

IES Grant Writing Workshop

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Transcript

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Christina Chhin:

Hello everyone. I'm going to begin today's webinar on grant writing. My name is Christina Chhin, and I'm a program officer at the National Center for Education Research. I'm also here with my colleague Katie Taylor from the National Center for Special Education Research.

Thank you for joining us. This is going to be a pretty intensive webinar, with a lot of information being shared, so be sure to note any questions you have along the way.

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So the purpose of this grant writing workshop is to provide you with some information and advice on how you can write a successful and competitive application to our main research grants program at IES.

In particular, we're going to be focusing on two grant programs, the Education Research Grants Program with CFDA number 84.305A, and the Special Education Research Grants Program with CFDA number 84.324A.

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We understand that grant writing is a process that starts with an idea and progresses through several stages.

As you start writing your proposal, you may also be contacting people to line up your research team. Grant writing tends to be an iterative process since the majority of grants do not receive funding the first time around, and that's okay. Our goal with this webinar is for you to try to write the most competitive application you can so that you may be one of the lucky ones to receive funding the first time around.

Or, if you don't get funded the first time around you can learn some new information about ways in which you can improve your application.

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So for this webinar we'll begin by providing an overview of IES, particularly for folks who may not be as familiar with IES or are first-time applicants. Then, we'll discuss some grant-writing tips, go over some general requirements, provide information about the research grant topics and goals, and discuss what should be included in a project narrative of the grant application.

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So what is IES? IES is the independent research arm of the U.S. Department of Education. We are non-partisan by law, so we are not involved in the policy-making process. We are charged with providing rigorous and relevant research to inform education practice and policy.

We are also charged with sharing this information broadly. We want to disseminate what works, but we also want to understand what doesn't work and why, so that we could help to improve education outcomes for all students, particularly for students who are at risk of failure.

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This graphic presents the organizational structure of IES.

We are led by a Director, who is currently Mark Schneider. He receives advice and consultation from the National Board for Education Sciences. The board consists of 15 voting members who are appointed by the President and confirmed by the Senate. In addition, the Standards and Review Office oversees this scientific peer review process for IES grant applications and IES reports. Under the leadership of the Director, IES consists of four centers.

The National Center for Education Statistics is the primary federal entity for collecting and analyzing data related to education. Within NCES, you may be familiar with the National Assessment of Educational Progress, or NAEP for short. Under NCES you'll also find many large national longitudinal data sets, including for example, the Early Childhood Longitudinal Study.

The National Center for Education Evaluation and Regional Assistance conducts unbiased, large-scale evaluations of education programs supported by federal funds. They provide technical assistance and support the development and use of research and evaluation throughout the United States. In NCEE, you will find that What Works Clearinghouse and the Regional Educational Labs.

The two centers that award discretionary research grants are highlighted here in blue, the National Center for Education Research, referred to as NCER, and the National Center for Special Education Research or NCSER. The grant opportunities that we will be talking about today are managed through these two research centers. You'll notice here that the research centers are separate from the Standards and Review Office, meaning that we, program officers, are not involved in the peer review process.

So, this allows us to work closely with you, providing technical assistance to you and your applications. We will discuss more about that later in the webinar.

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So, the objective of the IES Grants Programs are to improve education outcomes for all students, particularly for those who are at risk of failure.

The grants program does this by developing or identifying education interventions that enhance academic achievement and can be widely deployed. By identifying what works and what doesn't work, we can encourage further research and innovation, and better understand the processes that underlie the effectiveness of education interventions, and variations in their effectiveness.

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For more information about the funding opportunities available within NCER and NCSER, you can find them on our website, Here's a screenshot of the funding opportunities page.

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So just to recap, this webinar is going to be focusing on the main research grants program, the Education Research Grants Program and the Special Education Research Grants Program.

These two grant programs are pretty similar in that they are organized by research topic and research goal, and we will talk more about these topics and goals later on in the webinar.

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So, I'm going to now talk about some good, general tips in terms of grant writing.

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When writing a competitive grant application, what I typically tell applicants is to think about the proposal as a persuasive essay, because you really want to sell your research idea.

You want to be able to show that you are the best person to do the research proposed, and you want to be able to build goodwill and trust with your reviewers. So how do you go about doing that? We think you should do that by demonstrating that you know what the problem is, and that you have the best way to address it.

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In the opening paragraphs of your project narrative, you should set the scene for the readers and reviewers by showing what you're doing is important, and how you're going to go about doing it.

You should organize the information in a very accessible way. You don't want to lose readers right off because they don't understand what you're doing. So the opening paragraph is critical in terms of hooking the reviewers and leading them to believe what you're doing is significant and will improve student education outcomes.

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So to that end, your Statement of Purpose should be part of the opening paragraph.

