

Understanding the New WWC Intervention Reports in Special Education: A Webinar for Educators

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Hello, everyone, and thank you for attending today's webinar, *Understanding the New WWC Intervention Reports in Special Education: A Webinar for Educators*. I will be briefly going over some housekeeping information before we get started. You can make the slides larger on your screen by clicking on the bottom right corner of the slides window and dragging them. If you have accessed the audio for this webinar through the teleconference line, you may experience a slight delay. If possible, we encourage you to listen to the webinar through your computer or through your device speakers. We encourage you to submit your questions throughout the webinar using the Q&A tool on the webinar software on your screen. You can ask a question when it comes to mind. You don't have to wait until the question-and-answer session.

Because we are recording this, every member of the audience is in a listen only mode. That improves the sound quality of the recording, but it also means that the only way to ask questions is through the question-and-answer tool, so please use that. We scheduled an hour for this webinar. We will try to answer as many questions as possible. The slide deck and the recording and transcript of the webinar will be available on the What Works Clearinghouse website for download. So with that introduction, let's get started. I would like to introduce Chris Weiss, senior education research scientist, National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Chris, you now have the floor.

Thank you. Hello. I am Chris Weiss. I'm the team lead for the What Works Clearinghouse at the U.S. Department of Education Institute of Education Sciences. I would like to take a brief moment to take the opportunity to welcome you and to thank you for joining us for today's webinar, *Understanding the New WWC Intervention Reports in Special Education*. We are very excited to have the opportunity to highlight the research in these reports and to tell you about the work that we at the WWC have been doing with respect to evaluating single-case design research. With that, let me turn the webinar over to Stephen Lipscomb.

Thank you, Chris, and welcome to everyone who is joining us today. I am Stephen Lipscomb, a senior researcher at Mathematica Policy Research and a certified reviewer for the What Works Clearinghouse. I will be co-presenting along with my colleague, Martha Bleeker, who is also a senior researcher at Mathematica. Martha is the review team leader for several areas focused on children and youth with disabilities including autism and children identified with or at risk for an emotional disturbance. During this webinar, we'll be talking about the WWC's two most recent intervention reports in special education. The first one is on the effects of *functional behavioral assessment-based interventions* for children with or at risk of an emotional disturbance. The second is on the effects of an intervention called *Pivotal Response Training* for children with autism. We'll present for about 40 minutes and then have time for Q&A. As a reminder, you can submit your questions using the Q&A tool at any time. You do not have to wait until the question-and-answer session.

Over the past few years, there's been a push for education decision makers to make instructional or curriculum choices using evidence from scientifically-based research, but identifying evidence-based programs and practices can be time-consuming and difficult. Searching for research may return dozens or even hundreds of studies. Even with a lot of time to read all this research, it can be difficult to identify the high-quality studies that provide the best evidence. The WWC was established in 2002 to be an essential and trusted source of scientific information for what works in education. The Clearinghouse was one of the first investments of the Institute of Education Sciences, which is an independent nonpartisan entity within the U.S. Department of Education. The Clearinghouse aims to identify all relevant rigorous research on a topic, review the studies against WWC design standards, and then summarize the findings from high-quality research. The WWC's goal is to help busy educators efficiently make evidence-based decisions based on the most rigorous research. The Clearinghouse does not directly test or study interventions. We summarize the evidence for educators and can support you in finding and accessing evidence to answer a range of questions.

Today, we'll be talking about the Clearinghouse's evidence summaries on interventions for children and youth with disabilities. The Clearinghouse reviews rigorous research on interventions for children with a variety of disabilities, including emotional disturbance, autism, specific learning disabilities, and others. During the past decade, we have published 19 intervention reports with findings for the special education areas alone. Most of the studies in these intervention reports have examined children in preschool or elementary grades. As with all Clearinghouse reviews, these 19 reports have used rigorous and transparent standards to identify high-quality research, but unlike in the past, our latest two reports use additional standards that allow us to include studies that we previously needed to exclude because they used a different research approach.

In other topic areas, the most common way that studies measure intervention effects is by comparing outcomes for a group of children who receive an intervention to outcomes for another group of children who do not receive the intervention. These studies are called "group design studies." and the WWC has long had a set of group design standards that it uses with them. In contrast, studies of interventions for children and youth with disabilities typically use an approach called a "single-case design experiment," which we will refer to as an SCD. The two intervention reports will be talking about today are the first ones to report findings from SCDs. All of the evidence in an intervention report on *functional behavioral assessment-based interventions* comes from SCD research. The evidence for *Pivotal Response Training* includes both SCD and group design studies. The evidence based on interventions for children with disabilities is substantially larger with SCDs included. The Clearinghouse is now reporting the findings from the studies and summarizing the evidence to provide practitioners with better information to make decisions. We will show you how during this presentation.

