First Impressions

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Meredith Larson:
We're going to get started. Sasha can answer any technical questions if they arise and Amy and I will try to pause and catch up with any other questions you have. If we don't get to you during today's call, we will try to get back with people afterwards. Or our email addresses are available, and you can try contacting us via email. And with that, let's get started with First Impressions: How to Win Grants, and Influence Your Research Career. And I'm going to turn it over to Amy now.

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Amy Sussman:
Okay. Well, the purpose of this webinar is to help prepare you for presenting your research ideas more clearly and succinctly and for engaging with the research community through things such as grant writing, which is why you're all here. We will not be discussing the particulars for writing or applying to an IES grant per se. We will not be talking about research topics, goals, or requirements. There are other webinars offered by IES that will cover those topics in depth. So, if you thought you were going to hear about those aspects of writing a proposal, we won't be insulted if you decide to log off. But we do think that this will be helpful to you anyway.

The goal of this webinar is to help you prepare a framework to pursue your goals as a researcher. We hope to help you conceptualize your research in a way that translates into an effective communication of your ideas. In particular, we have four specific things we hope you will walk away with. First, you'll be able to identify two things you should have with you at all times. Second, you'll be able to describe a theory of change and discuss why it's essential for grant writing. Third, you'll have the tools necessary for refining your research statement of purpose. And fourth, you'll have a sense of what program officers and reviewers want from you in your application.

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So, what do we assume of those of you coming into this webinar? We assume that you all have similar goals with both overlapping and divergent interests and varying levels of experience with grant writing. So our purpose today is to help you build off the themes that you might be familiar with while introducing you to new tools or new ways of using familiar tools to help you hone your skills that even very senior researchers exercise with varying levels of success. The material we cover is useful in thinking about not only grant writing but also preparing your dissertation if you're a pre-doc, for finding your dream job, and other things, so much more.

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Whenever you ask people to support your research, remember that it all comes down to convincing them that they should care about your topic and that you have the necessary competencies to reach your goals, regardless of whether you're asking for money, a job, or just somebody's attention. So how do you do it?

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Well, you need to keep your audience in mind at all times. The people you'll be talking to or writing for are usually experts in their fields. They're highly skilled and intelligent and can probably figure out what you mean, but it's not their job to interpret you. You want to present your ideas as informed by and relevant to other research. You want your reader to want to read your writing. You want your listener to want to ask you questions. Do whatever you can to make it easy for them to engage with you about your research.

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So what do you need to do? You need to sell your research idea, promote yourself as the best person to do the research, and build goodwill and trust. How? By demonstrating that you know what the problem is, and you have a way to address it.

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So, how do you build these things? What are your tools that you should have on hand? You should have two things ready at all times: your statement of purpose—this is not just in writing but also in speech and is sometimes referred to as an "elevator speech" or a "research pitch"—and your theory of change. Now, we're going to be talking about both of these, but I just want to point out that the order in which you work on these can vary. Some people may prefer to start with a statement of purpose and then work out the details in a theory of change. Others prefer to start with the theory of change and then use that as a basis for writing a succinct statement of purpose. In this presentation, we'll demonstrate the latter, starting with the theory of change.

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We'll come back to this later, but a statement of purpose should be something that's short and attention getting, and it should contain the problem statement and your contribution to solving it. Your fellow researchers, friends, and family members should all be able to understand it and see its relevance. And I do want to point out that because it's also for friends and family members, it should be written clearly and in plain English so that anybody can understand it.

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Meredith Larson:
And now, on to a theory of change. Before we jump into this, just one quick disclaimer about our nomenclature. There is some disagreement in the field about what the difference is between what we're calling a "theory of change" and what some people call a "logic model." In our Request for Applications, or RFA, we use the term "theory of change," and so we're going to use it throughout this presentation. However, some people may call what we're describing as a theory of change a logic model. And reviewers may actually have varied ideas about the differences between the logic model and the theory of change, or some debate whether there even are differences. However, what we're focusing on is what we feel your proposal will need, so just for the purposes of this discussion, we're going to call it a theory of change.

So what is it? What is it you need? What is it that this tool will do for you? You need a way to describe where you're going to go, the plan, and the direction of your research, and a clear, well-explicated theory can do this. It can also help you to even generate new questions and set new research agendas over time.

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So what is it? At the core of all theories of change or ToC, as I might be calling them, is causality. They lay out the assumptions and spell out the potential relationships, interactions, and causal links.

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Theories of change can be used for various forms of research and planning. Some people use them as to build consensus about community-based initiatives, for example. And oftentimes, people associate them with program evaluation and with visual depictions with boxes and circles and arrows. But they don't have to be either of these things. They can be more, you know. We'll go through some examples, so I'm not going to delve too deeply into that right now, but they can be more than just program evaluations. And we'll go into some examples of how you can use them for different purposes, not just planning.

We're going to start today with some examples that do have sort of a more program evaluation-ish flavor. Then we'll look at one that has a more process-type flavor. And we will focus on the visual format today. One reason for doing this is that pictures can be extremely helpful for you in that they encourage you to step back and think in an alternative way. Also, visuals are very helpful in written documents. Reviewers appreciate them deeply, as do program officers. So this is another way to just keep your audience in mind. Sometimes a good figure, as well as a clear description in the text will just help to make everything move much, much, much more smoothly.

