

1 INSTITUTE OF EDUCATION SCIENCES

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5 OVERVIEW  
6 OF  
7 IES COGNITION AND STUDENT LEARNING PROGRAM

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11 WEBINAR  
12 WITH  
13 ELIZABETH R. ALBRO, Ph.D.  
14 Associate Commissioner  
15 Teaching and Learning Division  
16 National Center for Education Research

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20 WEDNESDAY  
21 MAY 27, 2009

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(slide 1) DR. ALBRO: Good afternoon everyone.

I'm Liz Albro, the associate commissioner for the Teaching and Learning Division of the National Center for Education Research.

Today we are going to walk through the Cognition and Student Learning Programs that we offer here at the Institute of Education Sciences.

I'm going to talk both about the program that is offered through the National Center for Education Research as well as the program offered through the National Center for Special Education Research.

For those of you who have not been on a webinar before, the way this is going to work is I'm going to walk through the slides and you all should have those on your desktop. And I'm going to talk about the information on the slides.

Then, if you have questions that occur to you during the presentation, please use your chat box or your Q&A box and send those through email. And then I will pause at sensible times throughout the presentation and answer questions at that time.

1 (slide 2) First, I'm going to give a quick  
2 overview of the Institute of Education Sciences  
3 (IES). If there are folks on the phone who aren't  
4 familiar with IES, this will give you a good sense  
5 of how we are organized and how the Cognition and  
6 Student Learning Program fits within our overall  
7 program of research.

8 Then I'm going to spend some time talking  
9 specifically about the Cognition and Student  
10 Learning Program, and I'm going to talk about the  
11 genesis of that program and the kind of work that  
12 we would like to support through that program.

13 Then I'm going to spend some time discussing  
14 the goal structure, which is the organizational  
15 structure of our Requests for Application (RFAs),  
16 which are quite different from other agencies'.

17 Then I'll spend some time talking about  
18 details for preparing and submitting an  
19 application.

20 Finally, I'll talk a little bit about the  
21 review process.

22 (skip slide 3 and go to slide 4) So first, as

1 most of you know, the Institute of Education  
2 Sciences is the research arm of the U.S. Department  
3 of Education. And because we are a part of the  
4 Department of Education, we have a legislative  
5 mission. So, all of the work that we fund  
6 contributes to this mission.

7 First, we are required by law to describe the  
8 condition and progress of education in the United  
9 States. Most of that work is carried out at the  
10 National Center for Education Statistics, which is  
11 part of IES.

12 We are also required to identify education  
13 practices that improve academic achievement and  
14 access to education opportunities. The vast  
15 majority of the research that we conduct fits  
16 within this broad overall mission.

17 And finally, we are also charged with  
18 evaluating the effectiveness of federal and other  
19 education programs. So, this is primarily the  
20 responsibility of the National Center for Education  
21 Evaluation; however, we do have some research  
22 grants that look at effectiveness of education

1 programs.

2 (slide 5) For those of you who would like a  
3 visual representation, here's what our  
4 organizational structure looks like. We have a  
5 director who oversees all four of our offices. Our  
6 inaugural director was Russ Whitehurst.

7 We have a new director, John Q. Easton, who  
8 was confirmed by the Senate on May 21, 2009, for a  
9 term of six years. He is advised by the National  
10 Board for Education Sciences, a presidentially  
11 appointed board, which provides feedback and  
12 guidance to the director: they oversee the four  
13 centers described below.

14 The work today that I am going to discuss is  
15 funded through the National Center for Education  
16 Research, which is on the left side of your screen,  
17 and the National Center for Special Education  
18 Research, on the right-hand side of your screen.

19 (slide 6) Within our priorities, within our  
20 legislative mission, we have developed these long-  
21 term research goals. And it is helpful for  
22 understanding what kinds of research we'd like to

1 support and what the intent of those programs is.

2 So first, our hope is to support research that  
3 develops or identifies programs, practices,  
4 policies, and approaches that enhance academic  
5 achievement and access to education opportunities.  
6 You'll notice that academic achievement is a big  
7 emphasis in our focus throughout. And I think that  
8 shouldn't be surprising, given that we sit within  
9 the U.S. Department of Education.

10 It is also important to know that another part  
11 of our long-term research goals is to identify what  
12 doesn't work, what is not working, so that we can  
13 encourage innovation and further research.  
14 Sometimes it is very easy to spend so much time  
15 thinking about new things that do work that we  
16 neglect to understand what is not working to help  
17 improve student outcomes.

18 The Institute is also interested in supporting  
19 research that attempts to explain variations in the  
20 effectiveness of education programs, practices,  
21 policies, and approaches.

22 Please note that this discussion of programs,

1 practices, policies, and approaches is meant to be  
2 very wide in scope and includes small changes in  
3 the cognitive processes or cognitive instruction --  
4 things that are happening at a very micro level, as  
5 well as very large systemic changes.

6 And finally, we are also charged with getting  
7 what we are learning out into the hands of  
8 practitioners.

9 (slide 7) For those of you who have not been  
10 to our website, this is our website. And I would  
11 encourage all of you to spend some time exploring  
12 the work that we funded to date.

13 As I said, we have these two centers. If you  
14 want to go to the National Center for Education  
15 Research, you click on the first button, which will  
16 take you to our Center's homepage.

17 If you are interested in learning more about  
18 the Special Education Center, you want to click on  
19 the bottom image there.

20 (slide 8) We fund a range of programs, and I'm  
21 going to skip through these slides pretty quickly  
22 because we're not going to focus on all of them.

1           The Cognition and Student Learning Program is  
2 really focused on education -- the cognition  
3 program is found within the Education and Special  
4 Education Research Grant Programs. These are our  
5 primary research grant programs, and they include a  
6 wide range of topics and goals. But that's where  
7 you would go to get further information about our  
8 Education Research Program.

9           I do also want to draw your attention to the  
10 National Research and Development Center's  
11 competition. This year within NCER, one of the  
12 centers we are competing for is called Cognition  
13 and Math Instruction. The goal here is to reshape  
14 instruction by bringing what we are learning about  
15 cognitive science into a mathematics curriculum or  
16 components of a mathematics curriculum.

