal funds supporting the project. You should provide this budget information for each project year using all sections of the R&R Budget form. Note that the budget form has multiple sections for each budget year: A & B; C, D, & E; and F - K.

- Sections A & B ask for information about Senior/Key Persons and Other Personnel
- Sections C, D & E ask for information about Equipment, Travel, and Participant/Trainee Costs
- Sections F - K ask for information about Other Direct Costs and Indirect Costs

You must complete each of these sections for as many budget periods (i.e., project years) as you are requesting funds.

Note: The narrative budget justification for each of the project budget years must be attached at Section K of the first budget period; otherwise you will not be able to enter budget information for subsequent project years.

Note: Budget information for a subaward(s) on the project must be entered using a separate form, the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form, described in [Part VI.E.6](#) This is the only form that can be used to extract the proper file format to complete subaward budget information. **The application will be rejected with errors by Grants.gov if subaward budget information is included using any other form or file format.**

Enter the Federal Funds requested for all budget line items as instructed below. If any non-Federal funds will be contributed to the project, enter the amount of those funds for the relevant budget categories in the spaces provided. Review the cost maximums for the research goal selected (see Part III Research Goals) to ensure the application will be deemed responsive and sent forward for peer review.

All fields asking for total funds in this form will auto-calculate.

- Organizational DUNS.

If you completed the SF 424 R&R Application for Federal Assistance form first, the DUNS number will be pre-populated here. Otherwise, the organizational DUNS number must be entered here. See [Part VI.E.1](#) for information on the DUNS number.

- Budget Type.

Check the box labeled "Project" to indicate that this is the budget requested for the primary applicant organization. If the project involves a subaward(s), you must access the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form to complete a subaward budget (see [Part VI.E.6](#) for instructions regarding budgets for a subaward).

- Budget Period Information.

Enter the start date and the end date for each budget period. **Enter no more than the number of budget periods allowed for the project as determined by the Award Duration Maximums for the relevant research goal selected for your project** (see [Part III Goal Requirements](#)). Note: If you activate an extra budget period and leave it blank this may cause your application to be rejected with errors by Grants.gov.

- Budget Sections A & B

A. Senior/Key Person. The project director/principal investigator information will be pre-populated here from the SF 424 R&R Application for Federal Assistance form if it was completed first. Then, enter all of the information requested for each of the remaining senior/key personnel, including the project role of each and the number of months each will devote to the project, i.e., calendar or academic + summer. You may enter the annual compensation (base salary – dollars) paid by the employer for each senior/key person; however, you may choose to leave this field blank. Regardless of the number of months devoted to the project, indicate only the amount of salary being requested for each budget period for each senior/key person. Enter applicable fringe benefits, if any, for each senior/key person. Enter the Federal dollars and, if applicable, the non-Federal dollars.

B. Other Personnel. Enter all of the information requested for each project role listed – for example postdoctoral associates, graduate students, undergraduate students, secretary/clerk, etc. – including, for each project role, the number of personnel proposed and the number of months devoted to the project (calendar or academic + summer). Regardless of the number of months devoted to the project, indicate only the amount of salary/wages being requested for

each project role. Enter applicable fringe benefits, if any, for each project role category. Enter the Federal dollars and, if applicable, the non-Federal dollars.

Total Salary, Wages, and Fringe Benefits (A + B). This total will auto calculate.

- Budget Sections C, D & E

C. Equipment Description. Enter all of the information requested for equipment. Equipment is defined as an item of property that has an acquisition cost of \$5,000 or more (unless the applicant organization has established lower levels) and an expected service life of more than 1 year. List each item of equipment separately and justify each in the narrative budget justification. Allowable items ordinarily will be limited to research equipment and apparatus not already available for the conduct of the work. General-purpose equipment, such as a personal computer, is not eligible for support unless primarily or exclusively used in the actual conduct of scientific research. Enter the Federal dollars and, if applicable, the non-Federal dollars.

Total C. Equipment. This total will auto calculate.

D. Travel. Enter all of the information requested for Travel.

Enter the total funds requested for domestic travel. In the narrative budget justification, include the purpose, destination, dates of travel (if known), applicable per diem rates, and number of individuals for each trip. If the dates of travel are not known, specify the estimated length of the trip (e.g., 3 days). Enter the Federal dollars and, if applicable, the non-Federal dollars.

