



Institute of Education Sciences
Funding Opportunities Webinar
Grant Writing Workshop for
Measurement Projects

April 23, 2012

**IES Funding Opportunities Webinar:
Grant Writing Workshop for Measurement Projects
U.S. Department of Education
Institute of Education Sciences**

**Presented by:
Karen Douglas, Ph.D.
Program Officer
National Center for Education Research**

**Transcript
April 23, 2012**

Slide 1

Good afternoon. My name is Karen Douglas and I'm delighted to be joined today by Kristen Lauer. As you know, our subject for today's webinar is "How to Write and Submit Measurement Grant Applications to the National Center for Education Research (NCER) and the National Center for Special Education Research (NCSER)."

Slide 2

Here is an overview of what we're going to be discussing in this webinar. We'll start with a very brief introduction to the Institute of Education Sciences (IES). We are talking about the Measurement goal in the context of two specific Requests for Applications (RFAs); one in the Education Research Grants program and one in Special Education Research Grants program. We're going to talk a bit about the four sections of the research narrative, and then we'll do a brief overview of the application, submission, and review procedures.

Slide 3

Here is an overview of the organizational structure for IES. As you can see, under the Office of the Director there are six areas. Four of these are national centers: one is for NCER and another for NCSEER. I'd like to direct your attention to the Standards & Review Office. A very important aspect of work at IES is that we have an independent office of scientific review, which handles all of the application review procedures and is separate from NCER and NCSEER.

Slide 4

The overall research objectives for IES, and for NCER and NCSEER, are listed on this next slide. Basically we like to talk about these in terms of what we're interested in finding out—what works in improving educational outcomes for students and what

doesn't work, and then what works for whom and under what conditions. How can we contextualize what we're learning from our research in ways that will really help us to meet the needs of all of our school children and adults?

Slide 5

All of our research projects are expected to address student outcomes in some way, and as you will see from this slide, these student outcomes may vary according to the grade level of the students. First of all, you will see that our research is focused on helping children from birth through preschool become ready for school and, specifically for NCSER, they are interested in developmental outcomes for young children.

Once we get into kindergarten through Grade 12, we are focused on academic outcomes in the areas of reading, writing, math, and science. We are also interested in behaviors, interactions, social skills, the important outcomes of education such as whether students graduate from high school and, in NCSER, the specific focus on functional outcomes, transitions at important points in schooling, and careers for students with disabilities.

Slide 6

As I mentioned, we also study older children and adults, so in the post-secondary education topic you will see that the focus of study moves more toward success in post-secondary studies. Also, there is a focus on achievement in gateway courses and certain introductory courses in college. Just last year, we introduced a new topic around adult education interested in promoting and learning more about better reading, writing, and math skills for basic and secondary students and English learners (ELs).

Slide 7

We're going to be talking about two primary research programs today: Education Research Grants program and Special Education Research Grants programs. The key to understanding our RFAs and writing an application is to remember that you should focus your application around a specific topic and a specific research goal. Every application submitted has to be specific about a topic and a goal.

Slide 8

The education research topics for NCER appear on this slide, and as you go down the list you may notice that some of these are oriented around content areas such as reading, writing, math, and science. Others are oriented around different ages such as the Early Learning Program or the Adult Education Program. Some are actually focused on specific populations, which is the case for ELs.

I'm going to keep emphasizing this throughout this webinar. You will probably get tired of hearing it, but the requirements for each of these topics vary in regards to what kinds of student outcomes are acceptable with the focus of your study and other important aspects of your application. It's really important to read the RFA carefully, to study the requirements for each of the topics, and be in touch with the Program Officer. Each of these topics has a Program Officer that works specifically with that topic and that is the person who is most knowledgeable in helping you to determine under which topic your grant would best fit.

Slide 9

At NCER, since we started funding Measurement projects in 2004, we have funded 58 projects all together. This slide shows you the distribution across the topics that we've funded. What you will notice here is that we've funded some measurement work across all of our topics. We are interested in, and we have a great need for, Measurement projects in all of our topics. About 13% of all of our grants have been funded in Measurement.

As you look at this distribution, it's important to keep in mind that some of our topics have been around longer than others. I wouldn't put too much emphasis on how many projects have been funded in each of the topics. What we hope to convey here is that we do in fact fund Measurement across all of the topics, and there is a great need for more good tools for use in research and improving education for students.

Slide 10

This slide shows the topics for NCSER and you probably notice some similarity here with the NCER topics. Some of the topics again are related to reading, writing, math, science, and social behavioral outcomes. For NCSER, there are also some topics specifically focused for students with disabilities (e.g., Autism Spectrum Disorders, Families of Children with Disabilities, and Transition Outcomes for Secondary Students with Disabilities).

Slide 11

NCSER has funded 29 Measurement projects and this comprises about 16% of all the projects that they've funded. Similar to the NCER slide that I showed you, this slide is meant to show the Measurement projects that have been funded in many of the topics so far. They're equally important for all of the areas that are being studied. Again, as with NCER, the requirements for these topics may vary in regards to what kinds of outcomes are expected for Measurement and also in terms of the types of assessments that would be considered responsive to the RFAs. Be sure to check the RFAs for those specific details and check with the appropriate Program Officer.

Slide 12

That's an overview of IES and the topics that we fund. Now, we're going to talk a bit more specifically about the Measurement goal.