Your Statement of Purpose, or problem statement, should be short and attention-grabbing. We recommend that you have your friends, family and other researchers take a look at your opening statement and provide feedback.

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Similarly, we see the theory of change as crucial to a successful application.

We will talk in more detail about what goes into a theory of change later, but I'm going to provide a brief overview here. The Theory of Change is the model underlying your research, and it serves as a roadmap for how you'll be describing the work that you'll be doing in your project.

It can be constantly evolving in that depending upon the findings from your study, your theory of change may actually change. So it may not be a static model, which is fine. We know researchers in other fields use terms like logic models or logical framework, and we see those as pretty similar in terms of what we're referring to here as the theory of change.

So these terms may be used interchangeably.

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Your Theory of Change should also be reflected in your research plan, such that you need to specify exactly what it is you're looking to explore, develop, validate, or test.

In terms of the outcomes of the study, you also want to be able to specify what it is you're measuring and who you're targeting. For instance, what measures will you include for those in the treatment versus control conditions?

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You should also share your Framework and Statement of Purpose with your program officer.

IES program officers are here to answer questions and provide feedback on your proposal, including whether you submit it to the appropriate research topic and/or goal.

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We also can't reiterate enough the importance of having a very clear and succinct application. You want to make sure in the significance section that you're not too general in your description.

You want to be able to provide sufficient detail regarding the intervention or program or policy that you're studying. If you're looking to develop an intervention, it is important to specify how you're going to be developing, revising, and testing the components of the intervention. You want to clearly specify your data analysis plan as well.

You don't want to just have a statement saying you're going to be conducting HLM analysis and leave it at that. We want you to provide detail about how you're going to be analyzing the data and include formulas as appropriate. Similarly, try to refrain from using a lot of jargon. Our review panels are pretty diverse in their areas of expertise, so don't take for granted that they know what you're talking about.

So provide some context and background. Also make sure you're using correct grammar and that everything is spelled correctly. All that goes a long way, because reviewers get frustrated when they can't understand what you're saying because your sentence doesn't make sense. So, give the reviewers a break, and make sure your writing is as clear as possible.

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We also have on our website several resources for researchers that you may find helpful, including a link to other webinars.

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So next, I'm going to go into some general requirements that we have in the RFA for the Education and Special Education Research Grants programs.

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To begin, under the Education Research and Special Education Research Grants Program, you must measure student education outcomes in your study. The project must also be relevant to education in the United States, and it must be conducted in authentic education settings.

If you have questions about what we mean by authentic education setting, we have it well-defined in the RFA. If, after reading that you still aren't sure, please contact your program officer and they would be happy to provide more detail. As mentioned previously, all proposals must also specify one research topic and one research goal.

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Here's a table that outlines the specific student outcomes that are of interest for the Education Research Grants Program. As you can see, the outcomes are broken out by grade level. So if you're proposing a project that's targeting pre-kindergarten students, then your outcome should focus on school readiness, including pre-reading, language vocabulary, early STEM or social behavioral competencies.

If you're targeting students in grades K to 12, the outcomes that you may look at include learning, achievement, higher-order thinking, reading, writing, STEM education, foreign language, and social studies, progression through the education system, social skills, and attitudes, and behavior supports for learning in school, or employment and earning outcomes when appropriate.

If you're looking to address postsecondary students, the outcomes there should focus on access to, persistence or progression through, and completion of postsecondary education, or employment and earnings outcomes. If you're looking to focus on developmental education programs at the postsecondary level, additional outcomes may include achievement, especially in reading and writing, English language proficiency, and STEM.

For adult education populations, the focus there should be on student achievement in reading, writing, and STEM. You can also address outcomes related to access, persistence, progression through, and completion of adult education programs along with employment and earnings outcomes.

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This table highlights the special education outcomes of interest by age and grade level.

For birth through age five, so infants, toddlers and preschoolers, we're looking at developmental outcomes in school readiness. That includes developmental outcomes across a number of areas including social, emotional, cognitive language and physical development. And for the remaining ages, kindergarten through high school, we are interested in achievement in the core academic content areas, behaviors that support learning in an academic context and functional outcomes that improve educational results and transitions to employment, independent living or postsecondary education.

Those last areas are mainly for those in secondary school transitioning to independent living or employment. And I just want to note that you can look at outcomes after they finish high school, but the actual intervention must be something that occurs earlier in secondary school. Also employment and earnings outcomes may also be relevant under certain topics.

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So when preparing a grant application, the first and most important thing to do is read the RFA. Even if you're resubmitting an application and you're pretty familiar with the requirements of the Education Research or Special Education Research Grants Program, there are some changes this year, and we want to make sure that you are aware of those changes.

In addition, we think it's important for your Co-PI, statistician, methodologist or developers, really pretty much anyone else who is participating in the preparation of your application, or who are involved in the project, to read the RFA. In addition, the sponsored projects officers should also read the RFA, since for most institutions and organizations they are the ones who will be submitting the application for you.

