

Grant Writing for Research on Low Incidence Disabilities.
Week 1 -- Introduction and Overview

Kristen Rhoads:

Good afternoon. I want to thank you for joining us for this webinar on grant writing for research with students with low incidence disabilities. My co-presenter, Rob Ochsendorf, is here with me and we will spend the next hour and a half or so giving a basic introduction to the IES grant process and overview and research narrative. The research narrative is comprised of four components: the significance, the research plan, the personnel, and the resources. We're going to discuss the significance section later on in the webinar this week. And next week we'll talk about writing a research plan, putting together a team, and describing your resources.

I want to remind you to mute your phones so that we don't have any feedback on this end. And I also want to remind you to use the chat function in your WebEx if you have any questions, and we'll try to address your questions along the way.

So the first thing to ask yourself is "Does your research topic fit within the Institute – IES- and NCSEER's research priorities?" So, just for reference, the Department of Education's mission is to promote student achievement, and preparation for global competitiveness, by fostering educational excellence and ensuring equal access. So then the next question is, "What are IES' aims?" We included the organizational structure of IES to show the Centers within IES. We are here today to talk about the blue box, which is the National Center for Special Education Research and our research programs. There are three other centers within IES who do research that will not be discussing them today. Again we're just focusing on the National Center for Special Education Research.

And I want to point out the box over to the left, the Standards and Review office. We will spend a little bit of time today talking about the review process and who's on the grant panels as reviewers. It's important to keep in mind, as you're looking at this visual, that the Standards and Review office is separate from the National Center for Special Education Research. This allows project officers at the Special Education Research Center to talk with you as you're preparing your grant application. So keep that in mind. If you have any questions that we're not able to address on the webinar today, you can feel free to send Rob or me an email, and we can follow up with you with your specific questions.

We want to talk about the IES grant programs, as a whole, and the research objectives. The first objective is to develop, or identify, education interventions. We use the term "intervention" broadly. It can be practices, programs, policies, approaches, curricula. It can be a short intervention –something that's two to six weeks long for example, to a longer intervention, which could be a yearlong, or even longer, intervention. So keep in mind that we use the term "intervention" broadly when we talk about developing and identifying interventions.

We want to find interventions that enhance academic achievement. So, what interventions improve developmental and education outcomes for students, or young children, infants, and toddlers, and what interventions can be widely deployed? Are these interventions something that schools, practitioners, service providers are able to implement easily and widely within their

systems. We also want to identify what does not work, and, thereby, encourage further innovation and further research. And we want to understand processes that underlie the effectiveness of education interventions, and the variation in their effectiveness. In other words, we want to find out what works for whom and under what conditions.

Focusing on NCSER specifically. We sponsor a program of special education research that's designed to expand the knowledge and understanding of infants, toddlers, and students with, or at risk for, disabilities from birth through high school. Again, it's important to keep in mind that we're interested in children from birth - children who may be receiving early intervention services, or at risk for receiving future special education services - up to students who are in high school. So if you're studying students who are in high school, grade 12 or beyond grade 12, if they're still in high school, you would be able to apply for NCSER funding. The students can be identified with a disability, or have an IEP, or IFSP in place, or they can be identified as being at risk for future identification for an IEP or an IFSP.

Showing what NCSER has invested in, in terms of low incidence disabilities, or the disability categories in general that NCSER has invested in over its 10 year period. You'll see that the largest piece of the pie is the category "disability category not specified." This means that the grantee has said that they're interested in studying students with disabilities, and they have not identified a specific disability category for the students of interest. Other large pieces of the pie are "specific learning disabilities," "emotional disturbance," and "at risk only." "At risk only" includes grants with students who show potential risk for being identified as having a disability. And you can see the break out for the rest of the categories in the pie.

Looking at this another way, grants with the disability category not being specified are about 29 percent. If we grouped specific learning disabilities, emotional disturbance, other health impairment, and speech language impairment as a group that would be about 35 percent of the projects deal with these categories. About 11 percent deal with at risk only. And for the purposes of this webinar, we have defined low incidence disabilities as autism, intellectual disabilities, deaf and hard of hearing, visual impairments, developmental delay, multiple disabilities, and orthopedic impairment. And you'll see that NCSER's investment is about 25 percent that focus on children in one of these categories.

If you want to break it down another way, as an investment in dollar amounts, rather than numbers of projects, the investment is somewhere between \$100 and \$120 million that has been invested in students with low incidence disabilities as we just defined them. So a pretty significant investment that NCSER has made in students with low incidence disabilities as a group.

Later, we are going to talk about developing grant proposals. I think it's helpful to first talk about the grant application process. The first thing is to identify your idea and the appropriate agency for funding, and the appropriate funding opportunities. And we assume that you have done that prior to being on the webinar. So you want to determine whether your research fits within NCSER's priorities and specific Request for Application.