Slide 13

There are 5 goals that we fund under these RFAs: Exploration, Development & Innovation, Efficacy & Replication, Effectiveness, and of course, Measurement—which is why you're all here today.

I will point out that we're also conducting a large number of webinars in the next few months. You can sign up to attend a webinar on the other goals that you see here and be sure to check the IES website for more information on upcoming webinars. For webinars that have already been conducted, in case you missed them, transcripts and slides will be posted in the future. So, you can keep checking the website for that information.

Slide 14

What is the purpose of Measurement projects? Well, as you'll see, we have three broad purposes that I have laid out on this slide. One is to develop new assessments. We need new assessments not only to further our research but to help test our interventions and ultimately to be able to provide better measures for teachers, schools, and parents regarding what students are learning.

The second broad goal is to refine an existing assessment and this could also refer to how that assessment is delivered. Under refinement, we think about such things as ways to refine an assessment to make it shorter to administer or more convenient to administer within the school setting, making it more accessible to a wider number of students, or ways that we should be thinking about providing accommodations for the great variety of students that are meant to take a certain assessment.

The third broad category is to validate the assessment. I'm sure all of you know validation is always considered in relation to a specific purpose, context, and population. There may be assessments that have been developed for one particular purpose but are now being used for another purpose or could be potentially useful for another purpose. We need to do the validation work to provide evidence as to whether the assessment will provide good information for a specific use.

Slide 15

Measurement projects can also be developed in other goals. As you can imagine, some of our grantees who are developing new interventions or doing exploratory work may also find a need to develop some assessments to support their work. But if the primary

product of the grant is in fact a development, refinement, or validation of an assessment, then it's appropriate to submit it as a Measurement grant. If the assessment work is being done in support of other primary work in the grant, then it's important to make that case in the application.

In any case, regardless of whether the application is formally a Measurement grant or is developing measurements for other purposes, it's really important to make sure that you describe in your application how those assessments will be developed and that you have the expertise in your team to do that well.

Slide 16

Measurement projects should, just to reiterate, focus on creating, refining, or validating an assessment. One of the central approaches that we take in writing an application for a Measurement project is in presenting a clear conceptual framework that will ground for the reviewers the theoretical rationale for the assessment. If in fact you're working in an area that is so unexplored or is lacking in strong theory that you really can't present a clear conceptual framework, then you may want to consider putting in an application under an Exploration goal, where you could do the baseline work to gather that information. It's up to you to decide if you can present a compelling conceptual framework that the reviewers will regard as substantial enough to guide the work that you're proposing to do. While it is certainly the case that the conceptual framework may be revised during the study, you need to have an adequate framework from which to begin.

Slide 17

Measurement projects should meet the specific requirements for each topic, and outcomes vary greatly across different topics both within NCER and NCSER. So, you have to be very attentive to the specific student outcomes that you are proposing to study in your Measurement projects and that you've proposed to use in validating your assessment. I can't emphasize this strongly enough, please clearly specify what you'll have at the end of your grant.

Measurement and assessment projects can be designed to address a wide range of needs, as you can see already from the outline that I have presented, and sometimes it's not always clear exactly what we're going to end up with at the end of a Measurement grant. It may not be possible, in fact, to design everything that you need if you're starting from scratch for a fully functional assessment that has good evidence of reliability and validity and is ready to be used in classrooms for specific purposes. You may actually be proposing to get only part of that work completed in a specific Measurement grant. Please be clear, however, about how far you're going to get in that work so that reviewers will be able to evaluate your application accordingly.

Slide 18

I've talked a lot about what Measurement projects should do. The only other thing that you need to know is that they can't be used to test the efficacy of a fully developed measure for improving outcomes. If you are proposing to study, for example, whether using a new reading assessment in schools actually results in better learning for students and higher reading scores then that should be submitted under an Efficacy goal. If your project will provide rigorous evidence of that, typically we would look for a RCT (randomized controlled trial) or something of that nature in order to really establish the efficacy of the use of the assessment.

Slide 19

I've listed on this next screen some examples of types of assessments. This is not an exhaustive list, but this gives you a feel for the range of assessment types that can be and have been supported in our education research programs. Some examples include screening, progress-monitoring, credentialing for teachers, and accountability systems. Formative assessment—formative is a word that gets used a lot and can mean many different things, even within the assessment community. Here I am using it to mean assessments that are primarily designed to provide and guide instruction versus assessments that are meant to provide a measure of student knowledge or learning at the end of a particular educational program.

Slide 20

Let's take a minute and think about some examples of questions that might be posed for submitting grants under these RFAs and see whether we think they could potentially fit under the requirements.

Exercise Question: *Validation of the use of progress-monitoring assessments for use with ELs*

Exercise Answer: *What we see that's critical in this very short description is this is a validation project, which we know is acceptable, and it is to be used with ELs. This project could be submitted under the RFA under several topics, and that is why I have included it here. It could be submitted under the EL topic because it's primarily focused on ELs. It could also be submitted under the Reading & Writing topic. The study of ELs is one of a couple topics in the RFAs that are a bit unusual in that they're open in terms of which topic they can be submitted under. It would be up to you to decide whether the primary focus on the work was on ELs, in which case it could be a good submission under English Learner topic, or it is really more about Reading & Writing outcomes and growth for students, in which case you might prefer to submit it under Reading & Writing.*

But I'm going to use this as another opportunity to say that the best way to answer this question would be to talk with Program Officers. Talk with the Program Officer for English Learner topic, which happens to be me. Talk to the Program Officer for Reading & Writing topic, and they can really help you figure out the better place to submit your project.