Enter the total funds requested for foreign travel. In the narrative budget justification, include the purpose, destination, dates of travel (if known), applicable per diem rates, and number of individuals for each trip. If the dates of travel are not known, specify the estimated length of the trip (e.g., 3 days). Enter the Federal dollars and, if applicable, the non-Federal dollars.

Total D. Travel Costs. This total will auto calculate.

E. Participant/Trainee Support Costs. Do not enter information here; this category is not used for project budgets for this competition.

Number of Participants/Trainees. Do not enter information here; this category is not used for project budgets for this competition.

Total E. Participants/Trainee Support Costs. Do not enter information here; this category is not used for project budgets for this competition.

- Budget Sections F-K

F. Other Direct Costs. Enter all of the information requested under the various cost categories. Enter the Federal dollars and, if applicable, the non-Federal dollars.

Materials and Supplies. Enter the total funds requested for materials and supplies. In the narrative budget justification, indicate the general categories of supplies, including an amount for each category. Categories less than \$1,000 are not required to be itemized.

Publication Costs. Enter the total publication funds requested. The proposed budget may request funds for the costs of documenting, preparing, publishing or otherwise making available to others

the findings and products of the work conducted under the award. In the narrative budget justification, include supporting information.

Consultant Services. Enter the total costs for all consultant services. In the narrative budget justification, identify each consultant, the services he/she will perform, total number of days, travel costs, and total estimated costs. Note: Travel costs for consultants can be included here or in Section D. Travel.

ADP/Computer Services. Enter the total funds requested for ADP/computer services. The cost of computer services, including computer-based retrieval of scientific, technical, and education information may be requested. In the narrative budget justification, include the established computer service rates at the proposing organization if applicable.

Subaward/Consortium/Contractual Costs. Enter the total funds requested for: (1) all subaward/consortium organization(s) proposed for the project and (2) any other contractual costs proposed for the project. Use the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form to provide detailed subaward information (see [Part VI.E.6](#)).

Equipment or Facility Rental/User Fees. Enter the total funds requested for equipment or facility rental/user fees. In the narrative budget justification, identify each rental user fee and justify.

Alterations and Renovations. Leave this field blank. The Institute does not provide funds for construction costs.

Other. Describe any other direct costs in the space provided and enter the total funds requested for this "Other" category of direct costs. Use the narrative budget justification to further itemize and justify.

Total F. Other Direct Costs. This total will auto calculate.

- G. Direct Costs

Total Direct Costs (A thru F). This total will auto calculate.

- H. Indirect Costs

Enter all of the information requested for Indirect Costs. Principal investigators should note that if they are requesting reimbursement for indirect costs, this information is to be completed by their Business Office.

Indirect Cost Type. Indicate the type of base (e.g., Salary & Wages, Modified Total Direct Costs, Other [explain]). In addition, indicate if the Indirect Cost type is Off-site. If more than one rate/base is involved, use separate lines for each. When calculating your expenses for research conducted in field settings, you should apply your institution's negotiated off-campus indirect cost rate, as directed by the terms of your institution's negotiated agreement with the federal government.

Institutions, both primary grantees and subawardees, not located in the territorial US cannot charge indirect costs.

If you do not have a current indirect rate(s) approved by a Federal agency, indicate "None--will negotiate". **If your institution does not have a federally negotiated indirect cost rate,** you should consult a member of the Indirect Cost Group (ICG) in the U.S. Department of

Education's Office of the Chief Financial Officer

<http://www2.ed.gov/about/offices/list/ocfo/fipao/icgreps.html> to help you estimate the indirect cost rate to put in your application.

Indirect Cost Rate (%). Indicate the most recent Indirect Cost rate(s) (also known as Facilities & Administrative Costs [F&A]) established with the cognizant Federal office, or in the case of for-profit organizations, the rate(s) established with the appropriate agency.

If your institution has a cognizant/oversight agency and your application is selected for an award, you must submit the indirect cost rate proposal to that cognizant/oversight agency office for approval.

Indirect Cost Base (\$). Enter the amount of the base (dollars) for each indirect cost type. Depending on the grant program to which you are applying and/or the applicant institution's approved Indirect Cost Rate Agreement, some direct cost budget categories in the grant application budget may not be included in the base and multiplied by the indirect cost rate. Use the narrative budget justification to explain which costs are included and which costs are excluded from the base to which the indirect cost rate is applied. If your grant application is selected for an award, the Institute will request a copy of the applicant institution's approved Indirect Cost Rate Agreement.