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On to the discussion of research topics.

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As a reminder you have to specify a topic and a goal if you're submitting to the Education Research or Special Education Research Grants Program.

So every application must identify your research topic area. You will indicate your topic area on the SF 424 Form, under item 4b. You also want to make sure that it's identified at the top of your abstract and at the top of your project narrative as well.

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Listed here are our current research topics under the Education Research and Special Education Research Grants Program.

Please note that in addition to our regular standing topics, we are also competing a few special topics under the Education and Special Education Research Grant Programs too.

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Just to reiterate and emphasize again, under each of the topic areas you must address a student education outcome.

Please note that the grade range that you focus on may vary by topic, so make sure you're addressing the appropriate grade range for the topic you are applying under. We understand that sometimes your project may fit under more than one topic area, so we have some advice about how you can decide between overlapping topic areas.

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Under 305A, the Education Research Grants Program, we have a table here that outlines the grade range by topics.

So if you're looking to focus on students at the pre-kindergarten level, you must apply under the Early Learning Programs and Policies topic. The remaining topic areas, with the exception of the Postsecondary and Adult Education topic, focus on student outcomes in grades K to 12. Under the Postsecondary and Adult Education topic, you're able to study sub-baccalaureate or baccalaureate students.

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Under the Special Education Research grants program, the only topic areas in which you can focus on infants, toddlers, and preschoolers, is under the Early Intervention and Early Learning in Special Education topic, and under the special topic on English Learners with Disabilities.

All other topic areas must address students in grades K to 12.

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Okay, so what do you do when your project can actually fit under two, three or four different topic areas? What we suggest is you look at the literature that you're citing in your proposal.

For example, is it citing more research in a technology area than in the reading domain? If so, you may want to apply under the Education Technology topic. You also want to think about the topic in which your area of expertise is best aligned. So for instance, if your area of expertise is more on education technology as opposed to curriculum development, that may be something to consider.

Also, think about the specific population of students or teachers that you're targeting. For instance, if your intervention or research is targeting English learners, think about whether English learners are the main focus of your research or if they're just one of the subgroups of students that you're studying. If you continue to have questions about which topic you should apply to, please contact a program officer for assistance.

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Now we're going to go on to the research goals.

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In addition to identifying a topic focus in your application, you also need to identify a specific research goal. The specific goal in your grant application should be included on the SF 424 Form, under item 4b.

In addition, you also want to identify the research topic and goal on your abstract and research narrative as well.

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So which topic and goal best fits your project? This is actually a common question we get.

When deciding on the goal, think about your research questions and which stage your research is at. For instance, are you still building theory? Are you looking to develop components of an intervention? Are you focusing on examining the impact of an intervention? Or are you looking to validate a measure? In terms of the topic, think about your background and area of expertise, the theoretical basis behind your research, and the population you are targeting.

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Because selecting the appropriate topic and goal for your application may not always be straightforward, IES program officers can help you through this process. Please feel free to reach out to them if you have questions about which topic and goal combination is the best option for your research.

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Now I'm going to go over some detail about the specific goals.

Under both the Education Research and Special Education Research grants program, there are five goals. Exploration is Goal One. Development and Innovation is Goal Two. Efficacy and Follow-up is Goal Three. Replication: Efficacy and effectiveness is Goal Four. And Measurement is Goal Five.

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Here's a general table that provides a breakdown of the maximum budget and maximum years that can be requested for each goal. Please note, for some research goals such as Exploration, Efficacy and Follow-up, and Replication: Efficacy and Effectiveness, there are different duration and award maximums based on the type of study you are proposing.

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In terms of the goal requirements, please carefully review the requirements and recommendations outlined in the RFA. In the RFA we spell out the specific requirements, which is the bare minimum that you should include in your application in order to be considered responsive and sent forward for review.

However, the RFA also outlines recommendations that we strongly suggest you include or address so that you have a more competitive application.

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So if you're looking to do a Goal One, Exploration project, make sure to clearly explain the malleable factors that you will be focusing on.

These malleable factors must be under the control of the education system. What this means is that it must be a policy, program or practice that can be implemented or changed by the education system. Some examples of malleable factors include student's behaviors and skills, teacher practices or teacher credentials, or school size, climate and organization.

You can also examine specific education interventions which could include curricula, instructional approaches, programs or policies. Under the Exploration goal, you can also propose to do secondary data analysis, conduct a meta-analysis, collect primary data or any combinations of these approaches.

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Under Goal Two, Development and Innovation, the focus is on developing or revising an intervention to improve student learning.

To that end you really want to highlight the features of the intervention that you'll be developing and revising. It is important to make sure that your development process is iterative with multiple cycles of development and testing. You want to provide sufficient information about the data that you'll be collecting, including data on the intervention's usability and feasibility in authentic education settings.