17           Within the Special Education Center, there is  
18 a similar center, but it is focused on trying to  
19 understand the underlying development processes for  
20 children identified with math difficulties. So if  
21 you've not taken the time to look at the R&D Center  
22 RFA, I would encourage you to do that as well as

1 looking at the main RFAs. And I'm happy to answer  
2 more questions about that as we move forward.

3 (slides 9-10) Within the Education Research  
4 Programs (again this is our main CFDA, our main RFA  
5 announcement), you'll notice that the third topic  
6 is Cognition and Student Learning. That is the  
7 topic that I am going to focus on today. I have  
8 these listed here for you today just to give you a  
9 sense of the scope of projects that we are  
10 interested in supporting.

11 (slides 11-12) Similarly within Special  
12 Education, you will notice on the second page here  
13 that there is a program named Cognition and Student  
14 Learning in Special Education.

15 (slide 13) One of the great things about a  
16 Webinar is you don't know who is on the other end,  
17 so I did also want to mention the Postdoctoral  
18 Research Training Grant Program.

19 There is funding available to establish  
20 postdoctoral training programs at institutions, and  
21 depending upon your particular interests, if you  
22 are at a university that has strong foundations in,

1 say, cognitive science and what you would really  
2 like to do is bring in some students with education  
3 training and provide them with some training in  
4 cognitive science, you could propose to put forward  
5 a postdoctoral training program that did that.

6 Again, that's not the primary focus of this  
7 particular webinar, but I'm more than glad to  
8 answer questions about it.

9 (slide 14) Okay, let's get to what people  
10 really want to know about. So, what is the  
11 Cognition and Student Learning Program? (slide 15)  
12 The Cognition Research Program within both of the  
13 centers has two separate goals, but they share an  
14 underlying goal, which is really to bring what we  
15 have been learning in cognitive science over the  
16 past 30 to 40 years and take that knowledge out of  
17 the laboratory and bring it to bear in classrooms  
18 across the country.

19 The real hope here is to take what we have  
20 learned about learning, doing most of the research  
21 maybe with college sophomores, to bring that  
22 knowledge to K-12 students or, for the Special

1 Education Center, for infants' through 12th  
2 graders' learning. Then the NCER Cognition Program  
3 also includes postsecondary students.

4 Within special education, too, it is important  
5 to note that we fund research focused on infants  
6 and toddlers. You can propose to do research with  
7 infants and toddlers with disabilities or at risk  
8 for developing disabilities.

9 (slide 16) Through both of these programs, we  
10 hope to support the development and evaluation of  
11 an array of tools and strategies that are based on  
12 principles of learning and information processing  
13 coming from cognitive science and documented to be  
14 efficacious for improving learning.

15 The two web links that are there will take you  
16 directly to the National Center for Education  
17 Research Cognition page or the National Center for  
18 Special Education Research Cognition page. These  
19 websites will give you a sense of the types of  
20 projects that we have funded to date.

21 (slide 17) Within the National Center for  
22 Education Research, if you are thinking about what

1 the sample characteristics are, you should propose  
2 to work with students in pre-kindergarten through  
3 12th grade who are in regular education programs,  
4 just in typical school classrooms; or you could  
5 propose to work with students in vocational or  
6 adult basic education. Or you could propose to work  
7 with developmental or remedial bridge programs for  
8 underprepared college students.

9 Under the National Center for Special  
10 Education Research, you can propose to work with  
11 infants, toddlers, and children with disabilities  
12 or at risk for disabilities, as well as secondary  
13 students with disabilities. The Special Education  
14 Center does not provide opportunities for work at  
15 the postsecondary level.

16 (slide 18) What are the independent variables  
17 that you might consider attending to as you are  
18 preparing a Cognition and Student Learning grant  
19 application? You could consider working on  
20 developing or evaluating curriculum materials. You  
21 could consider working on the process of  
22 instruction--it could be instructional practices or

1 processes, or how teachers are delivering  
2 information to students. And finally, you can also  
3 propose to do work around the development and  
4 validation of assessment.

5 (slide 19) Outcomes of interest are also very  
6 important to think about when you are putting  
7 together a Cognition and Student Learning  
8 application. What are appropriate dependent  
9 variables for the research project that you are  
10 proposing?

11 If the age group that you are interested in  
12 working with is pre-kindergarten, the outcomes of  
13 interest are readiness for schooling. And those  
14 outcomes include the list that is there:  
15 communication and language in the area of special  
16 education, pre-writing, pre-reading, early math,  
17 early science, or this wonderful catchall term we  
18 call study skills -- things about helping kids  
19 being prepared to get information from the school  
20 context.

21 And finally, you could also look at  
22 developmental outcomes for both infants and

1 toddlers with disabilities.

2 (slide 20) If the age group that you are  
3 proposing to work with fits in the K-12 grade span,  
4 the dependent variables of interest for the  
5 Cognition and Student Learning Program, as well as  
6 all of our programs, include reading and writing  
7 achievement and performance, mathematics and  
8 science achievement and performance, and study  
9 skills (these things that help kids organize  
10 knowledge and acquire knowledge as they are moving  
11 through the school systems). Other dependent  
12 variables of interest for the Special Education  
13 Center include transitional skills that support  
14 independent living, employment, or further  
15 education for secondary students with disabilities.

16 (slide 21) And finally, if you are interested  
17 in working with the postsecondary population as  
18 your primary target of intervention, remember that  
19 you can only apply under the National Center for  
20 Education Research and that you should be proposing  
21 to work with students in vocational or adult basic  
22 education or developmental programs for students

1 who are underprepared.

2 And, again, the academic outcomes that should  
3 be the focus of your research are basic reading,  
4 basic writing, basic mathematics, and study skills.  
5 Those are the outcomes of interest.

6 Now I'm sure people are wondering: what about  
7 work with typically developing college students? I  
8 know many cognitive scientists do an awful lot of  
9 laboratory work where they work with college-level  
10 students to test hypotheses and try to build an  
11 understanding of the learning process.

12 We do support that research but it needs to be  
13 in conjunction with carrying out research with the  
14 target population, with the students who are  
15 representative of the kinds of students that you  
16 hope the intervention or instructional practice  
17 will be used with. And I'm happy to talk about that  
18 more as we move forward.

19 I'm just pausing. I don't see any questions  
20 that I can answer.

21 Here's a question that says, "Could there be a  
22 focus on special education students at the

1 postsecondary level under NCER?"