Exercise Question: *Development of a new indicator system for identifying effective teachers*

Exercise Answer: *Yes, this could certainly fit under these RFAs. Again, you could, depending on the focus of your work, have to decide whether to submit under the Improving Education Systems: Policies, Organization, Management, & Leadership topic or whether you want to submit under the Effective Teachers & Effective Teaching topic. I think part of that decision would probably reside in the outcomes that you're planning on measuring, and you would want to check with the Program Officers for both of those topics to see where the best fit might occur.*

Exercise Question: *Development of a tool to be used by parents to assess the reading readiness of a child*

Exercise Answer: *This is an interesting one because this could be submitted perhaps to NCER or to NCSEER. If it were to be submitted to NCER, then you would need to consider the setting. Under the NCER RFA in the Early Learning Programs & Policies topic, this is a tool that could be developed if there were also some relationship to its use in an educational setting because that's one of our requirements under RFA. Under the NCSEER RFA the requirements would be different.*

Exercise Question: *The characteristics of items on a reading test that contributes to bias results for boys*

Exercise Answer: *This is an example of what we sometimes refer to as "differential item functioning," and this could certainly fit under the Measurement goal. It would be considered a validation study, because we're looking to see whether the use of an assessment is warranted for all students for whom it might be used.*

Exercise Question: *Development of a suite of scientifically sound usable tools for screening social rejection and assessing SEL in children grades K through three*

Exercise Answer: *This is an example of a grant that could be submitted under the Social & Behavioral Context for Academic Learning topic. You will see here that the kinds of measures and outcomes used to validate could be different than the more content-oriented areas that we've been talking about—like Reading & Writing.*

Exercise Question:

Large-scale RCT to test whether a formative assessment system improves student outcomes

Exercise Answer: *This would not be responsive. That's the example I gave before, since it's really providing a rigorous test of the impact of the use of the assessment.*

Slide 21

Across all of these Measurement projects, there are some products that are expected at the end of the grant. I should point out that this year's RFAs were rewritten using plain language. We hope that it is helpful to applicants and we also included at the beginning of each of the goals a list of what you should be looking to provide at the end of the grant. We're hoping that it will help applicants focus their work in terms of where they're heading and write applications that will help reviewers see exactly how they're going to get there.

At the end of all Measurement projects there should be a well-specified framework that shows a clear link between the theoretical basis for the assessment—why the validation activities are being conducted—and what it tells us about potential use of this assessment for the intended purposes. There should be a detailed description of what you've actually done in the way of validation activities and how they relate to student outcomes. Again, those student outcomes may be different based on the topic that you have chosen to study. There should be clear psychometric evidence, which generally includes the reliability and the validity of the assessment for a particular purpose and for a particular group of students in particular settings.

Slide 22

In addition, projects that are designed to develop and refine assessments should provide a very clear description of the assessment: what the items are like; how they are organized; how they are administered; how they are intended to be used; how they are combined to reach a score to describe the participants; and a detailed description of the iterative development process that was used in terms of how items were initially written, how they were tested and defined, and how they were then field tested again—the typical stuff that we go through if we're actually developing or refining an assessment from scratch.

Slide 23

We're about half way through the agenda for today's webinar.

Slide 24

I've told you a bit about what we expect to see at the end of a project. Let's talk about the research narrative, which is really the core of what you're going to be writing and presenting to the reviewers in terms of the work that you're proposing to do. There are four sections in the research narrative. The first one is Significance.

Slide 25

In the Significance section, you will be describing the overall project and you'll be providing the rationale for why this project is needed. This is the hook to why IES should invest money in supporting this work. Is it going to build new theory that will be important to us in terms of being able to develop future interventions and better understand the phenomenon of interest? Is it going to be useful in helping us better assess progress and learning in the classroom and in the mediators that have an impact on learning in the classroom? This is where you really need to build your case for reviewers about why the work that you're proposing is really important do and that it hasn't already been done before.

Slide 26

If you're writing a grant application that is focused on developing or refining an assessment, you'll want to talk about the need is for this new assessment. As we all know, we already have a lot of assessments out there in the field so why is it that we need a new one? That will be an important part of the case that you're making. Or why, if we already have an assessment that assesses something similar, isn't it satisfactory? What will be better about the assessment that you're proposing to develop? Again, you'll want to talk about the conceptual framework for the assessment, giving an overview of the key components.

Slide 27

You're also going to want to talk about how the activities that you're proposing to engage in will provide good evidence on the psychometric properties of this instrument. Why have you chosen the development processes that you're using? Why have chosen a particular scoring method for the proposed assessments? You're really providing the rationale here to convince reviewers that what you're proposing to do is going to contribute to a new and useful assessment tool.

Slide 28

If it's a validation project then as always you need to be very clear about the conceptual framework. You need to describe why you have selected the validation activities that you have, what the current evidence is, why it's not sufficient to support proposed uses, and how these activities will actually be construed to present good evidence.

Slide 29

Now, we're going to move on to the Research Plan.

Slide 30

In the Research Plan, projects to develop and refine an assessment should talk about this iterative process that they are using—how they're going to develop, test, and revise items.