And you also want to be measuring fidelity of implementation. At the tail end of a Development and Innovation project, you want to include a pilot study in which you will be measuring student outcomes to see how promising the newly developed or revised intervention is in terms of helping to improve student education outcomes.

New for this year as part of the pilot study, you also need to collect data to examine the cost of the intervention.

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This year, it is also important to note that we made changes to how we have structured our Goal Three and Goal Four requirements. Specifically, under Goal Three, Efficacy and Follow-up, there are three different types of studies you can propose.

The first type of study is a new or initial efficacy study, in which you can evaluate whether or not a fully developed intervention that has not been previously evaluated has a beneficial impact on student learning. Under Goal Three you could also propose a follow-up study which focuses on gathering follow-up data to examine the longer term impacts of the previously implemented efficacious intervention.

Finally, the third type of study that you could propose under Goal Three is a retrospective study to analyze retrospective or historical, secondary data to test the efficacy of an intervention that was implemented in the past.

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Please note that there are several key features of Goal Three studies to keep in mind.

First, the purpose of these projects is to assess the impact of an intervention, program or policy on student learning. In other words, one of your research questions must include a test of the causal impact of an education policy program or practice. Second, you must include as part of your research plan an analysis of the intervention's costs and/or cost-effectiveness.

Third, we recommend that you include as part of your research plan to consider and study factors that may influence intervention implementation, including what might be needed to implement under routine conditions. In addition, as part of your research plan, we also recommend that you explore potential mediators and/or moderators of the impact of the intervention.

Finally, if the developer is involved in the evaluation of the intervention, we strongly recommend having something in place to safeguard against potential conflicts of interest.

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Moving on to Goal Four, Replication: Efficacy and Effectiveness, I would like to point out that there are three specific types of studies you can propose.

Similar to previous years' RFAs, you can propose to conduct an effectiveness study under Goal Four, where an intervention that has prior evidence of efficacy is independently evaluated under routine conditions. New for this year under Goal Four, you can propose to do an efficacy replication where an intervention that has prior evidence of efficacy undergoes a replication to determine if it has a beneficial impact on student education outcomes under similar or different conditions as the previous evaluation.

Finally, you can propose to do a re-analysis study where you're focusing on re-analyzing existing data from our previous efficacy or effectiveness study to determine the reliability or reproducibility of the previous findings.

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Please note that there are several key features of Goal Four studies. First and most important, each type of study under Goal Four, whether it is an effectiveness study, efficacy study, or re-analysis study, are all considered replications.

This is a key difference between Goal Three and Goal Four studies. A prerequisite of Goal Four studies are that the proposed, fully developed intervention has had a beneficial impact on student education outcomes in a prior causal impact study. And the proposed study will be building on that body of evidence by conducting a direct or conceptual replication.

We define direct replications as studies that use the same, or as similar as possible, research methods and procedures as a previous study to provide more robust evidence of the intervention's impact. Conceptual replications, on the other hand, propose to systematically vary aspects of a previous study in order to determine if similar impacts are found under different conditions.

Dimensions of the prior study that you could propose to vary include the study population, how the intervention is delivered, or the research design. Under Goal Four, proposals must also include a plan to analyze intervention costs, and/or cost effectiveness. In addition, Goal Four studies are also required to examine factors that influence intervention implementation and explore potential mediators and/or moderators.

Lastly, if you're proposing to conduct an efficacy replication, and an independent evaluation is not proposed, you must ensure the objectivity of the research team by including safeguards against conflicts of interest and potential biases.

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Finally, for Goal Five, Measurement projects, the assessment is the primary product of such studies.

You may develop assessments under other goals but is not the main focus of the study. For instance, you may be developing a measure as a part of a Goal Two project, but in that case, the assessment would not be the primary focus of the study. Under Goal Five, the assessment development and validation is the primary focus. You would include an assessment framework in your description, and you must link the assessment to student education outcomes.

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If you have questions about which goal you should apply under, we recommend that you take a look at the RFA, and in particular, look at the section where we discuss expected results. This information may help you identify where your research may best fit.

Now I'm going to turn to my colleague, Katie Taylor, who will lead the remainder of the webinar.

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Katie Taylor: Hi everyone. This is Katie Taylor from the National Center for Special Education Research. And I am now going to talk about the project narrative, which is a big portion of your actual proposal.

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There are four required sections of the narrative, the Significance Section, Research Plan, Personnel, and Resources.

Reviewers give a score to each of these individual sections in addition to providing an overall score.

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The requirements vary by topic and goal, so be sure to read the requirements very carefully in the request for applications. The requirements are the minimum necessary for an application to be sent forward for scientific peer review.

In addition to the requirements we also specify recommendations in the RFAs and strongly encourage you to follow these recommendations as well, as these will make your proposal stronger and more competitive. Also keep in mind that all of the critical content should be in your narrative, but you can support it with additional information in the appendices.