2 I think in some ways it depends on what kind  
3 of a project you are proposing. If these students  
4 are in these developmental or bridge programs or in  
5 these vocational programs, I think that you might  
6 be able to build an argument as to why it would be  
7 relevant under NCER.

8 I would encourage you to talk with Carol  
9 O'Donnell, who is the program officer for NCER.  
10 Just so you know, the reason that special education  
11 does not accept research on postsecondary has to do  
12 with limitations in their funding stream in terms  
13 of the law.

14 I have a question here: "I understand that  
15 research cannot be done with first-year college  
16 students taking chemistry. Not solely, right?" If  
17 your intention is to revise the curriculum that you  
18 are using to teach first-year college students  
19 chemistry, that could not be a focus.

20 That's not to say you couldn't do some  
21 research with first-year college students in  
22 chemistry with the intent being to develop and test

1 a program that would be used in high school  
2 chemistry; the link would need to go back to a high  
3 school.

4 I have another question: "Does the research  
5 have to be conducted in the United States?" The  
6 language in the RFA states that any research  
7 supported by the Institute of Education Sciences  
8 must be relevant to education problems in the  
9 United States.

10 So, depending on what country you are  
11 proposing to conduct research in and how  
12 convincingly you can build an argument for the  
13 reviewers, it is certainly possible to do research  
14 outside of the United States.

15 All right. I'm going to keep moving. Please  
16 keep sending questions and I'll continue to pause  
17 and answer them.

18 (slide 22) What I want to spend most of the  
19 time talking about today is this goal structure and  
20 the types of research projects that the Institute  
21 of Education Sciences funds.

22 Those of you on the phone already -- you've

1 already picked your topic, right? You think that  
2 the Cognition and Student Learning Program, whether  
3 within NCER or NCSEER, is appropriate for the  
4 projects that you are proposing. Now let's think  
5 together about the way our goals are structured and  
6 where the research that you are proposing might fit  
7 within that structure.

8 (slide 23) So first, IES has organized the  
9 submission of its applications under five goals.  
10 For the Cognition program, however, there are only  
11 four possible goals that applicants can apply to:  
12 Goals 1, 2, 3, or 5.

13 For Cognition, we do not accept applications  
14 under Scale-Up Evaluations (Goal 4). If you have  
15 a project that you believe is ready to be evaluated  
16 under scale-up, it will probably be appropriate to  
17 evaluate under, say, Reading and Writing or  
18 Mathematics and Science or one of our other  
19 programs. And again, we're happy to talk with you  
20 about where you might think about submitting your  
21 application.

22 For projects coming in under Goals 1, 2, and

1 5, you may propose to carry out experimental work  
2 conducted in laboratory settings as well as  
3 proposing work that is carried out in the classroom  
4 or education delivery context. And this, in many  
5 ways, is what makes the Cognition and Student  
6 Learning Program unique within the range of  
7 projects that IES supports.

8 (slide 24) Let's start with Goal 1, which are  
9 our Exploration projects. Here the real goal is for  
10 applicants to do work that in many ways is  
11 hypothesis generation.

12 So you have an idea. You think that there are  
13 some underlying cognitive processes that are  
14 associated with an outcome of interest, but you are  
15 not entirely sure how those cognitive processes are  
16 associated. You don't have a good "map" of the  
17 relationships between, say, attention and reading  
18 or some other cognitive factor and an academic  
19 outcome.

20 Under Goal 1, you can propose to examine or  
21 explore factors in the environment or factors of  
22 cognition, too, that can be changed and are

1 potential targets of intervention, things including  
2 child characteristics as well as education  
3 practices.

4 The important thing to note is that these  
5 malleable factors need to be predictive of  
6 achievement and potentially amenable to  
7 interventions. For example, you may be interested  
8 in gender. You may really want to know whether boys  
9 and girls perform differently on some outcome of  
10 interest.

11 However, we can't change a child's gender. And  
12 so you want to think about what malleable factors  
13 you would be exploring if gender were of interest  
14 to you.

15 Perhaps the factor that you'd be really  
16 interested in exploring would be teacher responses  
17 to children of different genders, or information  
18 that is presented in materials for students that  
19 maybe could be changed as a function of the child's  
20 gender.

21 You really need to pay attention to describing  
22 in your application what the malleable factors are

1 that you are considering.

2 Under Exploration, we are also seeking  
3 applications that propose to examine or explore  
4 factors and conditions that may mediate or moderate  
5 the relationships between the malleable factors  
6 that you have identified and education outcomes.

7 I have a question here that I am going to go  
8 ahead and answer right now. It says, "What  
9 percentage of the CASL Projects funded to date are  
10 Goal 1 projects?"

11 I don't have that number off the top of my  
12 head in terms of percentage. I know that we funded  
13 one to date. But I want to let you all know that  
14 Goal 1 is a relatively new category and I think  
15 under Cognition, it has only been competed for the  
16 past 2 years.

17 If you are interested, you can certainly go to  
18 the Programs and Projects page. And for special  
19 education, they also have one Goal 1 project. And,  
20 again, Goal 1 is a relatively new category within  
21 the IES structure. So, don't take that one as an  
22 indication that we don't want to fund that work,

1 just as a reflection that we have not seen very  
2 many Goal 1 applications to date.

3 Under Goal 1, I have listed here a series of  
4 possible types of research designs and  
5 methodological techniques that one could propose to  
6 use. I don't believe that these are exhaustive. I  
7 believe that these are the ones that we have  
8 identified.

9 If you have other types of projects that you'd  
10 like to consider, again, please do reach out to our  
11 program staff here. They can provide you with  
12 assistance in terms of that.

13 (slide 25) One type of Goal 1 project could  
14 propose to use existing longitudinal datasets or a  
15 dataset to capitalize on natural experiments or  
16 natural variation in education practices or  
17 policies. It doesn't only have to be capitalizing  
18 on natural experiments. You could also use existing  
19 longitudinal datasets to look to see whether  
20 measures of cognitive processes, for example, are  
21 correlated with academic achievement outcomes.

22 The National Center for Education Statistics

1 has a series of datasets that are available, like  
2 the Early Childhood Longitudinal Study. And I think  
3 that the birth cohort does include some cognitive  
4 measures that might be of interest.