One of the ways that reviewers really come to understand your project—and that's what you're trying to do, you're really trying to give them sufficient detail so that they can get a clear picture of what you're proposing to do—is through a timeline for when you're actually going to do these activities. Also, please be very clear about how this assessment is going to be scored. These days we have a lot of ways of scoring assessments. It used to be that in general we just added them up and we came up with a total score.

Now, in addition to classical test theory, we have item response theory (IRT), which is the way of coming up with a latent trait score that is independent of the sample on the particular items that are used and can provide some powerful measures. Again, in IRT we have the choice of several models as well. You need to be clear about why you're choosing the model that you are.

Another current technique for scoring assessments is through cognitive diagnostic assessment, which is a method that we use to provide diagnostic information about the skills that students have. I would like to point out that part of the scoring description that you're going to be giving is around subscores as well. So many times, applicants will propose to also provide subscores, and it's equally important to provide the justification for why providing subscores is warranted and important and how those subscores will be psychometrically sound.

Slide 31

Again, under projects that are developing and refining assessments, you're going to talk about the activities that you'll use to establish its reliability. Reliability is always in relation to a given population and for particular use. Some of the typical ways that researchers think about reliability are test/retest reliability or internal consistency, which

is in relation to the structure of the assessment of whether items would fall together in the way that we would expect. In IRT, we look at the test information function to see at what points we have the best measurements, the most precise measurements. Reliability refers to how much error of measurement we expect to see in the assessment scores.

You're also going to describe how you're going to build the validity argument. We really do think of it as the validity argument. Validity is not a number that we can present to someone and say "the validity of the assessment is .65 or .12." Validity is really a rationale for the types of evidence that would convince us that a test is really measuring the construct we think it is. Here is my on-the-ground example. It comes from my days when I was teaching. And I think we can all identify with it.

When we take a test, usually we finish the test and we walk out the door and say, "Oh, that was a good test. That really measured what I thought it should measure." Or sometimes we say, "Gee, that was not a good test. You know, the instructor included material that I didn't think was going to be on the test, or the test questions were written in such a way that I really couldn't understand them, or we get the test back and we discover that it's been scored in a way that we consider to be unfair or doesn't really allow us to fairly represent our knowledge." Or, then, even if we are convinced of all the previous points, then the instructor uses the test to evaluate us in ways that are different than what we expected. Maybe it's a final exam and they only give it 10% weight in our grade.

This is pretty far removed, this example, from the actual development of assessments that many of you will do in your projects, but I think that those same thought processes are useful to walk through as you build the rationale for the validity argument you'll present. In the assessment world, we think of it more formally around such items as construct representation, which means does this assessment really measure all the important aspects of this construct that we would expect. Construct irrelevance means we're measuring something we don't think is part of the construct. For example, if it's a math test and the assessment requires a high amount of reading or high level of reading skills, that may not be what we're intending to measure in this test, so we would like to minimize the measurement of aspects of performance that are not part of our construct of interest.

Convergent evidence has to do with whether the test actually relates well to other measures that we think it should. If it's a reading test, convergent measures might include relating it to other reading measures we would expect it to have a positive correlation to. Importantly, we also need to look at discriminant or divergent evidence,

which means that the test results, the assessment results, do not relate to things that we would expect it to show a lower relationship to.

Then, the other types of evidence that might be convincing based on the potential use of the test are predictive validity. For instance, when viewing a math test that we'd like to use to decide whether students should advance to the next level of math in the next year, we would probably want to gather evidence that shows it does a good job of predicting whether students do well in their math courses the next year.

Concurrent evidence is similar, only these are usually measures that we collect at the same time. Sometimes, some of our arguments are best bolstered by expert review. So, we bring in experts or maybe an independent group to take a look at the items, either as we're preparing them or once we have gotten them to a certain level of refinement, and have them rate how well these particular items actually represent the construct that we're trying to measure. The choice of validity evidence should correspond to the purpose for which the assessment will be used.

Slide 32

We also want to be very clear about describing the administrative processes. How will the assessment be administered? Will it be given on a computer? Will it be given on paper and pencil? Is it meant to be given in a group or individually? How will we decide who gets included in taking this test and who is excluded. That will go back, again, to the intended purpose and population of the test. What kind of accommodations, if any, should be offered on this assessment?

Depending on the goal of the assessment project, sometimes it will be important to develop alternate forms. If we're developing alternate forms then we generally want to see some evidence of equating procedures and things like that to make sure that the two forms that we developed are in fact equally able to measure the construct and one is not easier than another. Again, if it is an assessment project that's meant to measure growth, then we need to be clear about how we're actually going to construct a vertical scale that allows us to relate test scores over multiple developmental levels.

Slide 33

The research plan for a validation project will have some similarities to what we just talked about. We should be clear, even in a validation project, how you are going to think about reliability. We can't just ignore it and assume that reliability is taken care of, because we may be trying to assess the valid use of an assessment in a different context or purpose than it was originally designed for. Consider what types of validity evidence we're going to collect and what kinds of statistical models and analyses we're

going to impose on those data. Frequently, we use structural equation modeling to relate measures from different assessments as a means of supporting the validation.

It's important, if we're using some of these sophisticated statistical models, to be clear about how we're going to assess model fit. We can impose a model on the data but we need to have some way of knowing whether that model is working well for the data that we're using it with, and we also need to be clear about what our processes will be in refining those models. Many times we go through a process of trying out different models and then figuring out which one is the best fit. You should be clear about how you're going to approach that task.