Indirect Cost Funds Requested. Enter the funds requested (Federal dollars and, if applicable, the Non-Federal dollars) for each indirect cost type.

Total H. Indirect Costs. This total will auto calculate.

Cognizant Agency. Enter the name of the Federal agency responsible for approving the indirect cost rate(s) for the applicant. Enter the name and telephone number of the individual responsible for negotiating the indirect cost rate. If a Cognizant Agency is not known, enter "None."

- I. Total Direct and Indirect Costs

Total Direct and Indirect Costs (G + H). This total will auto calculate.

- J. Fee.

Do not enter a dollar amount here as you are not allowed to charge a fee on a grant or cooperative agreement.

- K. Budget Justification

Attach the Narrative Budget Justification as a PDF file at Section K of the first budget period (see [Part V.D.12](#) for information about content, formatting, and page limitations for this PDF file). Note that if the justification is not attached at Section K of the first budget period, you will not be able to access the form for the second budget period and all subsequent budget periods. The single narrative must provide a budget justification for each year of the entire project.

- Cumulative Budget. This section will auto calculate all cost categories for all budget periods included.

Final Note: The overall grant budget cannot exceed the maximum grant award for the Research Goal being applied under as listed in the table below. Applications requesting budgets greater than the maximum grant award will not be forwarded for review.

Research Goal	Maximum Grant Duration	Maximum Grant Award
Exploration	Secondary Data Analysis only: 2 years	\$600,000
	Primary Data Collection: 4 years	\$1,400,000
Development and Innovation	4 years	\$1,400,000
Efficacy and Replication	Efficacy: 5 years	\$3,300,000
	Replication: 5 years	\$3,300,000
	Follow-up: 3 years	\$1,100,000
	Retrospective: 3 years	\$700,000
Effectiveness	Effectiveness: 5 years	\$3,800,000
	Follow-up: 3 years	\$1,400,000
Measurement	4 years	\$1,400,000

6. R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form

This form provides the means to both extract and attach the Research & Related Budget (Total Fed + Non-Fed) form that is to be used by an institution that will hold a subaward on the grant. Please note that separate budgets are required only for subawardee/consortium organizations that perform a substantive portion of the project. As with the Primary Budget, the extracted Research & Related Budget (Total Fed + Non-Fed) form asks you to provide detailed budget information for each year of support requested for a subaward/consortium member with substantive involvement in the project. The budget form also asks for information regarding non-federal funds supporting the project at the subaward/consortium member level. You should provide this budget information for each project year using all sections of the R&R Budget form. Note that the budget form has multiple sections for each budget year: A & B; C, D, & E; and F-K.

- Sections A & B ask for information about Senior/Key Persons and Other Personnel.
- Sections C, D & E ask for information about Equipment, Travel, and Participant/Trainee Costs.
- Sections F - K ask for information about Other Direct Costs and Indirect Costs.

"Subaward/Consortium" must be selected as the Budget Type, and all sections of the budget form for each project year must be completed in accordance with the R&R (Federal/Non-Federal) Budget instructions provided above in [Part VI.E.5](#). Note that subaward organizations are also required to provide their DUNS or DUNS+4 number.

You may extract and attach up to 10 subaward budget forms. When you use the button "Click here to extract the R&R Budget (Fed/Non-Fed) Attachment," a Research & Related Budget (Total Fed + Non-Fed) form will open. Each institution that will hold a subaward to perform a substantive portion of the For awards beginning in FY 2017
Posted March 28, 2016

project must complete one of these forms and save it as a PDF file with the name of the subawardee organization. Once each subawardee institution has completed the form, you must attach these completed subaward budget form files to the R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form. Each subaward budget form file attached to this form must have a unique name.

Note: This R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form must be used to attach only one or more Research & Related Budget (Total Fed + Non-Fed) form(s) that have been extracted from this form. Note the form's instruction: "Click here to extract the R&R Budget (Fed/Non-Fed) Attachment". **If you attach a file format to this form that was not extracted from this attachment form your application will be rejected with errors by Grants.gov.**

7. Other Forms Included in the Application Package

You are required to submit the first two forms identified here. You are not required to submit the third form, Disclosure of Lobbying Activities – Standard Form LLL, unless it is applicable.