5 There are also longitudinal datasets that are,  
6 say, at the National Institute of Child Health and  
7 Human Development. Again, if there is a  
8 longitudinal dataset that you have access to and  
9 you are trying to understand how characteristics of  
10 the child or the education setting are related to  
11 achievement outcomes and you can do that using a  
12 longitudinal dataset, you could certainly propose  
13 to do that under Goal 1.

14 Under Goal 1 you can also propose to conduct  
15 small-scale descriptive studies where you are doing  
16 primary data collection. Again, say, maybe you are  
17 interested in attention.

18 As a former preschool teacher, I'm going to  
19 use my preschool example. Let's say that you've  
20 noticed that some teachers are really good at  
21 keeping children focused and on task, whereas other  
22 classrooms you notice much more dispersed activity,

1 and you  
2 are interested in trying to elaborate what are the  
3 factors that are contributing to that. Is it  
4 something that the teacher is doing, or is it that  
5 there are child characteristics that are  
6 contributing to a more disruptive or less  
7 disruptive classroom?

8 You could propose to go in and gather some  
9 original data where you are trying to measure and  
10 capture what those important factors might be  
11 toward student performance in the classroom.

12 In addition under Goal 1, you could propose to  
13 conduct experimental studies in laboratory  
14 settings. Maybe you have some ideas about how  
15 different cognitive processes or components are  
16 contributing to an outcome, but you are not sure  
17 whether the cognitive processes are interacting --  
18 whether they are additive factors.

19 You want to do a series of small experiments  
20 where you try to figure out how the pieces fit  
21 together. That certainly would be something you  
22 could do under Goal 1.

1           Finally, another option would be to conduct a  
2 meta-analysis of previously conducted research,  
3 where you are trying to explore malleable factors  
4 that are associated with positive education  
5 outcomes.

6           The thing here is that you are really focused  
7 on hypothesis generation, but at the end of a Goal  
8 1 study, you would have sufficient information  
9 about what can be changed in the classroom  
10 environment or the learning environment that you  
11 would want to use to develop a new intervention,  
12 right, or to test further.

13           (slide 26) I've just said what I said before.  
14 The goal here is you want to explore the underlying  
15 processes that explain learning problems or  
16 difficulties that occur in an authentic education  
17 setting.

18           One thing you could do is you could begin by  
19 identifying a constellation of observed behaviors  
20 that indicate an academic learning problem, and  
21 then systematically explore possible causal  
22 explanations for that problem.

1 I think we sort of focused on the problem and  
2 difficulty side of the equation here, but there is  
3 nothing that would preclude you from looking at  
4 what makes students successful learners as well.

5 (slide 27) Here are some other questions that  
6 you might consider under Goal 1. What cognitive  
7 processes underlie the acquisition of reading,  
8 writing, mathematics knowledge and skills, science  
9 knowledge and skills, or general study skills? And  
10 then, how can these principles and knowledge that  
11 are emerging from research in cognitive science be  
12 used to better understand teacher knowledge and  
13 classroom practice?

14 I think this is an understudied area where we  
15 have not actually taken a lot of what we know about  
16 how students learn and used that information to  
17 inform what teachers need to know about students'  
18 learning in order to shape and improve their  
19 classroom practice.

20 If anyone out there is interested in that  
21 question, I think this is an important question.

22 (slide 28) People always want to know about

1 funding. So, under Goal 1, a typical range of  
2 requests is \$100,000 to \$400,000 per year. That is  
3 total cost. It includes direct plus indirect costs.

4 Please note that this is a range. People often  
5 take that \$400,000 as a cap, as a limit. And that  
6 is not, in fact, the way that it is intended. It is  
7 just to give you a ballpark figure of the typical  
8 amount of these awards.

9 You can request up to 4 years' worth of  
10 funding. However, if you are only proposing to do  
11 secondary data analysis or complete a meta-  
12 analysis, then you may not request more than 2  
13 years' worth of funding.

14 However, if you are planning to do primary  
15 data collection, whether by itself or in  
16 combination with a secondary data analysis or other  
17 form of analysis, you may request up to 4 years'  
18 worth of funding.

19 Here is another question: "Is it appropriate  
20 to conduct a Goal 1 study to identify the  
21 developmental trajectories of student learning in a  
22 particular elementary school mathematics program?"

1 I'm hesitating. I'm thinking. I think it sort  
2 of depends on what the desired outcome is. If the  
3 goal is to understand the cognitive components that  
4 need to be in place in order for students to  
5 progress along a trajectory in math learning, then  
6 that might be an appropriate fit under Cognition  
7 and Student Learning.

8 If what you are really trying to understand is  
9 the development of mathematics learning, then maybe  
10 where you are just really focusing on the math  
11 components of the knowledge, it may be more  
12 appropriate for the Math and Science program.

13 One of the things to note is that we will  
14 arrange calls with both program officers in, for  
15 example, Cognition and Student Learning and  
16 Mathematics and Science Education. They would be  
17 really happy to sit down and talk with you and  
18 think through where the best fit is for the project  
19 that you are proposing.

20 (slide 29) All right. I'm going to move on to  
21 Goal 2. Under Goal 2, which is our Development and  
22 Innovation projects, we are interested in

1 supporting research designed to develop new  
2 interventions such as curricula, instructional  
3 approaches, technology, and programs, or to refine  
4 current interventions and make them more effective  
5 in improving student learning.

6 Now, the vast majority of the cognition work  
7 that we have supported to date fits under this Goal  
8 2 category. This really reflects where the bulk of  
9 the research projects that we've received have come  
10 in. And there's a whole range of different kinds of  
11 projects that have been developed.

12 For example, we support the work of Bob  
13 Siegler where he has been working on developing a  
14 board game that is designed to support the  
15 acquisition of concepts of numerical magnitude and  
16 numerical estimation. So he's developed something  
17 that is very tangible. That's a product that comes  
18 out of the cognitive work, that comes out of his  
19 sort of theoretical line of work in estimation.

20 On the other hand, we've also supported a  
21 range of projects that are looking at things like  
22 the effect of spacing. A fundamental construct in

1 the cognitive sciences is that space retrieval of  
2 information supports a long-term acquisition of  
3 that knowledge.