Slide 34

All Measurement projects in their Research Plan section should be very clear and detailed about the analyses that they're proposing to do. They should justify the statistical models that are being used. They should address how they're going to handle clustering in the data. Many times we have students who are in classrooms, teachers who are in schools, and we know that that puts additional requirements on data analysis in order to give us accurate results.

How are we going to handle missing data? How are we going to minimize missing data in the first place (which is usually our first line of defense against the potential impact of missing data)? How are sensitivity tests going to be addressed and tested? When we impose models on data we usually have to make some assumptions about how those data are distributed; for example, whether it is a normal distribution. Sometimes it matters whether we meet those assumptions. Sometimes it matters less whether we meet those assumptions. Usually our findings are more compelling if we can show that we have actually tested how sensitive our findings are to the imposition of different models and these other distributional requirements.

In regards to settings, it's really important to talk about where you're going to conduct this work. What kind of locale are you going to be working in? Are you going to be working in one urban district? Are you going to be working in districts disbursed in several different geographic areas? Are you in rural districts? Are you in suburban districts? You really need to give the reviewers a good picture of the setting in which you're going to be working, because it can be integrally important to the assessment that you're developing and the credibility of the findings from your studies. To go along with that, you need to be very clear about the students, teachers, or whoever else will be included in these studies in terms of their characteristics and how they'll be sampled. If you're working in settings that would be expected to have a large number of ELs, then you need to talk about that and how that will influence your studies.

If you're working in settings that have ELs, for example, and you plan on excluding them, then you need to be very clear about how you're going to make that exclusion decision, what kinds of measures you are going to use, and what kind of decision rules you are going to put in place. It is the same for students with disabilities. If you plan on including or excluding students with disabilities, either way you need to describe exactly how those decisions will be made and what kinds of measures will be used to make them.

A question that we get a lot in Measurement projects is sample size. How many students, teachers, schools (whatever the appropriate level of analysis is) do I need in my study? The answer to this always depends on what you're doing. It depends on the types of analyses you're doing. It depends on the type of assessments that you're developing. It depends on whether the assessment will be used for low or high-stakes purposes, and on the type of construct that is being measured. There is no simple answer. If we're trying to measure a construct that's already pretty well defined and has been the subject of other assessments, we may not need as many participants as if we were branching out and trying something new.

Conversely, if you're developing an assessment on a construct that has not had much research done and you're really just starting to work on an assessment of this kind, you may choose to focus in on a smaller sample size and do a more in-depth study using think-alouds and interviews, and things like that. The end of this story is that it's your job to convince the reviewers with sufficiently detailed information that you are proposing an adequate sample size to meet your needs.

Question: *“How does IES evaluate sample size for Measurement projects for students with low prevalence disabilities? Often ideal sample sizes for IRT are not feasible; however, a combination of procedures and analysis can provide adequate data.”*

Answer: *I think it's one of the issues that Karen keeps saying to contact a specific project officer about. It may be that IRT is not feasible, given the resources or budget amounts that may be needed for the number of students you need for your study or if you need to go all over the country to find the number of students. You should justify the procedures and analyses that you're proposing and that they are appropriate for your research questions and your research aims. My recommendation would be to contact your Program Officer for the given topic, if you have more specific questions about this issue.*

This is a good opportunity to say something else that I haven't really hit on yet, which is that hopefully in your project you will be working with researchers that have a lot of expertise in developing assessments and doing this kind of work, and they can really

provide guidance. On the review panel, there will be people who are knowledgeable about all the important components of these projects. So, there will be people sitting there who are familiar with the field, and that's the standard that I think the reviewers will generally be holding applicants to. I mean they have a pretty good idea about what's possible to do.

The important thing is that you're clear enough in your application that reviewers can actually judge what the work is that you're proposing to do, how many students you're proposing to use, and your rationale for why you and your team believe that the number of students you're proposing to work with will be adequate to provide good assessment development or validation.

Slide 35

That's a quick trip through the first two sections of the research narrative. So far in the Significance section, you've convinced the reviewers that the assessment that you're proposing to develop, refine, and validate is important and is in need of having such work conducted. Then, in the Research Plan, you've laid out in great detail how you're going to conduct that work.

In the next two sections of the research narrative, you're going to be telling the reviewers about the people on your team that have the expertise to carry out that work and the institutional resources that you have available to support that work.

Slide 36

In the Personnel section, you will need to describe the key personnel on the project and show that every aspect of this project has someone on the team with such expertise. In an assessment project, it will be critical to show that you have assessment and psychometric expertise. I should point out that I haven't put statistical expertise on here. That's also important. These are frequently different people. The development of assessment items can frequently be a researcher with one set of skills and experience. Psychometric experience may be the same person or it may be someone different. I would say the same thing about the statistical expertise. They may be the same person or they may be different people. Your job is to lay out in the application where and with whom that expertise resides.

You need to make sure that you have people on the project to cover all the important expertise that's needed. In addition to assessment and psychometric expertise, you will generally want to have people with content expertise, so if you're developing an assessment of behavioral measures you'll want someone knowledgeable about the behaviors that you're studying. If you're also interested in applying these assessments

to special populations, such as ELs, you'll want to have someone on the team knowledgeable about ELs.