And then, you'd write the proposal, submit the proposal, receive review, and you either receive the grant award or a letter saying that your grant has not been awarded. So that is the process. But, we want to talk a little bit about the review process. So you've submitted the proposal. And when it comes to the Institute, the first thing that we do is screen the proposals for being compliant and for being responsive. So in other words that's saying, "Was the application submitted on time? Are all the components in place? Does the application meet the requirements?" and that sort of thing. So if your application is determined to not be compliant or to not be responsive, it will be removed from the peer review process and you will receive no comment on your application. Very few applications are determined to be not compliant or not responsive.

The next step is to have the application receive an initial review. The reviews are conducted by two to three primary reviewers who will score your application according to the criteria that are listed in the Request for Applications. They will send the scores back to the institute. Those applications that are considered to be strong enough and have strong enough scores to move forward to full panel review will get the full panel review. Those that are deemed to be not strong enough will be triaged and set aside and nothing further will happen to that application in terms of panel review. If your application was triaged, you still will receive reviewer comments from those two to three primary reviewers.

The next step for the application is to be reviewed by the full panel. One of two things can happen at the full panel. One is that your application is not recommended for funding. The next would be that your application is recommended for funding. So if your application is recommended for funding, IES will contact you to ask you to demonstrate that you have access to data sets, to schools, to the children that you promised that you would have access to and potentially other questions. We want to make sure all that is in place before we make a grant award.

Before I move on, we did have a question about the resubmission process, and whether the same reviewers review the application. The office of Standards and Review tries to have the same reviewers review resubmitted applications. That does not always happen. We have standing panels in place and sometimes reviewers will rotate off or they're just not available at that time. But they do make every effort to have the same reviewers review a resubmitted project.

Moving on with the recommendation for funding. The four things that the Institute considers if your application is recommended or for recommendation for funding: the first is the scientific merit as determined by the peer review which we just discussed. The second is your performance and use of funds under a previous federal award. If you had issues under previous federal award, we would take that into consideration with your recommended application, and use that information to determine whether we should go ahead and move forward with funding. The third thing is the contribution to the overall program of research. And the fourth thing is the availability of funds within the Center.

This slide gives you a sense of the grant panels and reviewers for the grant panels. We have some standing grant panel areas. You'll see that there are panels on early intervention and early childhood education, math and science, reading and writing, social behavioral issues, and special

education. We do have a panel that reviews applications that are related to special education. This is the panel that typically handles applications dealing with research questions and samples of students with more low-incidence disabilities. We have a link down below that I encourage you to follow. It names the reviewers by year, and sometimes by panel by year. So if you go ahead and click on that link you'll see who has served as reviewers for IES in the past. And again, the Standard of Review Office matches the grant proposal in terms of the content area of the application and the methodology used in the application when they're assigning reviewers to review a particular application.

Okay. So I don't see any questions. So we're going to move on to talk about developing the proposal, and Rob's going to walk you through the next set of slides.

Rob Ochsendorf:

Great, thank you, Kristen. See -- hold -- pause for a second and see if there are any questions, but we'll be talking a little bit about the topic and goal requirements in the next section. So to apply to NCSER for funding you must identify a topic and a goal. And within the context of the RFA these terms have very specific meanings. Topics identify the content of the grants. Reading versus, say, math, or policy. And within the NCSER RFA there are 11 grant topics to choose from. We'll get into the details of those a little bit later. You must also identify a goal. The goals identify the type of research that you plan to conduct. Whether you're developing an intervention or proposing to develop a measure or something like that. And the research questions that you're proposing, and the methods that you're proposing, will dictate the topic and goal that is identified.

So, choosing a topic. Please read the RFA. Review the topics and the methodological requirements. And you can also read abstracts of projects funded under a research topic or program. That's often very helpful to get a sense of what's been funded before under a given topic and goal. You'll get a sense for the kinds of things that fit within a specific topic or within a specific goal.

So here are the 11 research topics within the 84.324A-RFA. Give you a second to read those. Some similarities and differences across the topics, all of these topics require a focus on student outcomes of some sort. And that's defined in the RFA as well. The grade range can vary by topic. So most topics tend to be K through 12 only but some do allow for work to bridge these age-grade ranges. For example, in the transition topic there is some allowance for looking at a bit of post-secondary settings given that the bulk of your work is happening in high school. Then you can -- you can also look at the -- into what happens to those students in post-secondary transition settings. And then some of the topics, for example, early childhood, early intervention, allows for a focus on birth, pre-K through grade 12. So those are some of the similarities and differences.

A very common issue that comes up for applicants is, "What do I do if I have overlapping topics?" For example, if you're conducting research on teachers, math teachers for example, is that the math and science topic or is that the professional development topic. And then certain specific populations of students, for example, an autism, if you're maybe just interested in improving math outcomes for students with autism then that'd probably be more like a math

proposal. But if you're interested in more comprehensive kinds of interventions then that might be more suitable for the autism topic.