4 It is important for kids to get repeated  
5 exposure to information over time and for children  
6 to have to retrieve that information. Children and  
7 adults: it generalizes to both sets of populations.

8 Researchers have been examining the parameters  
9 of that. How much spacing is enough? Do you lose  
10 all the information you've learned if you space  
11 information at too great a distance?

12 That would be an instructional approach that  
13 has been developed and examined through the  
14 Cognition and Student Learning Development and  
15 Innovation projects.

16 In the course of doing Goal 2 you're  
17 developing this new intervention and you also need  
18 to gather some pilot data, which are designed to  
19 demonstrate the feasibility of the intervention for  
20 implementation in authentic education delivery  
21 settings and the promise of the intervention for  
22 generating outcomes that the intervention is

1 designed to effect.

2 The feasibility data are really important,  
3 especially when you are taking an intervention that  
4 has been primarily developed in the laboratory and  
5 you are trying to see whether teachers can deliver  
6 the instruction that you've developed in the way  
7 that you intended for it to be developed. So that  
8 is a really important component of a Goal 2.

9 In addition, we, of course, also would like to  
10 gather some pilot data to see whether, in fact, the  
11 intervention when delivered by whoever the target  
12 deliverer is--whether it is a teacher or an RA or  
13 whoever that person might be--whether you are, in  
14 fact, getting the outcomes that you expected to  
15 get.

16 I'm pausing here because I have a question. It  
17 says, "For a Goal 1 descriptive study, for example,  
18 looking at classroom atmosphere and student  
19 learning, how big of an N would you estimate being  
20 needed?"

21 You know, that's really not a question that I  
22 can give an answer to with that information. I

1 think the N really depends upon what kinds of  
2 measures you are proposing to collect, how much  
3 data you are collecting. I mean, you would need to  
4 look at, say, variability in classroom atmosphere.  
5 You would need to build on prior work.

6 So, I don't know. I don't have any statistics  
7 that I would want to put out here. Again, I would  
8 encourage you to talk with your particular program  
9 officer.

10 You need enough so that you can be relatively  
11 confident that the relationships you see are  
12 generalizable and would make sense across a range  
13 of learners in classrooms.

14 I have a question here that says, "Would a  
15 private school started by parents for their  
16 children be considered a laboratory setting?" It  
17 would depend upon how you framed it.

18 It might well be considered to be a laboratory  
19 setting in that if you are thinking about what you  
20 are learning and how you are going to take that  
21 information to apply to other contexts and  
22 settings, the setting that you are describing here

1 has a set of characteristics that are not shared  
2 across lots of other schools. And so you would need  
3 to spend some time in your application describing  
4 what those characteristics are.

5 I have a question here that says, "As for the  
6 pilot data information provided in the application,  
7 are you suggesting that expectation be included in  
8 the application?"

9 I'm sorry. I don't quite understand that  
10 question. Let me talk a little bit more about Goal  
11 2 and maybe it will become clearer as I talk about  
12 it.

13 The two bullets that are up here on the slide  
14 that you see right now are about the requirements  
15 in Goal 2 applications.

16 In a Goal 2 application, you need to describe  
17 how you are going to develop these new  
18 interventions or refine current interventions and  
19 you need to also describe how you plan to gather  
20 pilot data, which would demonstrate both  
21 feasibility and promise of the intervention.

22 (slide 30) In Goal Two, you should note that

1 the majority of the proposed work should be  
2 conducted in authentic education settings so that  
3 you really want to be testing whether the  
4 intervention designed to change students'  
5 underlying processes or to change their performance  
6 is happening in the setting where you intended for  
7 it to be delivered. However, you may include some  
8 laboratory research as well.

9       Again, please note that there are restrictions  
10 around laboratory and classroom research with  
11 college students in that it should only be used as  
12 a means to identifying underlying principles or to  
13 test critical components of an intervention that is  
14 in the process of being developed.

15       Again, you must describe how the interventions  
16 that you are developing are going to be tested with  
17 the student population for which the intervention  
18 is intended.

19       The idea here under Goal 2 is that you may  
20 propose to do some foundational work with college  
21 kids where you are trying to get the kinks out in  
22 terms of how the components fit together.

1           But you should be proposing the majority of  
2 your research to happen with the students for whom  
3 the intervention is designed for, whether that be a  
4 high school chemistry class or whether that be a  
5 group of kindergarten students. That needs to be  
6 articulated in your application.

7           (slide 31) People often want to know what  
8 kinds of methods are appropriate for developing  
9 interventions under Goal 2. And really the  
10 methodological approaches are quite various and  
11 really depend upon the kind of work that you are  
12 proposing. But clearly if you are trying to  
13 understand questions of feasibility, you could  
14 propose to use observational data, to gather  
15 interviews, to collect think-aloud protocols as  
16 students are working through a particular  
17 component.

18           You may also, as we've already discussed,  
19 propose small experiments. There are also types of  
20 interventions where you can do experiments,- say,  
21 within the context of a classroom itself. So, it  
22 really depends upon what you are proposing to do.

1           You can also propose to use single-case  
2 experimental designs, particularly for the National  
3 Center for Special Education Research, because if  
4 you are working with a low-incidence disability  
5 population, you may need to rely on single-case  
6 experimental designs, and survey data may also be  
7 appropriate.

8           The other really important aspect of Goal 2  
9 development and innovation projects across any of  
10 the topics that you are proposing is that you need  
11 to describe this iterative development process that  
12 you are planning to use in the design and  
13 refinement of the proposed intervention.

14           One of the things that often happens when you  
15 are developing an intervention is that you think,  
16 "What is the best possible intervention or the best  
17 set of procedures?" And then you go out and you  
18 test it and you find that it takes much longer to  
19 deliver the intervention than you had originally  
20 planned; or, the words you are using in the  
21 intervention don't make sense for the age group of  
22 the population you are working with.

1 I'm just trying to think of other things that  
2 could happen -- the way the intervention fits into  
3 the course of the school day isn't appropriate,  
4 given what you wanted to do.

5 And so you need to talk about how you are  
6 going to gather data that are going to feed back  
7 into any proposed revisions that you would do, as a  
8 function of what you learn from implementing the  
9 first iteration of the intervention.