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So why should you care about having a theory of change? Well, because people are going to judge you, and a theory can help to protect you. It can help to answer questions and address concerns before then even arise. But we want you to know what reviewers are looking for in a good theory of change. Reviewers want to know if your research is ultimately plausible, doable, testable, and meaningful. And a good theory of change can help to address all of these concerns. So—just pause here for a second—what do we mean by these things? Well, *plausible* means that the stakeholders or the reviewers believe that your logic is fundamentally correct. So for example, if we do these things, will we get the results we wanted or expected? Did the causal link or the mediators or moderators make general sense? Under two, for *doable*, what we mean here is do we have the underlying human, political, or economic resources that would be necessary to achieve the change, and are these things available or feasible? By *testable*, it means that there is actually a way to measure the results and the theorized mechanisms. And then finally, never forget this idea of *meaningful*. By this, the reviewers and the public would see the outcomes of interest as being important. And that the amount of change that you think would happen would actually be worth all the effort that it would take. So, although it might not be necessarily or explicitly stated, these are the four elements that reviewers evaluate grants on. For example, they may like your research plan but not care about your questions. Or they might like your questions but think that there's no real way to test it, et cetera, et cetera. So you want to make sure that you're hitting on all four of these points and that you're building this into your theory.

And one just quick thing here—I'll probably mention this a couple of times because I really don't feel we can stress it enough—to determine whether or not you have a viable theory of change, you really need to ask your colleagues whether they see your theory as meeting these expectations on these elements. When I work with applicants, I often ask them to show me their theory of change, and then I read it back to them so that they can hear what an intelligent generalist thinks that the theory might mean. This can be extremely helpful to make sure that what you think you're saying and what people see in your theory are aligning.

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So how do you make one? In general, people suggest that you start at the end and then go backwards. So you want to start with the long term outcome of interest and then go back and figure out what preconditions need to exist in order to get to that outcome. And as you're working through this, you should really be trying to draw it out or at least have notes and then write it up, get feedback, revise, repeat, so forth and so on.

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What I do when I'm trying to come up with a—sounds like I'm doing this every day. Rather, when I have done this, what I will do is try and start with a very broad framework of what I think will happen. And generally I'll start with the long term outcomes such as post-secondary success, graduating with a bachelor's degree. That's the long term outcome. And then I'll jump to some other point. Either I'll come all the way back to the initial state with graduating high

school students. Or I'll go to some other intermediate step. And then I'll just keep circling around and going back and forth. And most researchers will do this in a back-and-forth and circular check, but you want to start with where you want to end up, with those long term outcomes.

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Here is a model that you might see if you're looking for a classic example of what a theory of change would look like. Here you can see that we have those outcomes at the far right, which I said you should start with. And then we have a couple other things. So we have the initial state, which could refer to the resources, and we've got a couple other boxes. Let's go through them real quickly one at a time.

So, the initial state—or what some people call the *input*—is what's there before the intervention comes in. I'm going to use the term *intervention* to refer to anything here like a curriculum, a policy, a practice, just anything that is coming in and changing that initial state to improve academic outcomes. An initial state here might be things like the institutional resources or the students and their characteristics.

Then we have the strategies or activities. Sometimes people refer to this as the *output*. And here, this is the stuff that happened, the people that it happened to or it happens with, or the systems that you're researching.

Next, we have the outcome. And usually, there are at least two different types of outcomes: the proximal and the distal. Sometimes there might even be sort of an intermediate: the proximal, medial, and distal. Generally, you really should have at least a proximal and a distal. It's especially important to have both when the main outcome you're interested in is something that's far down the road. So, for example, you may be trying to improve student math achievement, but to do this, you feel that you need to train teachers so that they have better content knowledge. So, according to your model, you have to change the teachers to change the students. If you're only measuring the outcome of the students, then you're missing a big part of that line, and you may not be seeing some of the effects of your intervention because you're not measuring the proximal outcome, which would be a change in teachers' behavior.

And then finally, we have our assumptions and the context. Here in the assumptions is where you're going to put what you believe to be true. You know, like a fact that teacher content knowledge is essential for student achievement. Then there are the things that are going on in the context. So, for example, if there are other initiatives, if there's something happening in the larger community. You want to put all of those things into your model because with these things in a context could mediate or moderate the effects that you're finding. So hopefully, as I'm going through this, some of you are thinking of some ideas of how this could play out in your research plan. For example, what you are going to be measuring and when you are going to measure it. All of that should be bubbling up from your theory of change.

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Let's look at an example here, okay? So this is a quick linear example. And this may be something that you'd see in a program evaluation. Though it could be used for other types of research, for example, a development project, where you're going to create a certain intervention. So, in this example, I'm going to read it to you as a program officer might read a theory of change with an applicant to get some feedback, okay? So, what I think's going on here is that we're trying to see whether we can improve children's literacy through a targeted intervention at the pre-K level. We have a certain type of student that we think is particularly vulnerable or that might be particularly benefitted by an intervention. And we think that to really shine in reading, students need to be ready to learn. So we need to have this increased school readiness. But to be ready for school, students need to have positive feelings about school. They need to have generally good or appropriate behavior. And they need to have basic pre-literacy skills. But to get all of these things, students need an intervention that will build that. And this intervention requires various components. We think that the ideal intervention would have a 1-hour lesson with wraparound services, et cetera, et cetera, et cetera. However, we also acknowledge that there could be things going on in the context that would interact with the effects of the intervention. So, for example, the student's prior experience or home exposure to print material, his or her inherent disposition, other things may mediate or moderate the effect.

We have a question here, and Amy thought that I should slow down and address it. Which one is it Amy?

Amy Sussman:
They're both the same. It's explaining "proximal" and "distal."