And then the specific age groups of students can often cause some confusion if you're looking at that pre-K, K age range then maybe it -- you'd be uncertain about which topic. And often a conversation with the program officer or program officers can help clarify that. And then certain pieces of the intervention can also lead to some confusion about which topic you might be most suitable for.

So these are some key questions that you might consider when you're trying to decide between topics. So the first one says, "What literature are you citing?" If you're proposing to develop a math program that uses some feature of technology, then are you primarily interested in a new pedagogical approach to delivering math content? Or are you interested in a -- in a new technology intervention? Or is the -- is the innovation around the technology or is the new innovation around the math pedagogy? So that will dictate what literature you're citing and what background you're coming from. And that may help to determine which topic you apply to.

And then which topic is your area of expertise best aligned? Think about what your background is. If you're more of a -- of a technology researcher, education technology, then maybe that would be a better fit for the proposal. If you're more of a math person, maybe think about that difference as well. And then, what is the purpose of your project? So think about all the different kinds of focus that your project might have. So improve reading outcomes for kids with, or at risk for, disabilities could be a reading application. If you're talking about preventing reading disabilities, slightly different focus. If you're talking about reducing inappropriate referrals to special education, maybe that's a policy or systems, kind of an approach. And so on. If you're still unsure about which topic, please contact the relevant program officers for clarification. This is a very common issue so you would not be the first [laughs] one to call with this question.

Next, we'll move on to choosing a goal. There are a number of different goals in the RFA, five to be exact. And to try to figure out which goal is right for your project, you need to think about your research question. Think about the product, or products that you hope to have at the end of the grant. That will often help determine which goal to apply for. And if you're not sure, check the RFA, discuss with a program officer. If you're across several goals, this is a good piece of advice. Perhaps consider the idea that you might be trying to do too much, and so it might be better to break it into smaller pieces. And then choose the goal with the best fit for what you're trying to do. Obviously not -- don't make goal decisions based on the amount of money available for each goal. That's not the way to go.

So these are the goals which have been in place for a number of years now. But as I mentioned there are five: Exploration, development and innovation, efficacy and replication, effectiveness, and measurement. And I'm going to walk through briefly each of these.

The idea with exploration is that we're interested in associations between outcomes and particular malleable factors under the control of the education system. Typically these projects involve some focus on mediators and moderators of those education outcomes. And some

possible approaches include analysis of secondary data, which is quite common. You can also collect primary data. You could do a meta-analysis. Or you could do some combination of these within the exploration goal.

So for development and innovation, the idea here is that you'd be developing an innovative intervention or improving an existing program. And you would be collecting data on its feasibility, usability, and fidelity of implementation in actual education settings. And then, at the end, you would collect pilot data on student outcomes to provide some evidence about the promise of the -- of the program.

The third goal is efficacy and replication. And here the idea is to evaluate whether or not a fully developed intervention is efficacious. Or you could choose to replicate the study of a -- of an existing efficacious intervention, perhaps with a slightly different -- in a slightly different setting or maybe with a slightly different age group. Something like that. The idea is replication. Or you could gather follow-up data, examining the longer term effects of intervention with demonstrated efficacy. And then finally, you could also do retrospective secondary data to test an intervention implanted in the past. And here you'd want to be conducting an analysis that had not been done before on existing data.

The fourth goal is effectiveness. And the idea is to evaluate whether a fully developed intervention that has evidence of efficacy is effective when it's implemented under typical conditions and through an independent evaluation. So it's similar to the efficacy goal except the conditions under which it's implemented would be a little more typical in terms of what you'd see in a -- in a district or in a school. And then you'd typically involve an independent evaluator to assist with key aspects of the research project. Here we stipulate that there must be prior efficacy research of the intervention.

Finally, the measurement goal. The idea is to develop a new assessment or refine an existing assessment and to demonstrate the validity of the measure. And so here the idea is validation of existing assessments for specific purposes, context, and populations.

So I will pause for a second. That was basically just topics and goals. Many of you are probably very familiar with that content. But we're going to move on a little bit more in depth here to the research narrative part of your proposal. And I'm going to hand it back over to Kristen.

Kristen Rhoads:

The research narrative is the key part of your application. There are four sections of the narrative which I alluded to earlier: The significance, the research plan, the personnel, and the resources. And the requirements for those sections vary by topic and by goals. So you'll want to pay attention to the language in both the topics and the goals when you're addressing the four criteria.

Your research narrative is 25 single-spaced pages. That's not a lot of pages to get all of the information in, so you'll need to be judicious and prudent about what you put into the grant application.

Another way to think about this is--- what are you proposing to study, and why is it significant? Or the “what?” of the grant application. Then the “what will you do?” and “how will you do it?” The research plan is the “how” of the grant application. So how will you accomplish solving the problem that you’ve laid out in the significant section? Then, “Why are you the best person and team to do it?” would address the personnel section. And “What will you need in order to conduct the research?” would address the resources.