- SF 424B-Assurances-Non-Construction Programs.
- Grants.gov Lobbying form (formerly, ED 80-0013 form).
- Disclosure of Lobbying Activities – Standard Form LLL (if applicable).

F. SUMMARY OF REQUIRED APPLICATION CONTENT

R&R Form	Required	Instructions Provided	Additional Information
Application for Federal Assistance SF 424 (R & R)	<input checked="" type="checkbox"/>	Part VI.E.1	Form provided in Grants.gov application package
Senior/Key Person Profile (Expanded)	<input checked="" type="checkbox"/>	Part VI.E.2	Form provided in Grants.gov application package
Project/Performance Site Location(s)	<input checked="" type="checkbox"/>	Part VI.E.3	Form provided in Grants.gov application package
Other Project Information	<input checked="" type="checkbox"/>	Part VI.E.4	Form provided in Grants.gov application package
Budget (Total Federal + Non-Federal): Sections A & B Sections C, D, & E Sections F - K	<input checked="" type="checkbox"/>	Part VI.E.5	Form provided in Grants.gov application package
R&R Subaward Budget (Fed/Non-Fed) Attachment(s) Form	--	Part VI.E.6	Form provided in Grants.gov application package. Use this form to <i>extract and attach</i> a subaward budget(s).
SF 424B Assurances – Non-Construction Programs	<input checked="" type="checkbox"/>	Part VI.E.7	Forms provided in Grants.gov application package
Grants.gov Lobbying form	<input checked="" type="checkbox"/>		
Disclosure of Lobby Activities – Standard Form LLL (if applicable)	--		
Project Summary/Abstract	<input checked="" type="checkbox"/>	Part V.D.1	Add as an attachment (PDF file) using Item 7 of the "Other Project Information" form

Project Narrative and Appendices <ul style="list-style-type: none"> • Narrative • Appendix A • Appendix B • Appendix C • Appendix D • Appendix E 	<input checked="" type="checkbox"/> -- -- -- -- --	Part V.D.2-7	The Project Narrative, and if applicable Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E must ALL be included together in one PDF file and attached at Item 8 of the "Other Project Information" form.
Bibliography and References Cited	<input checked="" type="checkbox"/>	Part V.D.8	Add as an attachment (PDF file) using Item 9 of the "Other Project Information" form.
Research on Human Subjects Narrative, if human subjects are involved	<input checked="" type="checkbox"/>	Part V.D.9	Add as an attachment (PDF file) using Item 12 of the "Other Project Information" form.
Biographical Sketches of Senior/Key Personnel (including Current and Pending Support)	<input checked="" type="checkbox"/>	Part V.D.10	Add each as a separate attachment (PDF file) using the "Senior/Key Person Profile (Expanded)" form.
Narrative Budget Justification	<input checked="" type="checkbox"/>	Part V.D.12	Add as an attachment (PDF file) using <i>Section K – Budget Period 1</i> of the "Budget (Total Federal + Non-Federal)" form.

G. APPLICATION CHECKLIST

Have each of the following forms been completed?	
	SF 424 Application for Federal Assistance
	For item 4a, is the PR/Award number entered if this is a Resubmission following the instructions in Part VI.E.1?
	For item 4b, are the correct topic and goal codes included following the instructions in Part VI.E.1?
	For item 8, is the Type of Application appropriately marked as either "New" or "Resubmission" following the instructions in Part VI.E.1?
	Senior/Key Person Profile (Expanded)
	Project/Performance Site Location(s)
	Other Project Information
	Budget (Total Federal + Non-Federal): Sections A & B; Sections C, D, & E; Sections F - K
	R&R Subaward Budget (Federal/Non-Federal) Attachment(s) form (if applicable)
	SF 424B Assurances – Non-Construction Programs
	Grants.gov Lobbying form (formerly ED 80-0013 form)
	Disclosure of Lobby Activities – Standard Form LLL (if applicable)
Have each of the following items been attached as PDF files in the correct place?	
	Project Summary/Abstract, using Item 7 of the "Other Project Information" form
	Project Narrative, and where applicable, Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E as a single file using Item 8 of the "Other Project Information" form
	Bibliography and References Cited, using Item 9 of the "Other Project Information" form
	Research on Human Subjects Narrative, either the Exempt Research Narrative or the Non-exempt Research Narrative, using Item 12 of the "Other Project Information" form
	Biographical Sketches of Senior/Key Personnel, using "Attach Biographical Sketch" of the "Senior/Key Person Profile (Expanded)" form
	Narrative Budget Justification, using Section K – Budget Period 1 of the "Budget (Total Federal + Non-Federal)" form
	Budget (Total Federal + Non-Federal): Sections A & B; Sections C, D, & E; Sections F – K for the Subaward(s), using the "R&R Subaward Budget (Federal/Non-Federal) Attachment(s)" form, as appropriate, that conforms to the Award Duration and Cost Maximums for the Research Goal