Meredith Larson:
All right. Well, let's look at this model here. Okay, so let's say that our distal outcome is greater gains in literacy in kindergarten. Okay? So that's going to be the final measure; that's going to show that our intervention worked, that we achieved our goal. So that's our distal. But we know that's going to be a far way down the road and that there are all these other things that might arise between the intervention and the literacy gains that could affect whether or not we see those literacy gains. So, we think, according to this model, that in order to have greater gains in literacy, students need to be ready to learn. They need to be prepared for school. Okay? So, now we have this idea about sort of a more proximal outcome: school readiness. But we could say that there are also preconditions. So things that must be there in order to lead to readiness such as positive attitudes, basic pre-literacy skills like the ability to identify sounds and shapes, and they have to have appropriate behaviors. So you could think of these as even more proximal to the intervention itself. So, for example here is the intervention is directly targeting school behavior, pre-literacy skills, attitudes toward schools? Those are going to be very proximal; very close to the intervention. And then, as you move further away from the intervention and closer to the final goal of what it is that you're trying to affect, which in this model is literacy at the kindergarten level, you're getting more and more distal. So hopefully that example kind of clarifies it. We can come back to this, and I can try to think of some more examples when my

mind catches up. But this might come up again when we start to talk about things that you would measure when you're discussing your research design.

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All right, so, getting back here to some of the components of your theory of change. So you've got the general aspects now. You've got your initial state, you've got your intervention or your activities, and then you have your outcomes, you've got the proximal and the distal ones. But now you really need to delve in deeply and drill down to some of the specifics. And this takes time. Trust me, even very senior researchers work very hard to operationalize these things and to get them down. And this is where the art really comes out.

So, for each outcome, you want to think about the indicators, the population, the threshold, and the timeline. Let's look at an example.

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Let's say the outcome here is improved pre-literacy skills. So, in that model that we just looked at, this was one of those more proximal outcomes. It's something that should fall out of the intervention itself. The first thing you have to do is figure out what is going to indicate that there has been an improvement in pre-literacy skills. What counts as pre-literacy? And I'm going to apologize right off the top. My research area is actually in adult education and postsecondary, so if I say something that sounds a little simplistic, I apologize. But, anyway, you can think of an indicator of pre-literacy skills as being how many letters and sounds children correctly identify. Okay, so now we have something that we can measure. Now, we need to figure out the population. Who is it that we think will really be affected by this intervention? Who's going to show the gains the most? You could say that it's going to be four-year olds, and you could say because this age is especially sensitive to this type of intervention, and we expect to find even greater gains for children who have very little print exposure. And then you come up with a threshold. So, in this –example, what is the minimum amount of change that you expect to see that would be important or significant? And then you have a timeline. When do you expect to see this change? And now you should start to see again how this is going to play into your research design. The indicators suggest something about measurement. The timeline suggests something about when you would want to take the measures. So you should start to see how this is all kind of leading you towards a really nice, clear line from your theory to your research design, and even your analysis.

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Here we see a different layout. Amy, you want to do this one?

Amy Sussman:
Sure.

Meredith Larson:
I'm going to take a drink of water [laughs] and let Amy take this one for a second.

Amy Sussman:
So here we see a different layout. Though, again, we see the similar elements. And the example in this one: text comprehension. This could be considered a distal outcome in the sense that if you start –on the left-hand side and you move over to the upper right-hand side and then down and then to the middle, it's the final outcome. Except that in this example, it's cyclical. So it's also a proximal outcome that could then lead to the motivation to read and the expectancy for success. So this is a slightly more complex example, although you can follow it anyway even though it's more complex. It shows cyclical relations between the different elements.

So, basically, this is just another way of showing that you need to state your assumptions, and you need to situate your theory of change in the larger research programs. Also, you can use a theory of change to describe possible interactions. So you can just see the different kinds of things you can do with this model.

Meredith Larson:
And this is Meredith again. A nice thing about this model is that you can probably guess some of the things that you would be measuring. Some people in the audience can probably even think of the measures they would use to get at things like self-efficacy or decoding and fluency. And because you have all these different potential interactions or relationships, some of you might even be thinking of the sort of statistical models that you might be using. So again, this theory of change to some reviewers, pretty much, your picture, your theory of change is your research design, and is your research analysis. They can detect that from this.

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So, let's move on. Now we have just a couple other little hints of what not to do.

Amy Sussman:
Okay, so, when you draw or write out in text your theory of change, you want the amount of information to be just right, not too much and not too little. You can think of "Goldilocks and the Three Bears" the porridge can't be too cold, and it can't be too hot. It has to be just right. Do not have to have more factors, more arrows, more directions than are necessary to express the basic theory of change. If you need more explanation than you can fit into your visualization or your diagram, you can elaborate on the model in the text of the narrative.

At the same time, if you only make very general claims, without any details, you might as well not have bothered to do it at all. This is why, as Meredith said earlier, getting other people's opinions is so important; having someone look at what you wrote and translate it back to you to tell you what he or she thinks you're theory of change means is very important to make sure you have the right amount of information.

Please also keep in mind that the reader can only hold on to so many pieces of information at a time. And color is not a good way of expressing the relationships or the components in a theory of change. There are several reasons for this. For example, the reader might be color blind. Or the application might've been printed out in black and white. So you really could potentially lose information if you're relying on color.

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So this is an example of what's too simple. Students with disabilities participating in the increasing school success program will then have increased academic achievement. This leaves out very critical elements and would leave the person reading it wondering. So if you were to show this to another faculty member or anyone else to interpret this, they might have the following questions. For the students, which disabilities? What age or grade level? They might ask, "What are the components of the intervention? What happens in the intervention? What are the processes by which the components lead to school success? Are there proximal or intermediate outcomes such as increased level of engagement or motivation? How is academic achievement defined or operationalized? Is it grades, and if so, grades in what subjects? Or are they standardized achievement tests? Are there contextual factors that may moderate the outcomes such as the income level of the neighborhood or the type of classroom: general education versus special education?" So you can see in this poor example of a theory of change that it would lead someone to ask way too many questions that should have been answered for them when they look at the theory of change the first time.