We’re going to talk about each of the four criteria in a lot more detail over the next two weeks. But I did want to take a minute to discuss a question that I’m often asked by potential applicants when they’re working with low incidence populations. They will ask, “Well there is no or not a lot of empirical or theoretical evidence. There’s not a large volume of empirical or theoretical evidence,” for a particular program or research focus. I usually recommend that they pull from the empirical or theoretical evidence for another group of students that may be similar to the population of interest.

For example, if you’re looking to conduct research on a reading intervention for students with visual impairments, you might think about “Well how might this reading intervention build upon the theory or empirical evidence for typically developing readers, or for students with other impairments. And can that work be extended to the project that you’re proposing now for justification of that work.”

I just want to stop here. We do have a question about what is allowed in the appendices. I don’t want to take a lot of time to explain what is allowed in the appendices. The Request for Applications outlines what can be allowed in the different appendices. And I think we have some slides on it for next week. So, something that we’ll cover next week.

Okay. We have a couple of slides with general tips for you to remember as you’re preparing your grant application. We alluded to this earlier that your application needs to be clear, concise, and well reasoned. Basically your job is to convince the peer reviewers that you have the skills -- content area skills, methodological skills to complete the work that you’re outlining in your grant application. Keep in mind that reviewers are looking for you to be able to do things that are doable, testable, meaningful. You’ll want to demonstrate that you are able to do what you say needs to be done and that you have the skills and the content area, methodological knowledge to do what you’ve outlined in a significant section.

Things to keep in mind in terms of clarity of writing. These are some comments that we see across many, many grant applications, that the project is too general. That it lacks detail regarding the intervention, the development of the intervention, the data analysis, the development of the assessment you may be doing if you’re doing a Goal 5 study. You want to make sure that you have enough detail so that the reviewers understand what it is you are trying to develop and how you’re going about that development process. We see comments about too much use of jargon and too much assumption that the reviewers know, in great detail, what it is that you’re trying to do. We do see comments about poor writing, awkward constructions, et cetera. So you want to make the reviewers’ job easier as they’re reading their grant application. You’ll have to keep in mind that reviewers receive about 10 applications to review. You’ll want

to make sure that your application stands out for the right reason and not for the wrong reasons outlined in these bullets.

So the first step is to describe the significance of the project. These are your research questions that you're going to answer, the intervention or the measure that you want to develop, and evaluate, or validate. You want to provide a compelling rationale for the project. The theoretical justification, the empirical justification, and the practical justification -- and I talked a little bit earlier about what do you do when there is not a lot of theoretical evidence or empirical evidence. The recommendation would be to try to pull upon somewhat related areas where there may be more of a theoretical or empirical base. In some cases the practical justification may be more important to present than other two types of justification when there's not a lot of theory or empirical evidence.

In the significance section, you want to justify the overall importance of your work. In terms of the research plan, this will be describing how you intend to solve the problem or to answer your research questions. Do you plan to develop your intervention, evaluate your intervention, develop and/or validate your assessment? How will you go about doing these things? What sorts of activities will you conduct in order to develop or evaluate your intervention, or develop and validate your assessment? You'll want to make sure that your research plan aligns to your significance section. All of the questions that you have outlined in your significance section - your research questions - should have justification in your research plan. You should be addressing each question that's outlined in your significance section. And all procedures in the analysis should fit the research questions that you've outlined in your significance section. I think it helps to have a step by step process or a timeline to show reviewers when everything will be done, and the order of events that will take place.

Okay, so there is a question about the types of justification and whether one outweighs the others. Let me go back. So in the significance section there's these three types of justification. And I wouldn't say that one necessarily outweighs the others. But I think there are instances where the theoretical and empirical justification -- there is just not a lot out there in the literature. This can happen when you're working with students with low incidence disabilities as your population of research. So the question becomes "What do you do?" It may be that you emphasize the practical justification and explain why something may be desperately needed for a specific population. You've put the focus on the practical justification, and in that sense, it may outweigh the other two types of justification. But the second step of that process would be to try to draw on theoretical and empirical bases with related groups of students in order to show that you're not necessarily making a far leap in terms of the theory and empirical evidence for your research study if there's just not a lot out there. So I hope that that clarifies that for you.

Okay, you said it did, so we're going to move on. Okay, we talked about using a timeline to show when everything will be done. And personnel, you want to convince the reviewers that your team has the skills and experience to implement the proposed work. You should have someone on the team that can implement the pieces of the research plan that you've presented. So if you've proposed a particular content area, your personnel should have expertise in that content area. If you've proposed a particular disability category, your personnel should have expertise or experience working with those students.