	selected.
Have the following actions been completed?	
	The correct PDF files are attached to the proper forms in the Grants.gov application package
	The "Check Package for Errors" button at the top of the grant application package has been used to identify errors or missing required information that prevents an application from being processed
	The "Track My Application" link has been used to verify that the upload was fully completed and that the application was processed and validated successfully by Grants.gov before 4:30:00 p.m., Washington, DC time on the deadline date

H. PROGRAM OFFICER CONTACT INFORMATION

Please contact the Institute's Program Officers with any questions you may have about the best topic and goal for your application. Program Officers function as knowledgeable colleagues who can provide substantive feedback on your research idea, including reading a draft of your project narrative. Program Officers can also help you with any questions you may have about the content and preparation of PDF file attachments. However, any questions you have about individual forms within the application package and electronic submission of your application through Grants.gov should be directed first to the Grants.gov Contact Center at support@grants.gov, <http://www.grants.gov/web/grants/about/contact-us.html>, or call 1-800-518-4726.

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GLOSSARY

Assessment: “Any systematic method of obtaining information, used to draw inferences about characteristics of people, objects, or programs; a systematic process to measure or evaluate the characteristics or performance of individuals, programs, or other entities, for purposes of drawing inferences; sometimes used synonymously with test” (AERA, 2014).

Assessment framework: Includes the definition of the construct(s); theoretical model on which the assessment is based; and the rationale for validity evidence to support its use for the intended purpose and population.

Authentic education setting: Proposed research must be relevant to education in the United States and must address factors under the control of the U.S. education system (be it at the national-, state-, local-, and/or school-level). To help ensure such relevance, the Institute requires researchers to work within or with data from [authentic education settings](#). The Institute permits a limited amount of laboratory research (see Part III Research Goals) if it is carried out in addition to work within or with data from authentic education settings, but will not fund any projects that are exclusively based in laboratories.

- **Authentic PreK Education Settings** are defined as center-based prekindergarten settings, which include the following:
 - Public prekindergarten programs.
 - Child care centers.
 - Head Start programs.
- **Authentic K-12 Education Settings** are defined as the following:
 - Schools and alternative school settings (e.g., alternative schools or juvenile justice settings).
 - School systems (e.g., local education agencies or state education agencies).
 - Settings that deliver supplemental education services (as defined in Section 1116(e) of the Elementary and Secondary Education Act of 1965, as amended by the No Child Left Behind Act of 2001) (<http://www2.ed.gov/policy/elsec/leg/esea02/index.html>).
 - Career and Technical Education Centers affiliated with schools or school systems.
- **Authentic Postsecondary Education Settings** are defined as the following:
 - 2-year and 4-year colleges and universities that have education programs leading to occupational certificates or associate’s or bachelor’s degrees.
 - Career and Technical Education Centers affiliated with postsecondary institutions.
- **Authentic Adult Education Settings** include those where eligible providers (e.g., state and local education agencies, community-based organizations, institutions of higher education, public or non-profit agencies, libraries) identified under Title II of the Workforce Innovation and Opportunity Act (WIOA: <https://www.gpo.gov/fdsys/pkg/PLAW-113publ128/pdf/PLAW-113publ128.pdf>) provide one or more of the following:
 - Adult English language programs.
 - Adult Basic Education (ABE).
 - Adult Secondary Education (ASE).
 - Programs that assist students who lack secondary education credentials (e.g., diploma or GED) or basic skills that lead to course credit or certificates.

Center-based prekindergarten settings: Center-based settings include public prekindergarten classrooms, child care centers, and Head Start programs.

Compliant: The part of the process of screening applications for acceptance for review that focuses on adherence to the application rules (e.g., page length and formatting requirements, completion of all parts of the application).

Concurrent validity: Evidence that indicates how accurately scores can predict criterion scores that are obtained at a similar time.