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And this next example speaks for itself. Clearly too complex. You're ready to pass right by it, you do not even want to look at it.

Meredith Larson:
The idea is in that first slide, there—you left so much out that Amy had question after question after question. And then when we look at this one, it's kind of like too long, didn't read. It's a shock. And there's a lot of valuable information here, but now your readers had to stop. It broke up the flow of the narrative. They're struggling to move through it. And you want to make it as easy as possible for your reader or your listeners to engage with your idea so they have enough information, but not too much.

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There have been a couple of questions, and I want to come back to them in a second. But first, I want to take a quick pause, and I want you all to catch up and think about this for whatever interests you are pursuing. So take a couple of minutes and write a couple words about the following. So, in your research plan, what is your research question? What are the outcomes? What are the initial states? What is in the context? See if you can come up with just a couple of words here to get something down on paper.

[pause]

Okay. So, welcome back. And now, I'm going to move into something, and hopefully I'll be able to answer a couple of the questions that came up in the next slide or two. So, now what?

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As I said before, your theory of change acts like a road map that can help lead to research questions, a proposal, and so much more.

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The thing is that, within the theory of change, different researchers are really drawn to different components of that theory. Okay, so some people are really interested in the initial states. So they may be really interested in exploring, questions like who are the students? What are their underlying skills? What is there in the context?

Other people are going to be really interested in the next level—what's happening in this intervention or in this measurement. So within the intervention, are the activities that were planned actually occurring? You could be looking at the fidelity of things. You could be looking at the implementation of a program. Or you might be looking at a various tools. So you might be looking at creating a computer program or developing a measure to assess something. In both of these, you have assumptions; with the measurements, for example, because this came up in questions, you assume there are certain constructs that underlie a skill or, a way to test for academic achievement. And so you have all these assumptions about those constructs and then you want to validate them or you want to create an assessment according to them. So that might be something about the strategy or activities.

And then there are questions about the outcomes. Here you're getting to, perhaps, conducting an evaluation. So, did we actually see movement in kindergarten literacy? Did we find that outcome? Did we find any of the proximal outcomes?

If you have a good theory of change that has been developed, either by you or by the field or a group of researchers, you can take that theory and look at it from a whole bunch of different ways and generate questions until the cows come home. And if you have a good theory, you really can spell out your entire research career.

Amy Sussman:
I just wanted to add, just because we had the question about a measurement grant. In this case, the final outcome is not necessarily measuring kids' achievements. The final outcome is: does this have validity? And does it have reliability? And those are your outcomes in a measurement grant because you're asking different questions.

Meredith Larson:
[affirmative] Yeah. I've seen good theories of change for pretty much all research goals. I've even seen it for training programs, where people proposed to have a post-doctoral training program, and they have a theory of change of how to take these skilled researchers, give them a couple years of fellowship, and come out with a specific type of highly skilled, highly prepared researcher. So, it takes a little bit of time to think about how you could do some of these things, but it's worth the exercise, if for no other reason than to lay out your assumptions of what you think happens and the causal link among things.

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So now that you've got this beautiful theory of change, what can you do with it? Well, of course because Amy and I sit here and read grant applications, that's all we're thinking about, namely hot to help you get a really good application! Let's focus on how to bridge that theory of change into certain parts of your application.

Now within an IES application—and I know we said we weren't going to go into too much detail, but—within an IES application, we've got four main parts. You've got your significance, your research plan, your personnel, and your resources. The significance and research plan, those are like the heart of your narrative. That's where you're going to spend most of your time. And both of these draw very heavily from your theory of change. So for example, that significance section, that's your outcome. You know, what is it you're trying to effect and why is that important? You're talking about the context and the assumption—why is there this tension? What's going on? Your research plan, that's the next slide—this draws a lot from those strategies and activities, for example, and also from the outcomes section.

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So let's delve a little bit more into this research plan. The research plan is where you're going to be talking about the design, the analysis, and the actual timeline of things—what are you going to do when? That's going to come out in your research plan. Now the strategies and activities, those are the pieces of the intervention or the pieces of the curriculum that you're making. This comes from those strategies and activities. And the more you have clarified what those particular components are, the easier it is to talk about what you have to develop, what you have to validate, what you have to do. Now, the outcomes, remember those four points we talked about? Well, here again, you can see those indicators tell you what measurement you need to have, like which test do you actually need to have and how many do you need to have? Your population: who are you going to be recruiting? Your timeline: how often do you need to take this measurement? So each of those things can be informed almost directly from a good theory of change.

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Then, you know those last two parts? The personnel and the budget. As you work on your theory of change, you should be thinking about them, too. So let's start with the personnel. For each component of your theory of change, you need someone with experience in those areas. So for example, all the different strategies and activities, you need somebody who understands what they are—maybe a content expert. You also need somebody who knows what the outcome areas are and someone who can measure them—like maybe a psychometrician. Likewise, for budget, again, think about those indicators and that timeline. How many observations are you going to need? How many researchers and how much of their time will it take, and how much is it going to cost? So the theory of change is really useful for the entire planning of the grant application.

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And now we're going to step back and move away from the research application and look at the link between your theory and your understanding of how these things work and the statement of purpose. You have all the pieces. So, let's put them in a short format that really conveys the importance of what you're doing.

Amy Sussman:
Okay. I'm going to run through some examples to show you a statement of purpose.