10 (slide 32) The typical range for a Goal 2  
11 project is \$150,000 to \$500,000 per year, direct  
12 and indirect costs, and you may only request 3  
13 years of funding for development and innovation  
14 projects.

15 There's a question here that says, "It is  
16 unclear what the differences are between the  
17 Mathematics and Science Program and the Cognition  
18 and Student Learning Program. One of the Goal 2  
19 examples you gave would seem to fit under both.  
20 What characteristics of the Cognition and Student  
21 Learning Program differentiate it from the  
22 Mathematics and Science Program?"

1           I think that there are two ways to answer that  
2 question. One is that the programs differ in that  
3 the focus for Cognition and Student Learning is  
4 really underlying cognitive processes. And you are  
5 really targeting what we've learned from cognitive  
6 science.

7           Under the Cognition program, you're looking at  
8 factors like, say, attention, working memory, or  
9 number span (perhaps), right? Whereas in math and  
10 science, you might be looking at, say, components  
11 of math instruction that are already well  
12 identified.

13           If you are looking at a scope and sequence of  
14 a math curriculum and you are trying to understand  
15 how the understandings in that scope and sequence  
16 build on one another, it may be more appropriate  
17 for math and science.

18           I don't think there is a hard and fixed line  
19 between the two programs. I guess the other way I  
20 could answer that question is that it has, in many  
21 ways, to do with what the principle investigator's  
22 area of expertise is and what literatures he or she

1 feels most expert in.

2 For the Cognition and Student Learning  
3 Program, the theoretical foundations will really  
4 come out of cognitive science, out of the cognitive  
5 literature, whereas for the Mathematics and Science  
6 Program, it is more likely to see applications that  
7 are coming strongly out of a mathematics  
8 background, mathematics education, and mathematics  
9 instruction.

10 But, again, I really want to encourage you, if  
11 you are struggling with where your application  
12 fits, please do contact our program officers for  
13 both programs. And you should feel free to email  
14 them at the same time and they will be happy to  
15 talk with you about your particular idea and  
16 provide you with some guidance as to where the  
17 better home is for the work you are proposing to  
18 do.

19 A question here says, "If we are starting with  
20 an existing curriculum and want to explore the  
21 contextual factors that allow teachers to implement  
22 it effectively, does that fit?"

1           Maybe. I think it sort of depends on what the  
2 curriculum is and what are the contextual factors  
3 that you are considering. I actually don't know  
4 that I can answer that question in any sort of a  
5 sensible way in a webinar.

6           So I want to encourage you to reach out and  
7 send me an e-mail or send an e-mail to my program  
8 officer, Carol O'Donnell, who can talk with you  
9 about that because it could fit but it might also  
10 fit in another place.

11           (slide 33) Okay. I'm going to push on. Goal 3  
12 is designed for applicants who already have an  
13 intervention that is fully developed, whatever that  
14 intervention might be, and the real goal is to test  
15 the causal question of does this work to improve  
16 student outcomes.

17           You are testing it in the context of an  
18 authentic education setting, so you are really  
19 testing it in the final user environment, right? So  
20 if you are planning this to be delivered by  
21 teachers, you would be working in classrooms.

22           If this is an intelligent tutoring software

1 that you've developed and you expect it will be  
2 delivered in afterschool settings, then you want to  
3 test the efficacy of that intervention in the  
4 afterschool setting.

5 We define efficacy as the degree to which an  
6 intervention has a net positive impact on the  
7 outcomes of interest, relative to the program or  
8 practice to which it is being compared under  
9 limited or ideal conditions.

10 Please note that the efficacy studies tend to  
11 be small -- relatively small in terms of their  
12 scale, but they are really designed to investigate  
13 whether this intervention can have a positive  
14 effect on student outcomes under the best of all  
15 possible circumstances.

16 Typically, you will see that the developer is  
17 involved in the implementation of the intervention.  
18 There should be some degree of a firewall where the  
19 person, the evaluator who is analyzing the data, is  
20 not the same person as the developer, typically.  
21 But you are really looking at that causal question  
22 of, "Can this work under the best of all possible

1 circumstances to improve student outcomes?"

2 (slide 34) Just "a buyer beware note" here:  
3 please note that under Goal 3, we do not provide  
4 funding to support laboratory research. If you are  
5 at a point where you still are trying to figure out  
6 what exact components need to be part of your  
7 intervention, that's really something that you  
8 would need to propose under either Goal 1 or Goal 2  
9 and potentially Goal 5, depending upon what you are  
10 proposing.

11 (slide 35) The typical range for efficacy and  
12 replication is between \$250,000 per year up to  
13 \$750,000 per year. And the maximum number of years  
14 that you can request is four.

15 (slide 36) And finally, Goal 5 is our  
16 measurement goal. The purpose here is to support  
17 research designed to develop and/or validate  
18 screening, diagnosis, progress monitoring, and/or  
19 outcome assessments (any of those).

20 We are also interested in providing funding  
21 for assessments of teachers, other service  
22 providers, leaders, and assessment of education

1 systems.

2 I think that this second bullet is actually  
3 more general and really under the Cognition and  
4 Student Learning Program, it may be possible to  
5 propose to develop assessments of teachers, in this  
6 context, but I'm thinking probably not systems.

7 (slide 37) Under Goal 5 measurement, the award  
8 amount per year is \$150,000 to \$400,000 per year.  
9 And the maximum number of years is four.

10 Under Cognition and Student Learning, the  
11 measurement projects typically could be a range of  
12 things. You could propose to develop a measure of a  
13 cognitive process, such as attention, which is  
14 important and contributes to school performance.

15 Perhaps you are interested in the development  
16 of these mathematics difficulties and you think  
17 there are cognitive contributions to them but you  
18 are missing a tool to measure one critical feature:  
19 you could potentially propose to develop a measure  
20 with Goal 5 funding.

21 A question here for Goal 3: "Do you need to  
22 have preliminary data on the effects of the program

1 in order to apply under Goal 3?"

2 It is not required in the RFA. The only  
3 requirement is that you have a fully developed  
4 intervention and preliminary data on feasibility,  
5 so you do need to have information as to whether  
6 the intended deliverers of the intervention can, in  
7 fact, deliver it as intended.

8 Please note, however, that because many of the  
9 panel members who are reviewing the Cognition and  
10 Student Learning applications come out of a  
11 tradition where preliminary data are expected, I  
12 think that if you do have preliminary data of the  
13 potential efficacy of your program, you should  
14 include those in your application.