If your assessment development involves a large technology component, it's really important to demonstrate to the reviewers that you have people or a person on your team that knows about developing technology for assessment delivery. Do not just propose that you're going to hire such a person. Reviewers aren't generally very convinced by that approach, primarily because it doesn't give them any information with which to judge that person's expertise. Also, the other thing that you really want to demonstrate in the expertise on your project and your key personnel is that you know how to manage a project.

We're very concerned about the scientific aspects of our work, but we also know that there's a lot of management required to carry out these projects, which typically take place in complex environments and require the management of a team of people across different skill sets. It's really important to talk about how you're going to foster communication and collaboration across the various team members to make sure that everyone knows what is happening, so that their work is coordinated to meet your goals. This is particularly important to demonstrate, if the team is disbursed across the country.

Not only are you going to show that you have all the expertise that you need on the project, but that the researchers on your project are devoting sufficient time in order to conduct the work. Reviewers are very attentive to this. They themselves are experienced researchers, so they have some sense of how much time it takes to actually get work done well. You should be very thoughtful about the amount of time that key personnel are devoting to the project.

Then, you'll also be asked to include CVs for key personnel. Here it's important that they be oriented to show the expertise of the team in relation to this particular project. It's probably not as convincing to just put in stock CVs of what everyone's been doing. It's much better to take some time and ask people to rewrite their CV to point the reviewers to their particular expertise for this project.

Slide 37

As we said, make sure that there's adequate time, as shown on the project for the PI (principal investigator), and that the credentials are clear. Not all reviewers know all the researchers that are proposed on our projects and so you may know very well that someone on your project has a wide array of experience and expertise in assessment design and psychometrics, but it may not be as apparent to reviewers. You need to be very explicit about that.

If you're an early career researcher and you're proposing to be the PI on a project, then you need to show not only that you have the scientific experience to do this work but also that you have some experience or credibility in terms of managing the project. As I mentioned earlier, the management of an assessment project requires a lot of practical experience in bringing people together to communicate and collaborate.

You may actually have acquired and demonstrated these skills as a graduate student, so you could think about, if that's the case, how you would present that to the reviewers. You might also consider, if you want to have a co-PI who is a more senior person you could turn to for help and that the reviewers would consider to be of help to you as you make your way through this first large grant. If you have a senior person on the project that's filling that role, it's important that that person have enough time on the project that the reviewers will think they're actually going to contribute in the way that they should.

Slide 38

Under Resources, you're also going to be asked to talk about your institution and the capacity that your institution will provide in doing this work. Again, as in most things, boilerplates are not the ideal way to present this information. You will want to target that description to show that your university actually is providing whatever those needed resources would be for your work, whether that be the computers, office space, access to graduate assistants to help with the work, and other organizations that are going to be necessary for the successful completion of the grant.

Here, we put a lot of emphasis on the schools or other educational settings. Typically, that's where a lot of our work is done. You will be asked to include letters of agreement from schools or districts that have committed to helping you conduct this research and, as this slide indicates, what your fallbacks will be in case some schools or districts drop out.

There is a special appendix in the application that was just introduced this last year called "Appendix C," and that's where these letters should be placed. The letters should be very specific, so that it's clear that the schools really understand the commitment that they are being asked to make. They should include such information as how much access to students during the school day (if that is the case). It should show that the school understands how many students or teachers or the level of resources they're committing to.

Also, I can't emphasize strongly enough how important it is that you start building good relationships with school settings. It probably wouldn't come as a surprise to any of you that it's getting more and more challenging to actually get into schools, and this can be particularly problematic for assessment projects. Many schools are telling researchers

that they are already spending a lot of extra time giving assessments, and parents are not too happy about the amount of time that's being devoted to assessments. Schools may not see the immediate return of allowing you to come in and spend more time giving assessments. You should have started working yesterday to build those relationships and try to be creative in your conversations with schools about how your work could actually be of use to them. That may help you to get more cooperation.

Slide 39

In the Resource section, you should also include information on any existing data that you're proposing to use if it's not publicly available data, and that should be specific in terms of what dates you will actually have access to these data. If you already have access to the data, you can certainly talk about that. If you've used these data before, then you should talk about your knowledge of the data and that will convince reviewers that you have an increased likelihood of being able to do what you propose.

Merging data sets is a specific concern, but it can be problematic. So, if you're proposing to gather a bunch of data sets and put them together, then you should include evidence that this can be done.

Question: *"Is there a difference between the project director (PD) and the PI?"*

Answer: *In our application package, we talk about the PD. That is the point of contact on one of our grants. Every grant has to have one point of contact. It is used sort of synonymously with the term "principal investigator."*

Slide 40

What are some common problems that we see in dealing with applicants around Measurement applications and reviewers' comments? I keep circling back to this first point, which is that there really is not a clear description given of what the assessment is, what it's based on, and what the underlying theory is that leads us to think that administering this assessment will give us good information about a given construct. It's really important that you explain all your terms and underlying assumptions about the construct of this particular phenomenon, skill, knowledge, or ability that you're proposing to measure.

You must have a clear description of what's actually going to be completed at the end of the grant and sufficient justification for why you've chosen to design this assessment or validation study in the way you have. Why do you think it's important that this assessment be given individually versus in a group setting? Why do you think that students need to write essay responses to provide the information rather than answering multiple choice questions?

Hopefully, what's coming through is that there just needs to be a lot of detail around your thinking, so that the reviewers can really walk through your application and have a coherent picture of where you started, what questions you're proposing to answer, what need you're proposing to address, and how that has led you to the design of project in a certain way, and why you think that at the end of this project the choices you've outlined clearly in the application will lead to a good results.