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This will show you how you might take a theory of change and generate what we will call an "elevator speech," or a statement of purpose, or an opening paragraph. So this is something to say when someone asks you, "What do you do? What do you study?" in an elevator, and you have between the time they ask you that question and by the time that person gets off on their floor. That's why it's called an elevator speech. Be succinct. You also have a statement of purpose when you're writing about your research and you need an opening paragraph, so in your grant applications you might have an opening paragraph that would use your statement of purpose. So there are a lot of different reasons why you would need one.

And just to note, some people—again, we mentioned this earlier—some people do start with their statement of purpose and then create their theory of change. But either way, you really need both and they both inform one another. So you can actually do the statement of purpose before you have the theory of change.

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In this example, you start with the key pieces of your theory of change. So, these key pieces are your distal outcome of increased student achievement in science, your proximal outcome of young children that have a greater ability to think scientifically, your strategies and activities, your curricula, and the training focus on science content and early childhood pedagogy, et cetera. You have your initial state—assuming that the early childhood educators lack the science content and pedagogical knowledge, and there's no curriculum to help the teachers teach. And your

underlying assumption is that teachers are essential to student outcomes. They need both content knowledge and pedagogical knowledge and expertise, and helping teachers teach will improve student outcomes.

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So, this is what your speech might sound like, your sort of research pitch, or elevator speech will sound like based on those assumptions: "Being able to think scientifically at a young age predicts long term academic success with science. However, many children coming into elementary school lack this ability. Even if they are exposed to science in pre-K programs, they are still not acquiring the necessary skills. One reason pre-K students may be struggling is that early childhood educators often do not have the background knowledge of science content or instruction to help their students. Because teachers are so important to the learning process, we need to help better prepare them for their role. So, I am developing an intervention that will increase early childhood educators' content and pedagogical knowledge so that they can better prepare their students."

I also want to point out in this one example that it started with a piece of the statement of purpose that we haven't really emphasized so far. But if you look at the first few sentences here, we are stressing the importance, or the significance, of why you're doing what you're doing. That's a very important piece of the statement of purpose. Also, one other thing to notice is if you think back to previous slides and all the different components of the theory of change, your statement of purpose does not have all of the same details. So for example, this statement doesn't include all the different components of the activity or intervention. So these are ways in which they inform each other but they're not exactly the same.

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Okay, so the components of a good statement: It tells a story. There are characters, the participants. There are goals, your research questions. There is drama, and the drama would be, what's the problem and what's the significance? Why do we need to do this? And the resolution, which is how you're going to solve this problem and help the teachers or help the students. You want facts, but you don't want too many, and this will vary based on your audience. If you have a research audience, you're going to include more facts based on published research, but you're not going to include so many if your audience is not a research audience. And you want it to be short, shoot for just a paragraph if it's written, or fewer than 90 seconds if it's spoken.

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Again, we're just going to pause and you can take a moment to think about your own research. Think about the problem, the tension, the drama, what evidence do you have that it's important, and how can you help solve it? And it's important to say how can you help solve it, meaning what can you do, what can you bring, what are your ideas, and what are your skills, and how

competent are you to actually do it? And I also want to point out the "help." How can you *help* to solve it? Because you are contributing to the solution; you are not single-handedly saving the world. And if you claim to do so, reviewers will become a little critical about how realistic your expectations are. So, take a moment to do this, and we want to take a look at some of the questions that have come in in the meantime.

Meredith Larson:
And—this is Meredith again—just out of curiosity, I think you all have this ability to raise your hand on WebEx, and I'd like to see if any of you have ever had to give a little spiel like this, if you've ever tried to write or to give an elevator speech about your research? So if you see that "raise hand" thing, if you can just kind of—oh! I see some hands! This is kind of fun. But go ahead and take a couple seconds and think about it. And for those of you who have tried this before, if you want to go ahead and tell us if there was something that was really difficult, if you want to mention that now. If we have time, we can bring up some of those thoughts at the end of the presentation.

Amy Sussman:
Okay. We do have some questions, but since they're not directly related to the statement of purpose, we're going to answer some when we're done with this.

Meredith Larson:
It does look like a good number, I'd say more than 15 percent of you have tried giving an elevator speech about your research, with varying levels of success. And I think that that's probably very natural. I mean, it is a hard thing to try and do—to come up with this very succinct statement of what it is you're trying to do with your research. So let's look again at the statement of purpose, and why it's so important, and what it can do for you.

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Amy Sussman:
How can you use your statement of purpose? Again, as I mentioned earlier, your opening paragraph in your grant application, your purpose paragraph, or any other document, say your dissertation, might use this as well. You can use it in a job talk, when you go and people ask you about your research, you can use your opening statement, your purpose statement. Or, just communicating with the general public. As somebody mentioned in their response to us, they tried using it at a party without much success, apparently. But now you'll be able to do it. And also, the general public, because we assume that many of you are going to have fabulous research careers and NPR is going to want to interview you, and when you do that interview, you will know how to make your succinct statement of purpose.

Meredith Larson:
This is in response to the fact that, as scientists, we tend to see multiple shades of gray and often don't get to the point quickly enough. In fact, Amy and I are probably doing that ourselves today. But, one of the criticisms from the general public is that they don't understand what we're trying

to do or why it's important. And being able to communicate this is a really good skill to have. For example, when you listen to NPR and those people come in, they've got that 20-seconds speech: "This is why it's important and this is what I'm doing to solve it." You remember that. And we want you to start to practice that so that you can talk to us that way and you can really, really push your careers ahead.