Convergent validity: "Evidence based on the relationship between test scores and other measures of the same or related construct" (AERA, 2014).

Construct: "The concept or the characteristic that an assessment is designed to measure" (AERA, 2014).

Construct coverage: The degree to which an assessment measures the full range of skills, abilities, and/or content needed to adequately represent the target construct.

Development process: The process used to develop and/or refine an intervention.

Differential item functioning (DIF): "For a particular item in a test, a statistical indicator of the extent to which different groups of test takers who are at the same ability level have different frequencies of correct responses or, in some cases, different rates of choosing various item options" (AERA, 2014).

Discriminant validity evidence: "Evidence indicating whether two tests interpreted as measures of different constructs are sufficiently independent (uncorrelated) and that they do, in fact, measure two distinct constructs" (AERA, 2014).

Effectiveness study: The independent evaluation of a fully developed education intervention with prior evidence of efficacy to determine whether it produces a beneficial impact on student education outcomes relative to a counterfactual when implemented under routine practice in authentic education settings.

Effectiveness follow-up study: Studies that follow students who took part in an Effectiveness study as they enter later grades (or different authentic education settings) in which they do not continue to receive the intervention in order to determine if the beneficial effects are maintained in succeeding time periods.

Efficacy study: A study that tests an intervention's beneficial impacts on student education outcomes in comparison to an alternative practice, program, or policy.

Efficacy follow-up study: An efficacy study that tests the longer-term impacts of an intervention that has been shown to have beneficial impacts on student education outcomes in a previous or ongoing efficacy study.

End user: The person intended to be responsible for the implementation of the intervention. Efficacy/Replication studies and Effectiveness studies should test an intervention implemented by the end user. For Effectiveness studies the end user can receive routine implementation support from the provider.

Feasibility: The extent to which the intervention can be implemented within the requirements and constraints of an authentic education setting.

Fidelity of implementation: The extent to which the intervention is being delivered as it was designed to be by end users in an authentic education setting.

Final manuscript: The author's final version of a manuscript accepted for publication that includes all modifications from the peer-review process.

Final research data: The recorded factual materials commonly accepted in the scientific community as necessary to document and support research findings. For most studies, an electronic file will constitute the final research data. This dataset will include both raw data and derived variables, which will be fully described in accompanying documentation. Researchers are expected to take appropriate precautions to protect the privacy of human subjects. Note that final research data does not mean summary statistics or tables but, rather, the factual information on which summary statistics and tables are based. Final research data do not include laboratory notebooks, preliminary analyses, drafts of scientific papers, plans for future research, peer-reviewed reports, or communications with colleagues.

Foster Care: 24-hour substitute care for children outside their own homes.

Foster Care Settings: Settings in which foster care is provided, including but not limited to nonrelative foster family homes, relative foster homes (whether payments are being made or not), group homes, emergency shelters, residential facilities, and pre-adoptive homes.

Gateway Courses: Introductory, credit-bearing courses that students must pass in order to complete their college's general education requirements or move on to higher-level coursework in their major.

Homeless Students: Children and youth in the K-12 education system who lack a fixed, regular, and adequate nighttime residence, include the following:

- Children and youth who are sharing the housing of other persons due to loss of housing, economic hardship, or a similar reason; are living in motels, hotels, trailer parks, or camping grounds due to the lack of alternative adequate accommodations; are living in emergency or transitional shelters; are abandoned in hospitals; or are awaiting foster care placement;
- Children and youth who have a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings;
- Children and youth who are living in cars, parks, public spaces, abandoned buildings, substandard housing, bus or train stations, or similar settings; and
- Migratory children.

Horizontal equating: Putting two or more assessments that are considered interchangeable on a common scale.

Ideal conditions: Conditions that provide a more controlled setting under which the intervention may be more likely to have beneficial impacts. For example, ideal conditions can include more implementation support than would be provided under routine practice in order to ensure adequate fidelity of implementation. Ideal conditions can also include a more homogeneous sample of students, teachers, schools, and/or districts than would be expected under routine practice in order to reduce other sources of variation that may contribute to outcomes.

Intervention: The wide range of education curricula; instructional approaches; professional development; technology; and practices, programs, and policies that are implemented at the student-, classroom-, school-, district-, state-, or federal-level to improve student education outcomes.