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The Significance Section describes your overall project. It should describe your research question or questions to be answered and the intervention or assessment that you plan to develop and/or evaluate if that's applicable. You need to provide a compelling rationale for the project which includes a theoretical justification or your theory of change, which I'll talk more about in a few minutes.

And then you'll also need to include an empirical justification or a description of the evidence that supports your theory of change. And then lastly, you should include a practical justification. So why should we care about your project? What are the real world implications? And why would the expected results matter in education practice or policy?

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When you're writing the Significance Section, don't assume that the reviewers know the significance of your work.

Some of the reviewers might not be in your field, so you'll need to convince them why your particular question is important. So you shouldn't quote parts of the RFA pertaining to general importance, but we do list considerations and research gaps under the particular topic areas. And if you are addressing one of these considerations or research gaps, you can emphasize this in your application. These are things that you should consider but you don't get extra points if your application addresses them.

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Now I want to discuss two key pitfalls when it comes to the Significance Section. The first is related to a lack of clarity in your description of the malleable factors if you're proposing a Goal One Exploration project, or a lack of clarity in your description of the intervention if you're proposing to develop or evaluate an intervention.

A common comment from reviewers is that it's not clear what the malleable factors are, and whether they're actually malleable. So if you are proposing a Goal One Exploration study you

need to make sure it's clear which malleable factors you're proposing to study and how they're actually under the control of the U.S. education system. If you're doing intervention-related work, you should be really clear about what exactly your intervention is.

So a clear description of an intervention should include details about how it will be implemented in addition to what the actual content of the intervention is. So you can describe its implementation in terms of duration and implementers, etc. but if we don't know what content is being taught and what's going to happen, then the significance of its development or evaluation may not be clear to the reviewers.

So you also need to be clear about how the intervention will be implemented with fidelity; for example, by showing that implementers will actually have the time and resources to be able to implement the intervention with fidelity. And you also want to justify why your intervention will have a strong enough impact; for example, by showing that the duration and intensity are sufficient to bring about the proposed changes, and if applicable describing pilot data to support the intervention's promise for improving student outcomes. If these things aren't clear then the reviewers may have trouble following the rest of your proposal, so it's really important to clearly describe your malleable factors or your intervention.

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The second pitfall is related to the Theory of Change. If you are applying for a Goal One Exploration project and you don't indicate why a malleable factor is expected to be related to student outcomes, then that could be problematic. The reviewers need to know the theory behind why you think that factor is related to an outcome.

And if you're applying for a Goal Two, Three, or Four, they need to know why the proposed intervention should improve outcomes versus current practice. And then if you're applying for a Goal Five Measurement project, you need to clearly specify how an assessment will measure a specific factor or outcome, and how you will link this to student outcomes.

So I do want to stress that all of these elements of the theory of change that I'm talking about now should be described in your narrative, but a graphic can be helpful as well. In your Theory of Change you should make it clear what you expect to happen, in what order, and why something is expected to be related to a student outcome. And this could all be represented in a visual graphic. But, discussing why it should improve outcomes relative to current practice would be something that you should describe in more detail in the actual narrative.

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Your Theory of Change should describe how an intervention addresses the need that you're targeting and why it should work. This will be included in the narrative.

So be clear about what the intervention targets, for instance improved teacher knowledge and skills, and how this addresses the need that you specify. The Theory of Change should also describe the instructional techniques or practices, and why they are appropriate for the population and the change you intend to bring about, as well as a description of how the intervention will be delivered.

It's also important to be clear about which aspects are different from the counterfactual, and what the intervention's core ingredients are. In other words, which specific aspects of your intervention do you expect will drive the changes in student outcomes?

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So here we have an example of a simple Theory of Change graphic that goes through the process of what is expected to change what and why.

So in a simple Theory of Change you should include the target population, the main components of the intervention, the underlying processes targeted by the intervention that might explain any changes in your proximal and distal outcomes of interest, and then also your outcomes of interest. So this is just one example, you could elaborate on this depending on your intervention and your research questions. For example, you may want to include moderators in your Theory of Change graphic as well.

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What you should not do in your Theory of Change is overwhelm the reader with a very confusing graphic.

We suggest that you do not use color as a key variable in your graphic because some reviewers may review proposals in black and white.

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This is an example of what you shouldn't do when it comes to your theory of change graphic. This would certainly overwhelm a reader and it's just too confusing, it hurts to look at. No one will want to actually read this, let alone attempt to understand it. So don't do this.

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Moving on to the next section, the Research Plan. In the Research Plan you'll describe the actual work that you intend to do. You should be really specific about your research questions and depending on your research goal you'd want to describe how you intend to examine relations between malleable factors and student outcomes, develop and pilot test an intervention, evaluate the efficacy or effectiveness of an intervention, or develop and/or validate an assessment.