Amy Sussman:
So, why is the written statement of purpose or opening paragraph so important? Because it identifies the significance of the work to be done and what will actually be done. The readers of an application will use it to organize the information in the rest of the application, so they're going to keep this over-arching statement of purpose in mind; it will help them realize where each of the details you describe in your narrative fits into it.

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And it's really important because it's the first impression. You can lose your readers right off the bat with an unclear opening. So reviewers could be really excited about the topic of your proposal, the title might've caught them, but then if they read the opening statement and it's confusing and it is not clear, they're going to start to lose interest. And then they're not going to read the rest of the proposal with the same enthusiasm. So you really want them to be enthusiastic right from the start.

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So, as examples of opening paragraphs or a statement of purpose, we're going to use examples from the abstracts of IES-funded projects. We actually do have these online. So these are real examples of abstracts from funded proposals.

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The first example comes from an NCER grant. So, the purpose is, "Teaching children how to think scientifically in the preschool years has the potential to address an existing achievement gap in early science and provide children with the skills necessary to continue learning and think critically throughout the school years." That's the background.

Next you have the problem, "Unfortunately, early childhood teachers typically lack content and pedagogical knowledge in science and are not prepared to provide developmentally appropriate experiences that support children's early science learning and readiness."

Then you have the goal, "In order to address these challenges, the researchers will develop the Cultivating Young Scientists, CYS, intervention, which includes a professional development program for early childhood educators, science curricular content, and a set of formative assessment tools. The intervention is intended to lead to an increase in teachers' use of science

instructional content and practices in preschool settings and improvements in young children's science content knowledge and scientific thinking skills."

Meredith Larson:
–So just a couple quick things on this slide. If you look at this, what you see here is you can find those proximal and distal outcomes. Right? So, the distal outcome is scientific thinking. Right? And the proximal outcomes are the increase in teachers' use of science instructional content and practices. Okay? Right here in this one paragraph, you've got those distal outcomes, you've got the proximal outcomes, I know exactly what the intervention is going to be.

Amy Sussman:

Let me move on with the examples from NCSER.

Meredith Larson:
And NCSER is the Special Ed Research.

Amy Sussman:
Yeah. National Center for Special Education Research.

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So this is an example of a real grant that got funded, and this is the opening statement for the abstract we prepared for it. I'm not going to read it word for word, but I'm just going to explain. The background section—in this particular case, it's discussing core social communication deficits in autism, including joint attention and pretend play. And in this section, it also discusses what—how the key terms are defined. So it's actually defined these components of social communication so that as you read on, you understand what it is.

Next, there's the problem part of this. This explains that there is an intervention that was developed to help these children, and the problem here is that we don't know how effective it is. So this is, as you can tell, this is an efficacy grant. This is looking at an evaluation of an existing intervention.

And the goal, or the purpose part, is to conduct a cluster randomized trial to evaluate the effectiveness of the intervention. More specifically, the goals include investigating whether children in the treatment groups experienced greater gains in both proximal and distal child outcomes. So you can see, those are actually named in there. And whether there are child or teacher factors that moderate the impact of the intervention. So if you notice—in this example, the paragraph has a little more information. It includes the methodology, and it includes distal and proximal outcomes, and it includes moderating factors. All these things could've been seen in the theory of change and they're in here and it's still succinct. It still gets to the point, and it's a very effective opening paragraph.

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Amy Sussman:
So, the first final comment is about how helpful the program officers are. Basically, once you have your statement of purpose and your theory of change, then you have enough information to then check with a relevant program officer for the competition and the topic that you're interested in. This is just the right amount of information to share. You give your initial thoughts and your initial ideas to the program officer without overwhelming them with too much detail before you even know if it's the right topic and it's the right program officer to be speaking to.

We would greatly appreciate receiving this in an email. Cold calls are very difficult for us sometimes, and you know, we really want to be helpful, but we're busy and have limited time, and it's much more useful to both us and you if we find the time to read your email and give it thought and get back to you, rather than getting a cold call and not being able to think about it.

So, once we see that it's a good fit with our topic area, we can start the discussions with you if you have more detailed questions. And this is where we can use your theory of change and your statement of purpose as a springboard to get into more detail. And I just want to note that different funding agencies have different roles for the program officers. At some agencies, they provide more extensive feedback on your proposed project, whereas other agencies, they can only tell you whether it fits the competition or fits the program, and they really can't help you beyond that. And it's not that they don't want to be helpful, there are just reasons why they cannot do it. And so we just wanted to point out that at IES we can actually help more than in some other agencies.

I'm handing it back over to Meredith.

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Meredith Larson:
Okay. So, just some other comments about things that are important to always keep in mind. And I'm going to push it: clarity of writing! Really, the readers, the reviewers often complain about the lack of clarity. And this ranges from everything such as poor writing, meaning awkward grammar and odd constructions, to the presentation was too vague, or lacked sufficient detail, so they didn't really know what the person wanted to do. You may think that it's perfectly clear, and it's not. Again, to the extent that you can engage other informed researchers who may not know your specific research questions, that will really help you figure out if you're being clear. I know you all know this, but even full tenured professors don't necessarily give themselves enough time to write and get it reviewed.

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And this actually came up in a couple of people's comments about their theories of change. And I'm happy that we're all on the same page about this one: the need to practice. So for all forms of communication, the more you do it, the better you're going to get. And again, engage with your fellow students, with other faculty, and just pitch it to them. See if they think your theory is too long or too complex. If your purpose statement is okay, but it's not really compelling, you really need that feedback.