And then the final are would be your methodology. If you're proposing to use single case designs, for example, your personnel should have expertise in conducting single case designs and analyzing the data resulting from single case designs. It may be that you do not have all of that expertise in house or at your institution, so we would encourage you to partner with another institution in those instances. You want to demonstrate your productivity in terms of research, as well dissemination of your research in getting your products that you've developed and/or tested out into the hands of the field, as a whole, and practitioners, and the things that you've developed, have been used. And you'll want to make sure that the team includes a senior researcher with a strong grant record. That is particularly important for young investigators to have someone with a senior researcher and a strong grant record on their team.

We talked about this earlier, making sure that the expertise is linked to every role and the qualifications, the roles, responsibilities, and the amount of time the personnel has to devote to the project. Every aspect of the project should have a person with expertise.

The resources is the final section of the research narrative. This actually has particular importance so if you're conducting research with students with low incidence disabilities. You want to show that you have access to resources needed to successfully complete the project. You want to show how you will find the sample when there are not a lot of students in a particular area. How will you travel? How will you partner with other institutions to make sure that you're able to obtain the sample of students in order to complete the project? You can consider partnering with other research institutions, universities, other organizations that may be related to particular group of students. You may be able to find to access to parents, particular schools, specialized schools that may have larger populations of students. You'll want to demonstrate that you have partnerships with all these different types of organizations if need be.

You'll want to show that all organizations understand and agree to their roles. If an organization says that they will help you find a number of students, you want to make sure that your letters of support or commitment outline their roles, their agreement to their roles. You'll want to show you have access to the data. If you plan to analyze secondary data sets, do you have access to that data set? And that proof of access is required if your grant is recommended for funding.

I'm going to pause here for second to see if there are any questions. For the next section we're going to go into more detail about what it means to present the significance of your project in your research narrative.

I'm not seeing any questions, I'm going to turn it back over to Rob. Oh, here we have a question. Should we indicate if states have already provided some data in the proposal? Yes, you will want to indicate your access to the data. So if states have already provided some data, you can indicate that. Probably the best way is in a letter of support from the state indicating that they have already provided that data to you. But if you have any other questions about that, you can feel free to contact Rob or me after the webinar and we can explore it further.

Rob Ochsendorf:

Great, thank you Kristen. We're going to move into a bit about the significance section, the first part of the proposal that the reviewers will read. It is often the most important for making the case for your work. It's going to -- this part of the proposal is describing the overall project and provides a compelling rationale, as Kristen talked about, these different kinds of justifications and how to include these in your significance section up front.

So some general hints here, please don't assume that reviewers know the details of the significance of your project. Don't quote back the RFA on the general importance of a topic. But you could quote the RFA if a specific topic is highlighted and your work will address that topic.

So the first paragraph sets the stage or the scene for the readers. It identifies what significance in the work and what actually will be done. The reviewers will use this to organize information in the rest of the proposal. And you certainly can lose your readers, right off the bat, with an unclear opening. So please spend a lot of time on that first page specifically making sure that it's compelling, and that it's interesting, and that it pulls the reader in, so to speak, to the problem that you're proposing to address.

A readymade statement of purpose should be short and attention getting. It should contain the problem statement and your contribution to solving that problem. A way to think about this is that, you know, you're describing the characters or actors [laughs], the goals, the drama, and the resolution, to sort of, use a metaphor there. But basically in that first statement of purpose you should lay out the big ideas. Include facts, but not too many, and this will vary based on the audience.

So here's an example of an opening purpose statement. So this is from a funded project from about five years ago. But, so here's the background statement, "Over 95 percent of parents of children with Down syndrome report that their child has difficulty being understood by persons outside of their immediate family or social circle. This difficulty tends to persist into adulthood." So that's the background. The problem here as this project presents it, "Problems with speech comprehensibility can have negative consequences on educational achievement and post-school outcomes. There is a widely held belief that improving speech accuracy will lead to improved speech comprehensibility. Yet traditional speech services in schools that focus on speech accuracy have not led to improvements in speech comprehensibility."

So there's the problem. We don't have a lot of speech service programs that improve speech accuracy in ways that improve speech comprehensibility. So the goal, how will you address this problem? "The goal of this project is to evaluate the efficacy of a promising speech therapy intervention compared to traditional speech therapy. The research team will test the efficacy of broad target speech recast compared to the 'easy does it' for articulation program in improving speech comprehensibility of elementary school students with Down syndrome." So here in about four or five sentences this particular project has laid out the background, the problem, and the goal of the project. And it's pretty clear what the issues are and it's pretty clear what the project intends to accomplish to address the problem.

Another thing that you'll see in the RFA is this language around theory of change. And I'm going to spend the next several slides talking about what we mean by this and how to think about theory of change for your own project. We like to think about the theory of change as sort of a model of the underlying research. It's a road map to your narrative. It's a particular resource for generating the research questions on your project. And it can be viewed as a constantly evolving model of your research.

So what is it? It's an underlying process through which key components of a specific intervention are expected to lead to the desired student education outcome. It should be specific enough to guide the design of the evaluation in terms of selecting an appropriate sample, the measures, and the comparison condition perhaps. It also helps define how and why an intervention should lead to particular outcomes. So it makes the assumptions explicit. It suggests causal relations between constructs, as well as suggesting mediators and/or moderators of an effective intervention.