It's important to ensure that the application flows across all sections of the narrative. In other words, your research plan should be aligned to your Significance Section. And it helps to have a step-by-step process so that it's really clear to the reviewers what you plan on doing. For example, if you're proposing to develop an intervention, the process for iteratively developing it and refining each aspect of it, including collecting and using feedback data, should be really clear.

And a timeline is strongly recommended. In fact, if you don't include a detailed timeline in your application, and your application is recommended for funding, your program officer will likely

ask you for a timeline. So it's important to go ahead and include this in the application for the reviewers as well.

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In the Research Plan you should provide a description of the setting where you'll be doing the research.

For example, the size and characteristics of the intervention setting, classrooms, school, and/or surrounding community, as well as the population that you're addressing, and your sample. In describing your sample you should define your sample and discuss the sampling procedures, including justification for any exclusion or inclusion criteria.

You should specify the sample size and demonstrate that it will provide enough power to address each of your research questions. You should also address attrition, including how likely it will be and any strategies that you intend to use to prevent it in the course of the study. And lastly, you should describe generalizability, including how the setting that you're working in will affect the generalizability of your findings, and the extent to which your sampling and sampling procedures will allow you to draw inferences for the population you're addressing.

If you're using secondary data, you should describe the setting, population, and sample for the datasets that you plan to use.

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Another thing that you need to describe in your research plan is your outcome measures, including both proximal and distal outcomes. You should include outcome measures that are sensitive to the changes in performance that the intervention is intended to bring about, as well as measures that are not strictly aligned with the intervention and could capture changes in the control or comparison group.

So, your measures should be aligned with your theory of change. For example, for interventions that are designed to directly change the teaching and learning environment, and in doing so indirectly affect student outcomes, you should include measures of student education outcomes as well as measures of the intermediate outcomes, like teacher behaviors, that are hypothesized to be directly influenced by the intervention.

And you should also include measures that are of practical interest to students, parents, and educators, so things like grades, attendance, dropout rates, and graduation rates. And it's important to justify the use of every measure. So if you have measures that are not actually linked to your research questions, this will likely be questioned by the reviewers.

And your description of your measures should also discuss the psychometric properties of each measure, including their reliability and validity. And then finally, consider the issue of multiple comparisons when you're deciding which measures to use and how many.

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As I mentioned, you should specify the purpose of all your measures, including non-outcome or process measures.

For instance, for a Goal Two Development project, you should specify which measures you will use to inform the iterative development process. These could include things like qualitative data from focus groups, or rating scales of the usability of an intervention by the end user. It could also be preliminary outcomes, but you'll have to explain how that measure will then feed back into the iterative process of development.

So if you're proposing a Goal Two, Three, or Four, you also need to include measures to assess the fidelity of intervention implementation. And also note that if the intervention includes a training component, you should identify measures to assess the fidelity of the training. So for these measures you should describe how they'll capture the core components of the intervention, and will allow you to determine whether the intervention is operating as you intended.

You should also include measures of comparison group practices so that you can compare the treatment and comparison groups to make sure that the comparison group doesn't receive key elements of the intervention, and that the two groups are getting substantially different services. So you'll want to measure practices that could be happening in either group, but that you hope or assume are only present in the intervention group.

And then depending on the research goal you proposed, you may also need to include measures of feasibility. So this is any type of feedback provided by the users of the intervention, such as teachers, about whether the intervention is indeed feasible to use and whether it can be implemented within the constraints of an authentic education setting. And you could use a variety of measures to assess feasibility.

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The Institute encourages you to integrate qualitative and quantitative methods throughout the entire research process, from planning and inquiry to instrumentation design, data collection, and analysis and dissemination.

The use of qualitative measures is particularly common for the purpose of iteratively developing an intervention or an assessment. So for any qualitative data collection you should describe the items to be used, their validity, and the procedures for collecting and coding, and for monitoring and maintaining inter-rater reliability.

So these are similar to what you would do for quantitative data as well. And then you should also discuss how the qualitative measures will be used in the analysis and, if applicable, the mechanisms for quantifying the data.

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For measurement projects specifically, you'll need to provide additional detail depending on the type of measurement project you propose.

So if you propose to develop alternate forms of a measure, you should describe horizontal equating or the procedures for establishing the equivalence of the forms. And if the proposed assessment is used to measure growth, you should also describe vertical equating or the procedures for establishing a developmental scale.

If you are developing or refining an assessment, you should also discuss your plans for establishing the fairness of the test for all members of the intended population. And then also remember that all measurement projects must link the assessment to student education outcomes.

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Your analyses will depend on your design, but in general you should describe all planned analyses and describe how these analyses will address each of your research questions.

And for qualitative data you also need to be sure to discuss how you will analyze the data. For example, coding for common themes and how this analysis will address your research questions.