15 Question here, "Do you support the development  
16 of measurement theory as well?" We don't tend to  
17 support work that is theoretical only.

18 We support applied education research, so the  
19 vast majority of the work that we support focuses  
20 on where there is a product that is developed at  
21 the end, whether that be an assessment or an  
22 intervention.

1           Clearly if you are interested in theoretical  
2 work around measurement, you could propose that in  
3 the context of Goal 5. We do have a program on  
4 statistics and methodological processes in  
5 education research that might potentially accept  
6 applications looking only at theoretical questions.

7           You should certainly go back and look at that  
8 request for applications and see if the types of  
9 research questions that you have fit within that  
10 RFA. Okay, I hope that answered your question.

11           (slide 38) Okay. So for those of you who have  
12 not been through this process before, I want to  
13 make sure I spend a little bit of time talking  
14 about how you put an application together.

15           I don't know if any of you were on the webinar  
16 this morning where my colleague, Emily Doolittle,  
17 went through and talked a lot about the details of  
18 putting an application together: this is just a  
19 quick summary of what you need to do.

20           (slide 39) First thing is: make sure that you  
21 go to the [ies.ed.gov/funding](http://ies.ed.gov/funding) page. And you need to  
22 download two documents from that page. The first is

1 the Fiscal 2010 Request for Applications. The  
2 second is the IES Grants.gov Application Submission  
3 Guide. Both of those are available on that page.

4 The RFAs that you want to pay attention to if  
5 you are planning on putting in a cognition proposal  
6 are the Education Research Grants RFA. The CFDA  
7 number is 84.304A, and -- depending upon what you  
8 want to do, the Special Education Research Grants  
9 RFA. And the CFDA number for that is 84.324A.

10 Both of those RFAs include information about  
11 the Cognition and Student Learning Programs in  
12 those two areas. They include information about a  
13 little bit of background and they include detailed  
14 information about what components need to be  
15 included in applications written to each of the  
16 goals.

17 I assume that everyone on the phone is already  
18 on the Newsflash. And you should certainly sign up  
19 for it if you are not because that is how you get  
20 information about webinars and when RFAs are  
21 released.

22 (slide 40) This is a screen shot that shows

1 you where that information is on our web page.  
2 Funding Opportunities are toward the right side of  
3 the top bar, and the Newsflash is at the very, very  
4 top so that you can sign up for that.

5 (slide 41) Here's where you can download the  
6 information for the Funding Opportunities page.  
7 This is where that link that I put before will take  
8 you to. And the first two -- they are little  
9 pencils actually -- but the first two links there  
10 that are circled in red will take you to the main  
11 RFAs for both competitions.

12 (slide 42) If you click on Cognition and  
13 Student Learning, it will take you right there.

14 (slide 43) And similarly if you go to the Special  
15 Education RFA, there is the bullet for Cognition  
16 and Student Learning in Special Education.

17 (slide 44) For those of you who are applying  
18 on June 25th, the Fiscal 2010 application package  
19 is already available on grants.gov. If you haven't  
20 been to the grants.gov website you should certainly  
21 go there. That information is available.

22 The application package for the October 1st

1 deadline is not yet available, but it will be  
2 available on August 3rd.

3       However, you could certainly go and look at  
4 the information that is available for the June 25th  
5 deadline. That information will be the same. But  
6 you cannot use the June 25th deadline: you can't  
7 use that package to apply in October.

8       So please, if you download the information  
9 because you are trying to get prepared and you're  
10 starting to write it, if you are trying to do that  
11 now and you are planning to submit in October,  
12 please remember to go back into the system in  
13 August and download the correct materials prior to  
14 submitting.

15       (slide 45) For those of you who haven't been  
16 to the grants.gov website, here's what it looks  
17 like, at one point.

18       (slide 46) The other thing to know is that you  
19 need to realize that we are here to help, so please  
20 take the time to read the program announcements or  
21 the RFAs and the application instructions  
22 carefully.

1           You should call or email IES program officers  
2 early in the process. We are all researchers. We've  
3 all been in your shoes, been involved in preparing  
4 grant applications. And so we are here to provide  
5 you with assistance as you prepare your  
6 applications. So please do email or call as soon as  
7 you have questions that you are ready to talk about  
8 with somebody.

9           The other thing to know, which is something  
10 different and unique for us, is that we can review  
11 draft proposals and provide feedback. The way our  
12 offices are organized, we are not involved in the  
13 peer review process, and so we have the opportunity  
14 to work closely with applicants as they prepare  
15 their applications.

16           (slide 47) Please do spend time reading the  
17 request for applications carefully as well as the  
18 application instructions. Sections that you do want  
19 to make sure you pay particular attention to are  
20 who are the eligible applicants. Read the special  
21 requirements section and make sure there is nothing  
22 unique that you need to know about the particular

1 RFA.

2 Please do pay attention to content and  
3 formatting requirements. There's nothing more  
4 distressing both to the applicant and the program  
5 staff than to have to return an application without  
6 review because it hasn't included the personnel  
7 section or because they've miscalculated the size  
8 of the margins. So please do pay attention to those  
9 content and formatting requirements.

10 Please know that there are several steps in  
11 terms of submission and processing where your  
12 application will be screened for responsiveness and  
13 for compliance to the requirements. Things must be  
14 submitted electronically.

15 And finally, note that our due dates are firm  
16 and fixed and they do not move. So, applications  
17 that are due on June 25th are due on June 25th at  
18 4:30 p.m. and 0 seconds. If you put in an  
19 application that finishes uploading at grants.gov  
20 at 4:30 and 5 seconds, that application will be  
21 marked as late and will be returned without review.

22 So please make sure you start early enough to

1 ensure that your application is fully uploaded by  
2 4:30 p.m. on the date the application is due. And  
3 that's 4:30 p.m. Washington, D.C. time, okay?

4 I had a question here that said, "How much  
5 funding will there be for the national center? For  
6 how many years is the new competition?"

7  
8 In terms of funding for the Cognition and Student  
9 Learning Programs, those are ongoing and have been  
10 ongoing since 2002.