Frequently, there is not enough description of the actual students, schools, or teachers who will be included in the study. That provides a disconnect for reviewers, because they can't connect your research questions and your design decisions to the ultimate purpose and outcome of the work you're proposing.

Again, you must have enough clear detail around the analytic methods that you're going to use, how you're going to come up with a score or a series of scores based on the assessment information that you gather, and why you think that you will have enough students or teachers to do that; as well as state the sufficient and clear expertise on the team in regards to assessment and psychometric expertise. There have been a lot of advances in the field of psychometrics and assessments in the last 10 or 20 years, and what that means is that we have a lot more tools available to us to improve the assessments that we're using, but it also means that there's a greater need for expertise in how to actually use those tools in good ways.

Slide 41

There are three appendices that you can include as part of your application. The first one is Appendix A. This is a place, where if it's a resubmission, you are asked to put in justification for your response to previous reviewer comments. This is your chance to talk about ways that you've perhaps modified your application based on what reviewers told you the first time around. You're also asked, if you are submitting this as a new submission rather than a resubmission, to include an argument for why that's the case, and that's something new that's been added to the RFAs this year.

If it's a validation project, you can also include examples of measures that you're using as part of that validation. I want to contrast that with the next appendix, which is Appendix B. Appendix B is where you should put examples and materials that are being designed for this particular project. If you have prototypes of items that you plan on using in the new assessment, that's where those would go. Appendix C, we've already mentioned. This is where you're going to put your detailed letters of agreement from the schools, partners, and providers who are going to be participating in your study.

Slide 42

The next section is the Budget and the Budget Narrative. Here, obviously you'll provide your budget numbers and a budget narrative for the overall project. Each sub-award is also expected to have a budget in the application. The full information on the budget categories are in the *Application Submission Guide*. Remember to check the RFA. There are different budget requirements according to various programs, so you should check that very carefully. Most importantly, you should make sure that there's agreement between what you've said you're going to do in your Research Narrative and the Budget that you request, and then the way that you describe the budget in your narrative. Sometimes, when reviewers are not clear about an activity that's going to take place in the other parts of the narrative they will actually go to the Budget for further clarification. So, there needs to be coherence across those three sources of information.

Question: *“Does assessment or psychometric expertise necessarily involve those who have designed assessments?”*

Answer: *That's a good question. That takes us back to 2 questions. What is this project setting out to do? What type of expertise do you need? So, they can be the same. There are some people who have all those skills together, but I'm using assessment expertise here to denote people who actually have developed assessment items. Sometimes, those folks are people who have experience in the content area, who also then can bring that content area expertise to bear on what an actual assessment item would look like, in contrast to some researchers who we would consider to be more psychometric expert who would tell you that they're really not well-suited to write items, and their skills are really brought to bear after the data has been collected or as you're thinking about how you're going to collect the data in such a way as to score it and do the statistical analyses that you're proposing to do. The short answer to your question is they could be the same or they could be different, depending on the scope of your project and depending on the expertise of the folks that you're working with.*

Question: *“Are there cases where the PD is a different person than the PI and how are they different?”*

Answer: *I think in some cases there may be projects where there is a project coordinator and that coordinator may be given the title “project director,” where they're overseeing the day-to-day activities for the grant. I think the important thing to remember is that the PI is the person who's ultimately responsible for the project. It's a point of contact for the Department of Education, and the PI is the person responsible for making sure that the grant does what it has set out to do. Then, there can be instances where the project has a coordinator as well and whether you call that “coordinator,” “project director,” or “project coordinator,” it is up to you and your*

university how you want to handle it. The key thing to keep in mind is the PI is the person who's ultimately responsible for how the project meets its end goal.

There can be multiple PIs on a project, because that question sometimes arises, too. So, again, it's good to differentiate here. But from the way IES uses the term "project director," one of them must be designated as the PD to serve as the official point of contact between IES and the grantees.

Slide 43

Now, I'm looking at a slide that talks about awards. The maximum for a Measurement grant is 4 years and \$1.6 million total. What's important to remember here is that the requested number of years and budget should align with proposed activities. It's not necessary that every Measurement grant take 4 years or a \$1.6 million. What you should really think about is how much time you need to do the work that you're proposing and how much funding it requires to do that. Again, that's something that the application should be cohesive with in terms of the work that's being posed, the activities that will be conducted to complete that work, and that's what will justify the timeline and the funding that you're requesting. Applications that ask for more, either more than 4 years or more than \$1.6 million, will not be accepted for review. It's really important that you not exceed those totals.

Slide 44

It looks like we're almost to the end of our agenda here. Next up is the application submission and review.

Slide 45

I want to take this opportunity to remind you that we are hosting other webinars that deal with these topics in greater depth, so this is just a very high-level look at these topics. What you'll see on this slide that shows dates and deadlines is two things. First of all, the education research and the special education research topics have two submission dates, one in June and one in September, and there are different application packages for each of those dates. It's really important that you get the right application package, because if you submit with the wrong application package you will be rejected, and that's a very sad day for all of us when you've done all the hard work of preparing an application. Please be very careful to download the correct application package.

You'll also see here that there's a date set for the Letter of Intent (LOI). One of those just recently passed. LOIs are not required for IES, but they are highly encouraged. They're not binding in the sense that if you put in a LOI and then you decide to change your application, either by topic, goal, or center, there are no consequences to that.