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For your analysis of quantitative data, you should present your model for each analysis.

You should also discuss how you plan to address any clustering or nesting, and how you'll account for missing data. For causal impact studies, you should also discuss a plan for checking for baseline equivalence on your outcomes of interest across the intervention and control groups, as well as overall and differential attrition.

Then you should also propose to conduct sensitivity tests to assess the influence of key procedural or analytic decisions on the results.

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Now I'm going to move on to the third section of the Project Narrative, the Personnel Section.

The purpose of this section is to name each person on your team and describe their relevant expertise, their responsibilities, and their time commitment. You'll want to include personnel at both the primary and secondary institutions, as well as any consultants. The purpose of this section is to show that your research team has the appropriate qualifications to carry out every aspect of the proposed work.

This includes the appropriate methodological and content-related expertise, as well as project management skills and experience disseminating to a variety of audiences. You all need to provide CVs for each member of the research team. It's also advisable to make the CV specific to the project rather than submitting generic CVs.

And we do recommend you use SciENCv to create IES-specific biosketches.

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So here are some strategies for writing the Personnel Section if you are a seasoned researcher. First it will be important to highlight that you have enough time to devote to the project.

For instance, reviewers are not going to want to see a PI who has only 2% time on a project. It's also important to adequately describe your credentials, because some of the reviewers may not do research in your area and may not be aware of the extent of your experience.

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If you, the PI, are a junior or early career researcher, the strategies are a little bit different.

So you'll need to show that you have adequate expertise to do the work and to manage the project. So if relevant, you could show how this work is a continuation of the work you did in graduate school or during a post-doctoral fellowship. This will help establish your expertise in this area.

And then you'll also want to talk about any experiences that you've had that show that you have the appropriate project management skills. Then you should also highlight your publication record as evidence that you have the appropriate expertise in the particular content area. In general, it's advisable to have a senior researcher on your team, reviewers are typically more comfortable if you have a senior person to turn to for advice as either a Co-PI or a Co-Investigator, even as a consultant or an advisory board of senior researchers.

You just want to make sure to include enough of their time on the grant that it's taken seriously. So again, if you have someone for 2% time, and that's the person whom you're going to turn to for advice, it doesn't really look like you're going to get their active engagement in the project.

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The final section of the Project Narrative is the Resources Section. The purpose of this section is to describe how you have the institutional capacity to conduct a project of the proposed size and complexity, as well as your access to the resources at the primary and secondary institutions that you need to successfully complete the project.

In this section you should also describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and/or are necessary for the successful completion of the project. So these could include things like equipment, test materials, curricula, or training materials.

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We also recommend that you describe any resources that you have that will help you carry out your plan to disseminate the results of a project.

More specifically you should note any specific team members, offices, or organizations that you expect will take part in the dissemination plan, as well as their specific role in the dissemination.

And then your actual dissemination plan should be described in Appendix A of your application. And this plan should be tailored to the audiences that may benefit from the findings.

So in this plan you should identify those audiences that you expect will be most likely to benefit, and discuss the different ways in which you intend to reach them. Your plan should also reflect the unique purpose of your particular research goal. For instance, findings from an Exploration project are likely to be most useful in pointing out areas for further attention, rather than providing proof or strong evidence for taking specific actions.

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In your Resources Section, you'll also want to be sure to describe your access to the institutions, who will participate in the project, and the authentic education settings in which the research will take place. And then in Appendix E you can include letters of agreement from each of these institutions involved or from states, school districts, or schools.

You'll want to be sure to show that each of these partners understand their role. So the letter should be specific and show that they know what would be required in terms of activities and the time. If you plan to use data from another source, whether it's school records or an existing dataset, you want to show that you have access to this data.

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In terms of the budget and budget narrative or budget justification, you want to make sure that these are clear, aligned with your project narrative, and are provided for the overall project as well as for each sub-award.

So first and foremost, you should make sure that you don't propose an amount that's over the maximum for your specified research goal. Your budget should reflect both the research goal as well as the scope of the work that you propose to do under that goal. In your budget justification you should provide a rationale for equipment purchases, supplies, travel, and other project-related costs for each project year.

And you want to be sure to include details about how assumptions were made to estimate certain costs. For example, for travel, you should show how you came up with the total by including the cost for the airfare, lodging, per diem, etc. And again, you just want to make sure that everything is aligned.

So you want to make sure that your project narrative is aligned with your budget, and your budget is aligned with your budget justification.

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This table shows the required and optional appendices and what information must or should be included in each. These are described in more detail in the RFAs, but I'll discuss them briefly. As I mentioned previously, Appendix A is required for all applications and should describe your plans to disseminate the findings from the project.