11 If this question is about the Cognition and  
12 Math Instructions National R&D Center topic or  
13 competition, it is a new topic within our National  
14 R&D Center competition. And you can request up to  
15 \$10 million over 5 years for that particular award.

16 That topic is new and has not been competed  
17 before. It will probably only be competed this  
18 year. Then there are two in the Special Education  
19 Center: It has a similar financial structure in  
20 terms of it is 5 years,  
21 \$10 million.

22 The real assumption is: assuming that we get a

1 competitive application and we are able to fund one  
2 of the R&D centers, it is unlikely that we would  
3 compete it again next year: perhaps in the future,  
4 but not in the immediate year. I hope that answered  
5 that question. And if not, please send me an email  
6 and let me know and I'll try again.

7 (slide 48) The other question that folks who  
8 listen to webinars often want to know is, "What  
9 happens to my application once I push that submit  
10 button? It goes off into internet space and I have  
11 no idea whether it got to where it is going and  
12 what is going on."

13 (slide 49) This is just a quick summary of  
14 what happens. There are a couple of steps here, but  
15 what ends up happening first is that the  
16 application is reviewed for compliance and  
17 responsiveness. So there are actually two pieces to  
18 this.

19 Compliance is whether you have followed the  
20 content and formatting requirements. So, have you  
21 included a significance section, a methods section,  
22 a personnel section, and a resource section in your

1 25-page, single-spaced narrative?

2 The other kinds of compliance are things like  
3 font size, margins, whether you have too many pages  
4 in your appendix, or whether you have the wrong  
5 information in your appendices.

6 Please note that we have restrictions about  
7 what kinds of information can go in the appendix.  
8 And if you include information that does not fit  
9 those requirements, that information will be  
10 removed from the application that goes forward.

11 The applications are also reviewed for  
12 responsiveness to make sure that the applications  
13 that are coming to us are responsive to the request  
14 for applications.

15 So, we fund research grants: we don't provide  
16 money simply to establish new programs. And so it  
17 is at that level. Typically, very few applications  
18 are pulled for nonresponsiveness. But it is  
19 something that we do attend to.

20 Once applications have been received and  
21 reviewed for compliance and responsiveness, those  
22 applications are then assigned to a review panel.

1 We have standing review panels that are composed of  
2 anywhere from approximately 15 to 20 individuals;  
3 it really depends on how many applications they are  
4 going to be expected to review at a particular  
5 time.

6 They are assigned to the panel, and two to  
7 three of those panel members conduct a primary  
8 review of each application. All applications will  
9 receive at least two.

10 Applications that receive three reviewers are  
11 typically efficacy studies and scale-up  
12 evaluations, which is not something that we've  
13 talked about here. We have content experts as well  
14 as methodological experts who are part of the panel  
15 review for Goal 3 and Goal 4 applications.

16 The panel members review and score  
17 applications, and the average of those scores is  
18 used to make a determination of the most  
19 competitive application: those applications are  
20 then reviewed by the full panel at the panel  
21 meeting.

22 After they are reviewed by the full panel,

1 those overall average scores are what we use here  
2 at the institute to make recommendations for  
3 funding.

4 One of the questions I always get is, "Who are  
5 the panel reviewers?" So, I've decided to include  
6 in the slides here a direct link to the peer review  
7 page at the Institute of Education Sciences: that  
8 will provide you with information about our peer  
9 review processes as well as who our panel members  
10 have been for the last three fiscal rounds of  
11 competition. Note the underscore between "peer" and  
12 "review" (peer\_review) in the url.

13 Just please note that the fiscal 2009  
14 reviewers are not yet up there because we are still  
15 making final decisions about applications to be  
16 awarded for that competition.

17 (slide 50) Okay, how do you find out about the  
18 status of your grant after all these things are  
19 happening here in D.C.? First note that all  
20 applicants receive email notification of the status  
21 of their application, whether you have been  
22 recommended for funding or not.

1 All applicants also receive copies of the  
2 reviewer comments. And please: if you are not  
3 granted an award the first time, please consider  
4 resubmitting. Talk with your program officer. They  
5 can provide you with some help understanding the  
6 reviewers' comments and which of the comments are  
7 the ones that are the most important for you to pay  
8 attention to. And they can help you through this  
9 process.

10 It is very competitive. We typically only fund  
11 around 12 to 13 percent of the applications that  
12 come in. So, it sometimes takes more than one  
13 submission cycle to get an award.

14 (slide 51) Dr. Celia Rosenquist is the program  
15 officer for Cognition and Student Learning in  
16 Special Education for the National Center for  
17 Special Education Research.

18 Dr. Carol O'Donnell is the program officer for  
19 Cognition and Student Learning in the National  
20 Center for Education Research: Carol's email is  
21 there. Note that there is no apostrophe in Carol's  
22 last name of her email address.

1           Again, Request for Application information  
2 about projects that have been funded in the past is  
3 all available on the ies.ed.gov page.

4           Here is another question: "Must applying  
5 institutions be not-for-profit or nonproprietary?"  
6 No, in fact, eligible applicants may include for-  
7 profit entities.

8           The only stipulation is that whoever the  
9 applying entity is, they must demonstrate that they  
10 have the capacity to carry out the research  
11 proposed in their project. So there may, indeed, be  
12 for-profit companies where that is true. That's  
13 fine.

14           I'm done with my slides. I don't know if  
15 people have other questions. The main things to  
16 know about the Cognition and Student Learning  
17 Program are that we are really trying to reach out  
18 to individuals who have lots of expertise in the  
19 area of cognitive science, and we are seeking  
20 applications that take the knowledge that has been  
21 gathered about cognitive science and bring it to  
22 bear in education contexts both with typically

1 developing students and students with special  
2 needs.

3 So I'll wait a few minutes here because I know  
4 that sometimes people can't type as fast as they  
5 can talk. Let me know if you have any other  
6 questions. This is the other page we want to make  
7 sure that everyone has so that they have  
8 information about whom to talk to.

9 All right. I don't see anything coming  
10 through. I want to thank everyone very much for  
11 your attention. And I hope that this is helpful.

12 And we are certainly happy to provide you with  
13 as much advice as we can. We look forward to  
14 hearing from you as you work on preparing your  
15 applications.

16 All right. Thanks very much.

17 (Whereupon the above-entitled webinar was  
18 concluded.)