Laboratory research: An approach to research that allows for careful control of extraneous factors (e.g., by conducting research in a more controlled environment or with a more controlled situation than would be expected in authentic education settings). Laboratory research may be conducted in a laboratory or in an authentic education setting.

Malleable factors: Things that can be changed by the education system to improve student education outcomes.

Mediators: Factors through which the relationship between the intervention and student education outcomes occurs (e.g., many interventions aimed at changing individual student education outcomes work through changing teacher behavior, student peer behavior, and/or student behavior).

Migratory Students: K-12 students who are migratory agricultural workers or fishers or who move with a parent or guardian who is a migratory agricultural worker or fisher.

Military-Dependent Students: K-12 students who are dependents of members of the (1) Armed Forces; (2) civilian employees of the Department of Defense; or (3) personnel who are not members of the Armed Forces or civilian employees of the Department of Defense but who are employed on Federal property.

Moderators: Factors that affect the strength or the direction of the relationship between the intervention and student education outcomes (e.g., an intervention's impacts may differ by such student characteristics as achievement level, motivation, or social-economic status; and by organizational or contextual factors, such as school size or neighborhood characteristics).

Pilot study: A study designed to provide evidence of the promise of the fully developed intervention for achieving its intended outcomes when it is implemented in an authentic education setting. A pilot study differs from studies conducted during the development process. The latter are designed to inform the iterative development process (e.g., by identifying areas of further development, testing individual components of the intervention); therefore, they are expected to lead to further development and revision of the intervention. The pilot study is designed to help determine whether a finalized version of the intervention performs as expected. Depending on the results, pilot studies may lead to further development of the intervention, or they may lead to a rigorous evaluation of the intervention.

Predictive validity evidence: "Evidence indicating how accurately test data collected at one time can predict criterion scores that are obtained at a later time" (AERA, 2014).

Reliability: "The degree to which test scores for a group of test takers are consistent over repeated applications of a measurement procedure and hence are inferred to be dependable and consistent for an individual test taker; the degree to which scores are free of random error of measurement for a given group" (AERA, 2014).

Replication study: An efficacy study to generate additional evidence that an intervention improves student education outcomes by testing an intervention that has been shown to have beneficial impacts on student education outcomes in a previous efficacy study.

Responsive: The part of the process of screening applications for acceptance for review. This screening includes making sure applications (1) are submitted to the correct competition and/or goal and (2) meet the basic requirements set out in the Request for Applications.

Retrospective study: An efficacy study that analyzes retrospective (historical) secondary data to test an intervention implemented in the past, and, that as a result, may not be able to meet the requirements for Efficacy/Replication projects regarding fidelity of implementation of the intervention and comparison group practice.

Routine conditions: Conditions under which an intervention is implemented that reflect (1) the everyday practice occurring in classrooms, schools, and districts and (2) the heterogeneity of the target population.

Student education outcomes: The outcomes to be changed by the intervention. The intervention may be expected to directly affect these outcomes or indirectly affect them through intermediate student or instructional personnel outcomes. There are two types of student education outcomes. The topic you choose will determine the types of student education outcomes you can study.

- Student academic outcomes: The Institute supports research on a diverse set of student academic outcomes that fall under two categories. The first category includes academic outcomes that reflect learning and achievement in the core academic content areas (e.g., measures of understanding and achievement in reading, writing, math, and science). The second category includes academic outcomes that reflect students' successful progression through the education system (e.g., course and grade completion and retention in grade K through 12; high school graduation and dropout; postsecondary enrollment, progress, and completion).
- Social and behavioral competencies: Social skills, attitudes, and behaviors that may be important to students' academic and post-academic success.

Theory of change: The underlying process through which key components of a specific intervention are expected to lead to the desired student education outcomes. A theory of change should be specific enough to guide the design of the evaluation (e.g., selecting an appropriate sample, measures and comparison condition).

Unaccompanied Youth: A youth not in the physical custody of a parent or guardian, including youth who are residing with a caregiver who does not have legal guardianship and youth who are living on their own.

Usability: The extent to which the intended user understands or can learn how to use the intervention effectively and efficiently, is physically able to use the intervention, and is willing to use the intervention.

Validity: "The degree to which accumulated evidence and theory support a specific interpretation of test scores for a given use of a test. If multiple interpretations of a test score for different uses are intended, validity evidence for each interpretation is needed" (AERA, 2014).

Vertical equating: Putting two or more assessments that are considered to measure the same construct across different levels of development on a common scale.

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