They just serve two functions. One is that they help our Standards & Review Office to assemble the panels that they'll need to review applications and the other is that they start off a formal process here at IES, because Program Officers receive copies of the LOIs in their areas. Program Officers will then reach out to you to let you know what resources are available and how they can provide technical assistance to you as you're working on your grant application. We really encourage you to take advantage of this opportunity to put in LOIs.

What this slide also shows you are some of the other RFAs that are being competed this year, which we have not talked about in this webinar because the Measurement goal is specific to the 305A and the 324A RFAs, but I hope you'll take a look at the other RFAs that are out there, which could also be very relevant to the studies that you would like to do.

Slide 46

We have a new link on our website this year for application information. We hope that it will be a bit easier to use. We think that our staff has done a really good job of organizing the information in a way that will make it most accessible to you. Just about anything you want to know about applying to us for funding can be found at this website that's listed on the slide. The RFAs are there; information about LOIs; the Application Submission Guide, which takes you through, in great detail, a lot of information that is necessary for making sure that you actually have an application that's submitted properly; and then the application package information is there.

Slide 47

First of all, your institution needs to be registered with Grants.gov before you can put in a grant with us. Please make sure that whoever is doing that for you at your institution gets started thinking about that sooner rather than later. It is a process that can take time, so you don't want to put that off until the last minute. You can submit your application electronically online and upload PDFs. Your authorized representative, however, will need to be involved in completing this process.

The next bullet, submit by 4:30:00 p.m., Washington, DC, time is absolute. There are no exceptions made for being late. It's always heartbreaking for all of us, if an application comes in even a couple seconds late and, therefore, can't be reviewed. If you have problems uploading there is a helpline that you should contact and be sure to get a case number.

Slide 48

You'll receive three e-mails after you submit. The first one will tell you that your submission has been received and will give you a number that starts with the word "grant." Then, you'll get a second e-mail that says that your application has been validated or that it's been rejected due to errors. Errors can be really simple things like a hyphen in the wrong place in the title. I mean, some of these processes can be very, very picayune. If you get an e-mail that says that you've been rejected due to an error, then you need to resubmit and make sure that you get that validation e-mail again. And then the third e-mail will actually assign your grant with a number that starts with the appropriate RFA, which is R305 or R324.

It can take several days for you to receive all these e-mails, and the message here is very clear—you can't wait until the last minute to submit your application. We all know that technology can pose many challenges, unexpected or expected, and you don't want to be caught not being able to submit the application that you've worked so hard on because of some technological glitch or because of some other unanticipated aspect of your application that could be easily fixed and quickly resubmitted. That only works if you are working ahead of the deadline.

Slide 49

After your application is submitted it goes through a number of processes. First, it will be screened for basic compliance with format, such things as page requirements. Then it goes on for responsiveness screening to make sure that it actually meets the requirements of the RFA, the topic, and the goal under which you submitted it. Then, it goes on to review. Two or three reviewers, typically representing both substantive knowledge and methodological expertise, will be assigned to initially review it. Applications that are scored high enough go on to a review by the full panel. You should just remember that it's likely that there will be an expert on the panel for just about anything that you're proposing to do, so you should write your application accordingly.

The applications receive an overall score, and they also receive a score for the four sections of the narrative that we've been talking about. So far, all applications with an overall score of outstanding and excellent have been funded. Having said that, a lot of applications aren't funded the first time around, so we really do encourage resubmission. Our reviewers provide good comments and feedback on applications, and they generally, if followed, greatly strengthen the applications that are subsequently resubmitted. After you get your panel review comments back, we really recommend that you contact a Program Officer, set up a time to talk with them about the reviewer comments, and think about how to move forward with the resubmission.

Slide 50

Here's a website that will take you to information about the peer review process. As I pointed out earlier, the Standards & Review Office is a separate office from NCER and NCSEER. They are really the resource to use to find out more about the peer review process.

Slide 51

As I just mentioned, all applicants will receive notification about the status of the application review and copies of the reviewer comments, and we hope that you'll think about resubmitting if you're not funded on a given submission.

Slide 52

Here's a list of additional webinars that are coming up, and you can go to our website and find out the dates, times, and registration procedures for these. As you'll see, some of them just provide a much more in-depth overview about how to apply with IES, and then there are some webinars about specific goals and other topics as well.

Slide 53

For more information, again, you can go back to our funding page. I'll put in my last plug—get in touch with the Program Officer for the topic that you're interested in pursuing. There's great variability in the RFAs between topics and between centers. We're talking about Measurement projects here, but even among the Measurement projects in terms of what the RFAs consider to be the call for the work and what will be required for submitting applications vary greatly under different topics and goals. The best thing you can do is, first of all, to read to the RFA yourself in great detail, and then to get in touch with a Program Officer to talk about your questions.

Slide 54

Again, this is Karen Douglas. If you have any questions on this, I hope you'll feel free to get in touch with me. Kristen Lauer from NCSEER is also available, and her e-mail is here if you have follow-up questions for her. I want to thank you for joining us today and we'll look forward to talking with you about your future Measurement projects.

This concludes today's webinar, the "Grant Writing Workshop for Measurement Projects," part of the research funding opportunities webinar series. Copies of the PowerPoint presentation and a transcript from today's webinar will be available on the IES website shortly. Thank you and have a wonderful day.