Here's one way that we suggest thinking about theory of change, is to start with the long term outcome and work backwards. So what preconditions need to exist to lead to the outcome that you're interested in. If you're interested in improving certain kinds of speech production, speech clarity, speech accuracy with Down syndrome populations, then you can talk about what preconditions need to exist to lead to that. What is occurring in the context -- in the context that could hinder or support the outcome and then what assumptions are you making about the system or in the theory of change?

So a general theory of change framework might look like this. You have an initial stated context that is related to the intervention components that you're interested in. Those components contain some features that are being delivered for example, to the population of interest. They may produce some intermediate outcomes. And then that will lead to some, perhaps, other education outcomes that your project has specified. So start there and talk about the initial state - the initial context that leads to the student outcomes, the current state of student outcomes. And then think about the intervention components that you might be designing in your program that would lead to improved student education outcomes.

So we're going to unpack this a little bit more here in the next slide. So when you think about these aspects of the theory of change. I'm just going to go through several of these individually. So with the initial state you're sort of describing what's there before the intervention, resources, student characteristics, et cetera. Sometimes these are called the inputs. So what kinds of things are present in the environment in terms of resources and student characteristics prior to the intervention being implemented? Then when you think about the intervention components, think about the things that happen. These are activities, events, or curricula. So the people who participate in, or who are targets of, the intervention, sometimes these are called the outputs. So think about those things. The underlying processes. This is the "how" of the intervention. How do the components produce the outcomes? So what are the underlying processes that help explain why the intervention produces the outcomes of interest?

And then the outcomes, these are the proximal and distal changes for the people involved in, that are targets of the intervention. Some of the assumptions, what you believe to be true of the

resources, the people involved, the people targeted, and the intervention in general would be the assumptions. And then the context is the environment in which the intervention takes place to think about how to set the context in terms of the theory of change.

So these are some things to keep in mind. Maybe you can do this with your team or yourself, it doesn't matter. But take a few minutes and write a couple of words about each of the following, what are the initial states of the problem that you're interested in? What are the activities that you're proposing? What are the strategies? And then what are the underlying processes involved in those strategies and activities? And then think about what your outcomes of interests might be in terms of proximal, intermediate, and distal. And then what is in the educational context that you're working in that would sort of underlie all of these issues?

So in our applications, as Kristen talked about, there are four major parts: The significance, the research plan, the personnel, and resources. The theory of change, the first two parts of your narrative may draw heavily from the theory of change. So in the significance section you'll be talking about the outcomes, the processes, the context, and the assumptions all in the significance section. So if you think about that example statement that we provided from that Down syndrome project, you could think about -- that all of these components of the theory of change have been described in that problem statement from that project.

And certainly with the research plan, as you think about the kinds of things that you're going to develop your research plan, it's going to be related to the critical aspects of your theory of change. Certainly the outcomes, and the activities, and the strategies are all going to be built into your research plan when you think about your measures, and your sample, and those sorts of things, which we'll get into in more detail next week. But you can see here how the theory of change is really important to think about from the outset and have it exactly as you want it before you start thinking about these other aspects of the proposal.

So a little bit more about the research plan, this is what you're exploring, creating, validating, or testing, and how you will do it are all described in your research plan. What are the pieces that you'll be exploring and creating and testing as it relates to your research plan?

So we have a question. The question is about the applicability of the theory of change to goal one. And, the idea is that you will have a theory of change no matter what goal you're doing basically. Maybe goal five, perhaps maybe not, but certainly for goal one if you're doing exploratory work you're going to be laying out a model for how you believe the variables of interest are related. And so you would be presenting some sort of theory of change, even for a goal one.

Another questions about -- is it important for the theory of change to strictly follow the format that I have laid out here in these slides, or is this a guideline for components to be included? There are some additional resources around, logic models, and theory of change on our website. I don't -- it's not required that you follow this strictly, but I think some general variation of what we have presented today would be useful to consider in your proposal. And certainly, you know, I wouldn't, you know, you'll have to adapt what we've presented for your own needs obviously. These kinds of webinars are advisory in nature, and the panel reviews will certainly read your

proposal with their own perspectives and that sort of thing. But we certainly encourage you to look for similarities between your existing theory of change and what we've described here, and so we think that that would be helpful.

And then when you think about your research plan as it relates to your theory of change, these kinds of issues are going to be relevant. What will you measure? How will you measure it? Who and where are you going to be conducting this research? And what kinds of effects sizes might you expect? And when should you be collecting what data? These are the relevant questions for the outcomes. And then which analysis will you do? And we'll get into more detail, aspects of the research plan next week. But this is sort of a little teaser, I guess.