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Let's step back again and try to pull it all together. So remember that we think that the reason you're here is that you want to win grants and you want to have a solid career. And to do this, you need people to want to fund you, to want to work with you, to want to engage. So you have to get them interested in your work. And you have to get them to think that you are someone who can help to address these problems, that you have a unique perspective or skill set that can address these issues.

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And so now, at the end of this, just about an hour or so, you should have an idea of why you need to have a theory of change and what it is. And you should also have an idea of why you need a statement of purpose, and how you can use it. And although we present these things as though they're fun and that you can do it, it does take time and it is not as simple as we may wish it was.

So, let me just go over a couple of the questions that we already had. And if you have any points that you would like to bring up or things that you would like us to return to, if you want to type them in, we'll try to get to them. And let's see, some of the things that people had recognized was that it's really hard to break it down. And it's hard to find the essential elements of what it is you're actually trying to do and why it's important. And, a couple people said that one of the things that makes coming up with a short statement of purpose difficult is that so many things are interesting and there are so many questions that you could ask. And this is a great place to be. Right? Where you have a whole bunch of questions. You can have too many questions. But, you got 30 seconds. Find one, stick to it. It doesn't mean that it's the only one, it's just the one you're talking about right now.

And now, let's kind of shift gears and get back to that theory of change. A couple people asked about, how you use the theory of change for different types of research. And there was a question about how to use this as a measurement, how to use this for qualitative research, how to use it with an exploration grant. So I think that we kind of talked about measurement. Let's think about, things like the way we presented the theory of change, it was very quantitative. IES does tend to use a lot of quantitative research or encourages mixed methods. But qualitative research can be informed by this theory of change just as much as quantitative. So, instead of maybe measuring things, those indicators are things that you would want to survey. So, you can think—I'm trying to come up with an example off the cuff.

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If you were going to do a qualitative study, how could your theory of change be used for figuring out how to do the qualitative stuff? I mean, the thing that comes to mind first for me—Amy?

Amy Sussman:
I'm not a qualitative person, so I'm probably not the best one, but when I think of the qualitative work, I think a lot of that goes into the iterative development of an intervention. Right? So, you'll have the same kinds of research questions. You'll have specific questions. You don't just go in and go, "Oh, I'll just see what I can find." There are certain things you want answered by the participants in the focus group or the interviews. And so you can organize those questions like a theory of change. Right? So, maybe you give them an early version of whatever it is you're developing and you have questions about how easy it is for them to understand. And how satisfied would they feel with the information. And these are things you are measuring.

Meredith Larson:
And you just say, if you're doing an ethnographic study, you need to figure out who the population is, and that's relevant to your theory of change. You've identified the context. You've identified the input, those preexisting initial states. And I could see that being very informative for the types of questions you might ask in a survey, and the types of people you might survey, and how often you would want to survey them. So you can see how this would fall out.

Now, another question was about if you wanted to do an exploration study. You know, what would—how does that fit in with this model, what are the outcomes for that? So, again, you need to step back. So you've got this theory of change. And let's say in your theory, the final outcome is post-secondary success. So having that bachelor's degree, like, this is the outcome that you're interested in. So now you say that it was really difficult for second language learning students to come in and get that college degree. It's just really hard. And there are all these reasons why you think it might be hard, and you think that there are certain skills that if these students had those skills, then they could succeed. So now we've got that distal outcome: success at post-secondary. We've got the initial state: second language learning incoming freshman. And we've got all of these skills that we think would allow them to succeed and to get that degree. And they may need things like linguistic support, they may need things like academic support, they may need financial support, so all of these things could go into your theory. Now your question—so this is the theory. Now, you as a researcher may be interested in figuring out what these basic processes are. So you believe that it's really important that the students have the ability to read and you know that reading breaks down into decoding, fluency, comprehension, all of these different components. And you want to explore how second language learners are processing things and how they're building up this fluency. So you're focusing on just one component of that theory of change. And in your application, you lay out the entire theory. You say, you know, the end goal is to increase post-secondary success for everybody. Some people really struggle. They all need these skills. My job is to help focus in

on one component of this huge questions and just figure out what's in that initial state. What are people coming in with? And how is that interacting with what's going on in their environment? So you're figuring out that initial state thing. And through that sort of exploration, you can find information that then can inform what sort of intervention is necessary. What activities, what strategies would need to happen in order to move the student from this initial state ever closer to that end goal? So an exploration project could lead then to a development of activities and strategies. Or, you might see this exploration work find out that there are certain combinations of factors in the environment that seem more helpful; they seem to correlate with better success. Well, now you can kind of move into an evaluation, looking at those outcomes, when you find those outcomes.

So, again, there's the theory that perhaps was designed not by you but by the field as a whole. And as you lay out this theory and you're starting to get more detailed about these little components, that's where your research sits. Very few researchers are able to work through an entire theory of change. Most researchers are focusing on one area of expertise and really focusing on program evaluation, on measurement validation, on exploration. And let's see…Did you want to say something?

Amy Sussman:
So we had a question about whether you will see a list of references. And we have an instant answer for you right there!

[Slide 46 - References]

Meredith Larson:
So somebody noted that there is a reference missing, and I'm very sorry. I'm going to check on that and we will update this slide.

Amy Sussman:
Another question was about whether we have tips for anyone who has never received a grant. We have webinars for early researchers very specifically on how to apply for IES grants, much more step by step in each section. I believe we probably have one this year, but if not, I know we had one last year and the transcript and the webinar itself—I mean the PowerPoints—are under "Resources for Researchers" on the IES website. And so, you can look at the transcript and the PowerPoint, and that's specifically aimed at early career researchers.