Appendix B is only required for resubmissions. This is the place where you would include your response to the previous reviewers' comments, or if your application is one that you consider to be new but is similar to a previous application, you describe why it should be considered a new application. Appendix C is optional, but you can use it to include figures, charts, and tables that supplement the project narrative, as well as give examples of measures to be used in the project.

Appendix D is also optional and can be used for examples of materials to be used in the intervention or assessment that you're focused on. And then as I mentioned earlier, you can use Appendix E to provide letters of agreement from school partners and/or data sources depending on what's applicable for your particular project. And if you have consultants on your project, you'd also include letters of agreement from each consultant in Appendix E.

And then Appendix F is required for Goal Three and Four proposals, and this should include your data management plan. And this plan should describe the process for making the final research data from the proposed project accessible to others.

The RFA describes the specific information that you should include in your data management plan, as well as resources that may be helpful in developing that plan.

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All important dates and deadlines are included in the RFAs. We encourage you to submit a letter of intent if you're interested in applying.

However, these are optional, so if you don't submit a letter you can still submit an application. If you choose not to submit a letter or if you miss the deadline, we do recommend you email the relevant program officer with a brief description of your research and let them know that you intend to apply.

As for the application deadlines, be sure to submit early, and I don't mean early as in the day that it's due, I mean days earlier, because it has to go through multiple layers. So it has to go through grants.gov and get confirmed there, and then go through the Department of Education. And if there's a technical problem along the way you'll need enough time to find the problem and then resubmit it.

You'll want to make sure that you get confirmation that your application was received at each step. And again, if it's one second too late, then it won't be sent forward for review. And another thing to note is that you should talk to your sponsored research office ahead of time and tell them to expect your proposal so that they can make time for it. And be sure to work closely with them and see the final versions of all the documents to be submitted. For example, you want to make sure that any last-minute adjustments to the budget don't put you over the budget maximum.

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You'll need two things to actually apply. First, you need the RFA which contains information for writing your project narrative as well as other content in the application and information related to submitting.

You also need the application package, and this can be found on grants.gov. So to submit your application, you must create or use an existing workspace within grants.gov. And workspace is a shared online environment where multiple people can simultaneously access and edit different forms within the application.

And if you don't want to complete the forms online, you can download individual PDF forms in workspace and complete them offline, and then upload them. Additional training resources on workspace, including video tutorials are available on grants.gov.

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Now I want to provide a quick rundown of the peer review process. Applications that are submitted on time through grants.gov are first reviewed for compliance and responsiveness to the RFA.

Compliance focuses on adherence to the application rules, so for example completion of all parts of the application and inclusion of all the required appendices. And then responsiveness involves determining whether you adhere to the requirements of the competition, or the components that are the minimum necessary to be sent forward for peer review. And if your application is found to be both responsive and compliant, then it will be assigned to a peer review panel, and two to three peer reviewers will conduct a primary review of your application and provide feedback.

Once the primary review of each application has occurred, the most competitive applications are then forwarded for review by the full panel of reviewers. And then during that panel review, applications are discussed and rated by all reviewers on the panel. And then from that point we make funding decisions and contact all applicants giving them statements from the reviewers, so those who did not receive funding can potentially resubmit in subsequent years.

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The Standards and Review Office oversees the peer review process, and it's separate from the research centers, which is the reason that the program officers are able to talk to you about your proposal in advance, because we're not actually involved in the review process.

If you want to learn more about the peer review process you can follow this link to find out more details.

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In terms of notification about your application, all notifications will come through the Applicant Notification System, which is the system that you're prompted to sign up for once you've submitted an application.

So if you've submitted before you should already have an account. And this will provide you with information about the status of the award, and then when the summary statements of reviewer comments are released, it will also allow you to access those. And if you're not granted an award, we encourage you to review your summary statement and talk to the relevant program

officer to get insight into what you can do differently and ways you can think about the reviewer comments to help you improve your application.

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Another thing we encourage you to do is go to our website and look at the Resources for Researchers. This page provides links to different trainings and other information and content that could help improve the quality of your application, such as information about methodology or other things of that nature.

There are also a number of webinars that could benefit from, and you can find these webinars by going to the Funding Opportunities page which will include a link to the different webinars offered.

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So just some reminders, make sure that you attend to the limits for budget and duration. Make sure you attend to the required content and appendices, as well as the recommendations to improve your application.

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And lastly, I can't emphasize this enough, make sure to read the RFA very carefully. And don't be afraid to contact the program officers to discuss your ideas, and make sure that it fits with the topic and goal that you intend to submit to. Time permitting program officers can actually review proposals and provide feedback in advance, but it's important to allow enough time for this. Some program officers may have cut-off dates from when they'll accept proposals to review, so we encourage you to be in communication with the relevant program officer about this.

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Here's the link to the Funding Opportunities page where you can access the RFAs and also our email addresses. Thank you all for participating today. And good luck with the grant writing.