Other components of the narrative can also be informed by the theory of change. So your personnel should have particular expertise in certain outcome areas. And if relevant, they should have expertise in assessment of strategies and activities that you're proposing. Can be related to the budget in terms of the number of people that you need to conduct all the observations and what kinds of assessments or tools you might need to purchase to carry out the project.

Just to wrap up this section a bit. To get started with your theory of change, write down your outcomes and your inputs, et cetera, that we've talked about today. Sketch out a few of the boxes that we described today, and perhaps draw some arrows indicating relationships between certain constructs of interest. And then talk yourself through the picture, perhaps with colleagues. That might be useful to think about to make sure that, you know, the theory of changes is plausible, and makes sense, and is supported by some justification that Kristen described earlier in terms of empirical, theoretical, or practical.

So we're coming to the end now. I want to turn it back to over to Kristen just to finish off a bit here.

Kristen Rhoads:

Okay, so just a reminder for next week, we are going to go more in depth into the research plan. We'll talk quite a bit about single case research design next week and how those designs fit into the goal structure that Rob reviewed earlier in the webinar. We'll talk about building a team and pulling your research team together. And we'll talk a little bit more about the resources. We'll finish off the webinar next week talking about how to assemble your grant application. I think we have some slides addressing the question earlier about the appendices and what goes in the appendices as part of our presentation for next week.

Before we go, we wanted to give people a chance to ask more questions, or provide comments. Or might be a good time to let us know if there are things specifically that you want us to talk about next week, and we can incorporate them into what we already have planned. So feel free to send us some questions and comments. We'll sit here for a little bit while you ask us questions or send us comments. We have the URL for our Request for Applications. Request for Applications for our main grant program can be found there. We also have our our Training Grant Programs Request for Application on that site. The Training grants include the Early Career topic, the Post-doctoral Research Training topic. And we have a Single Case Research Design training topic this year as part of our training Request for Applications. So you can find

all of that on the website given on this slide. If you have questions for either of us after the webinar, feel free to send us an email. We can respond, whether it's directly through the email or as part of our webinars for next week.

And we have quite a few questions. The first question is what are the consequences for picking the wrong topic? How important is it to pick the right topic? It is extremely important to pick the right topic. If you have questions about which topic is a better fit for your research project you should give the program officer listed in the Request for Application for a particular topic a call or send an email. We can help you decide on the right topic for your research project, as well as goal. It is important to have correct goal. Rob mentioned there are some over -- topics can overlap, but goals cannot. A project officer can help you think through what the right topic area for your research project should be.

Let's see. There's a question about issues of sample size for the various goals for next week. There's is no minimum or maximum for sample size. Next week we will likely talk about strategies for getting a large enough sample to be able to conduct the research that you propose.

Another question: If you're planning on using single case designs, how would you discuss effect sizes in the theory of change section? That is a good question considering there is no common acceptable metric for effect sizes right now. I think the example that Rob had given was what do you expect a change might be? You might want to think of it in broader terms rather than effect size, as what you would expect a change might be in terms of performance or outcomes increasing. It's a good question.

Rob Ochsendorf:

Yeah, the effects size for a single subject project, you will want to address that but it may not be explicitly in your theory of change section. You may -- you may allude to later sections when you talk about the analysis that you might do, or the measures that you would expect to use in your study. But certainly if you're proposing an effect size calculation for single subject, then you just want to be very specific about what method you're using and then the rationale and the, sort of the literature support for that particular strategy in terms of measuring effect sizes, or calculating effect sizes.

Kristen Rhoads:

And so we have another question about personnel. Is it recommended that a good statistics person is part of the team? We usually -- I usually recommend having a statistician and methodologist as part of your team. Now they can be the same person or they could be two different people. And I think it depends on the person you have chosen and then the roles that you see them playing on your particular grant application. But yes, in general, I would say having a statistician and having a methodologist is beneficial.

Rob Ochsendorf:

There's a question about sharing the slides with faculty groups and that's totally fine to share the slides.

Kristen Rhoads:

The question about using the rubric that reviewers use to score and evaluate grant applications. The Request for Applications has the review criteria listed. The reviewers will give individual scores on a scale from one to seven, with seven being the best, or the highest. So the significant section will get a score from one to seven, the research plan will get a score, from one to seven. The personnel will get a score from one to seven. And the resources section will get a score from one to seven. And then the reviewers will also give an overall score of the application. And that's a score from one to five being flipped with one being the best and five being the lowest.

And it's important to note that the individual criteria scores and the overall score are not mathematically related. The individual scores will not get put into a formula and that's how you get the overall score. Rather it's an independent score that the reviewer assigns to the grant application. But the Request for Applications will have more information about the specific things that reviewers look for in terms of each of the four sections that we talked about.

Rob Ochsendorf:

There's a question about single case design being part of other methods in your project, and that's totally fine. We see that very commonly. I think reviewers are used to that, kind of having a mixed methods approach where you're using single case, perhaps, with some more qualitative kinds of methods, as well as maybe some experimental kinds of methods. But certainly you can, you know, have different kinds of methods depending on, sort of what the -- what the focus of that, you know, the research question or that particular part of the project.