There were some questions that sort of were asked earlier and asked again, so I just want to let you know, if we don't answer your question right now verbally, it means we answered it earlier, but we are happy to get your question via email. So if we don't answer your question, please send one of us an individual email, and we'd be happy to go through it again.

Another person asked—actually multiple people asked—about letters of intent. What should they include? Should they be including the statement of purpose? Yes, the information in your statement of purpose and your theory of change, not necessarily in the precise formats. I

wouldn't say you need that diagram, but the information that's in it should be in your letter of intent because that's the information that will allow the program officer to decide whether or not it actually fits their topic area or whether it should be sent to another topic area. So that actually is the information, but it does not have to be a visual format or anything like that.

Meredith Larson:
Yeah. At least with our letters of intent, they don't need to be super, super long. What we're looking for is to figure out if you have the correct topic and if you've identified the correct research goal. And, you know, just get an idea of what it is that you're looking for and how you might be looking for it. It's usually maybe two or three paragraphs long. No more than one page, for at least IES.

Amy Sussman:
Okay. Another question was about how you know about grant opportunities. And we have a perfect thing at IES, where we have a newsflash. So you can go to the main IES website, and somewhere in the top right hand side (I'm not looking at it at the moment), there's a place that you can click and you can sign up for the IES newsflash. You can sign up for IES overall, but you can sign up for specific centers, whether it's NCER, or NCSER. And when we have a big announcement to make, we'll send you a newsflash. We don't use it a lot. We're not going to send you messages every week. It's when we have big announcements. And those kinds of announcements are things like, "We have a new RFA out. We have a new competition out." So it would actually be very useful for you to sign up for those newsflashes. And there are also professional societies, they also have services. A lot of them have websites where funding opportunities are listed. If any of you are members of the Society for Research in Child Development, they have a policy office that sends out newsletters, and they have a whole section on funding opportunities. So, there are lots of ways out there to find out about these opportunities.

Meredith Larson:
Okay. I'm going to send out one more link to everybody (http://ies.ed.gov/funding/grantsearch). So somebody asked if there was a way to look at some of the applications, or some of the projects that we fund, these abstracts that Amy walked us through. So if you follow this link off of our main site, you can go to a grant search, and you can look under various topic areas, you can look up under key words. The more recent grants from NCER, my center, many of them have a very structured feel to them. I believe all of NCSER's have a uniform structure, and if you read some of those, you'll kind of get an idea of the type of research IES funds, and the way it's presented, and what the expectations are. But do keep in mind that the expectations have changed across the RFAs over time. So just because something was funded two years ago, doesn't mean that it would fit in the current RFA.

Amy Sussman:
So as an example, there was a point in time a number of years ago when people doing development work, developing an intervention, could do a pilot study of that intervention with a pre- and post-test. And now that wouldn't work. Now, you need a control group or some other

method with more rigor. So that's why you look at these to get an idea of what we fund, but the details might've changed over the years in what our RFA says.

Meredith Larson:
We've got a lot of questions here and many of them deserve more thought than what—and more time than what we have right now. So what we'll try to do is go through this and see if we can kind of compile them and come up with some main questions and some suggestions and try and do another blast with the answers to that. I'm going to type this in so that everybody who's here…. This here is ed.gov, so this email address: IESTrainingProgram@ed.gov is sort of a large email address where any questions about the training programs can be sent and we can collect things. And if you have any questions that have not been addressed here, something pops up, you can either email me or Amy, or send it directly to IESTrainingProgram@ed.gov and we can compile those on for you. Somebody said that one of the links might not be working, so let me check. Oh, okay, so when you go to the grant search, if you follow that link, you'll want to put in your own search terms.

Amy Sussman:
Or look under a specific topic.

Meredith Larson:
Or look under a specific topic. So, program here. These are the different topic areas that we have funded. Not all of these topic areas are currently active. But you can go there and play around. Oh, just one other thing, because the timing is coming up. For those of you who are considering applying for an IES grant, the letters of intent are due on June 4th. If you miss the LOI date, that is fine. You can still apply, but we ask that you reach out to the program officer that you think your research falls under and let him or her know that you have an intent to apply because we use that mostly for planning purposes.

Oh, somebody had a comment about the link. And that's about the old transcripts. Thank you for pointing that out. If people are going to look for the transcripts from the old webinars, Amy and I will ask around and see if we can figure out how to get that information to you.

Amy Sussman:
Yeah. We'll figure it out. We'll see why it's not on the website. We thought it would be. We will either send out the correct link to get to it or we'll just send out the actual transcript and PowerPoint.

Meredith Larson:
So whatever we can send you guys, we'll try to make that available. And just one final thing, and then I think we'll let you all go. This has been a long time. Somebody asked if there were examples of LOIs. Not for IES. We don't have examples of LOIs. And really, don't worry too much about the LOI. This document is used internally. It does not go to reviewers. You could suggest that you wanted to do an exploration study, and then it turns out that you actually do a

development study. That's fine. It really is just a way for us, as program officers, to get in contact with people and to help make sure that you're headed in the right direction.

Amy Sussman:
It also helps IES know who they should ask to be on the review panels, based on what they think is coming in, like the specific areas of research that are coming in, to get the right expertise to review your proposals.

Meredith Larson:
So how many people do we need with expertise in English learning? How many do we need with expertise in science? It's just very, very helpful. And with that, I hope that you guys found at least parts of this useful. It's been a lot of fun writing this. And we look forward to getting any feedback you guys might have if we were to do this again, any suggestions. And then any other ideas of things that you think might be useful for early career researchers and for pre-doctoral and doctoral fellows. And with that, thank you very much. You guys have a great rest of the afternoon.

Bye-bye.

Amy Sussman:
Bye.

[end of transcript]