Another question about the length of the personnel section being about a page. I don't know, it varies. I think, you know, you have 25 pages to include those four sections. So we do tend to see personnel sections be about one to two pages, depending on how many people are on your team. It's just a question of, you know, the research plan, in terms of the -- the significance and research plan do tend to take up a bulk of the 25 pages. So if you're finding that you're spending four, five, six pages on personnel, then you're probably not saying enough about your research plan or your significance. So I generally try to advise people to not go on too long about your personnel. Just get right to the point and move on to the next person. So somewhere between one and two pages, probably.

Kristen Rhoads:

One thing that we did not talk about is that the application allows you to have four pages for a resume or CV for each person listed -- key personnel on your grant. Like Rob said, most of your pages should be the significance and the research plan, and you may not have as many pages on the personnel and the resources.

So we have a question about getting access to previously funded proposals. There are two ways to get access to previously funded proposals. The first is to email a principal investigator and ask for copy of their funded proposal. We find that a lot of times PIs are more than willing to share a proposal that has already been funded. The second way is to submit a Freedom of Information Act Request. And this can be done through the Department of Education website, which is www.ed.gov. At the bottom of the page, you'll see a link to the Freedom of Information Act,

and you'll be able to submit a request through there. So those are the two ways that you could access a proposal. And I agree that it's helpful to see a successful grant application.

So we have question about what can we assume about the use of appendices? Is it acceptable to have all figures in the appendices and no reviewers will read them? Or is it important to have figures imbedded in the narrative if they are essential for reviewers to see? I think that we expect reviewers to read the appendices. So putting the figures in the appendices would be fine. I would recommend, though, that you put your theory of change in the narrative. I think that helps with the flow of the application. If you were going to choose one figure to put in your grant application, I would recommend putting your theory of change actually in the application.

Let's see, we have a question about someone who wants to use a multiple baseline design. Will reviewers understand the concept of multiple baseline design or single case design maybe in general? And so, I think I alluded to this earlier that the Standards and Review Office does their best to match grant applications and reviewers on content area and methodological expertise that would be needed. If you look through our list of experts who have served as reviewers, you will see that there are a few individuals who you would consider have expertise in single case designs. You should expect that if you're proposing a single case design that there will be someone reviewing your project who has expertise in single case design, and should understand what a multiple baseline design is.

We're not seeing any more questions. Oh, we have a question about saving the presentation. I don't think you can save the presentation but we will email the power point. We'll post the power point on our website. And within the next couple of weeks we'll actually put the transcript from the webinar on our website. So you can't have the actual whole presentation itself, but we will make the pieces of the presentation accessible for you to download.

We have a question: Is there a difference between a logic model and the theory of change that you mentioned? I think sometimes people use the term interchangeably, logic model and theory of change. For our purposes, our request for application calls it a theory of change. And so I think in keeping in line with the sort of language that IES uses that I would recommend calling your model a theory of change.

Rob Ochsendorf:
Yeah.

Kristen Rhoads:

Okay, we have a question. It's a question about the early career award which we didn't really talk about as part of this presentation but does the theory of change have to do with the intervention, the population, and the context, or would an early career award in theory of change include anything regarding your career plan?

The early career award does not really talk about the theory of change in terms of the applicant is the person being intervened on, if you will. I would think about the theory of change being only applying to your research project. I would make that theory of change based on that intervention that you're hoping to develop or test. I would not enter anything with the career plan as being

part of the theory of change. If you have more questions about that, we can talk individually. But again, that's just specific to the early career development and mentoring program.

Okay. We are not seeing any other questions. But again, if questions come up during the week, feel free to email either one of us. If there's something that you would like us to address next week, you can feel free to send that to us too. We'll try our best to incorporate suggestions into what we already have planned for next week. Like I said, we're going to cover, in depth, the research plan next week. If you have suggestions, we'll try to fit that best into what we hope to cover for next week.

There's a question: Is IES flexible with the process for intervention development in terms of the types of research methods used? It can be. You will want to justify the process that you're using as being the best process for addressing your research question. For the follow-up, instead of a randomized control trial to show promise, perhaps a meta-analysis or other type of methodology could be used. For Goal 2 project, we have listed in our Request for Applications -- we did not talk about it here but there are options for pilot study designs: fully powered RCTs, under powered RCTs as second, single case designs, and quasi experimental designs. You should explain why you've chosen your design, why that design is the best choice for the research question you're trying to address, as well as the population of students who you're trying to effect change on. In that way we can be flexible, but it's up to you to justify the design that you've chosen.

Okay. So no more questions are coming in and so we hope that you'll come back for week two next week. Thanks so much, bye-bye.

Rob Ochsendorf:
Thank you, bye.

[end of transcript]