Much of the time today will be on intervention reports themselves, but we want to first briefly explain what SCDs are, and then how the Clearinghouse has integrated this research into its evidence summaries. SCDs are experimental designs that involve very small samples. Several types exist, and some include just a single participant. Participants in SCDs are repeatedly observed across time before and after the research introduces an intervention. Intervention effects are typically detected visually by looking for differences in graphical data patterns around the time when the intervention was introduced. This is a different approach than the randomized controlled trials that many of us are more familiar with, which involve comparing groups of students.

Here is an example of how data are presented from an SCD. The example comes from a 2012 study by Christensen, Renshaw, Caldarella, and Young, which is one of the studies summarized in the intervention report on *functional behavioral assessment-based interventions*. The study examined the on-task

behavior of a fourth-grade student, José, who is at risk for future academic difficulties due to frequent disengagement from academic tasks. The intervention involved José's teacher giving him tokens that he could exchange for extra recess time if he demonstrated on-task behavior while completing assigned material. The outcome measure was the percentage of time during each session of the experiment where José exhibited on-task behavior.

This experiment used a type of SCD called a "reversal-withdrawal design" because the teacher repeatedly introduced and withdrew the intervention. The experiment started with six baseline observations of José's on-task behavior. These sessions are the baseline A phase in the figure. The points represent the outcome measurement in each session. After the initial baseline sessions, the teacher introduced the intervention in Session 7 and continued it through Session 15. The teacher then returned to baseline practices for three sessions before reintroducing the intervention in Session 19. The intervention effects are based on the changes in outcome measurements that coincided with the systematic and repeated introduction and withdrawal of the intervention.

The other major classes of a SCD are called "multiple baseline designs." Here is an example of what one looks like, again drawing from the experiments reviewed for the intervention report on FBA-based interventions. Multiple baseline designs often times have three or more participants. The researcher staggers the introduction of the intervention to each of them across time. As you can see, Josh, Zane, and Ian get the intervention at different points in time. As in the last slide, the outcome is the percentage of time during each session that the student exhibited on-task behavior. Intervention effects here are based on a change in the outcomes when each participant starts receiving the intervention.

SCDs are used in several applied and clinical disciplines, and they have a particular home in special education research. Researchers use them for several reasons; the most practical reason is that studying low prevalence disorders will be very difficult where a large sample is required. SCDs also have the clinical benefit that all participants received the intervention. No one participating in SCDs is withheld treatment that might benefit them. In addition, SCDs give researchers the ability to study the conditions under which individual participants responded. They also give researchers the ability to adapt the intervention if a participant does not appear to be responding. This can be hard to do in big studies, but it is very important for understanding how to make it interventions as effective as they can be.

The Clearinghouse has worked with two panels of experts over several years to be able to integrate SCD research into its evidence-based summaries. In 2009, the WWC convened a panel to draft a pilot version of design standards for SCD research. These pilot standards are incorporated into the latest version of the WWC Procedures and Standards Handbook. Then, in 2015, a second panel with many of the same members helped the Clearinghouse to develop criteria for intervention level ratings based on a body of SCD research. The summary of this information, which I will provide next, is also available online on the URL listed on the slide. The purpose of the SCD standards is to identify a set of rigorous research and assess the evidence for intervention impacts from those studies. By rigorous research, we mean studies where we can be confident that any observed effects were caused by the intervention.

The highest rating a SCD experiment can receive from the WWC is that it meets pilot SCD standards without reservations. Experiments can also meet pilot SCD standards with reservations or not meet the pilot SCD standards. Future versions of the Handbook may drop the standards' pilot label. We will do this for the remainder of the presentation for the sake of brevity.

Visual analysis is used to assess the evidence for intervention effects and experiments that meet SCD standards with or without reservation. Visual analysis is an approach that looks for repeated differences

in data patterns at the time the intervention is introduced or withdrawn to determine whether the evidence shows positive effects, negative effects, or no effects.

The Clearinghouse rates effects for SCDs using three evidence levels: strong evidence, moderate evidence, and no evidence. Again, only the experiments that meet SCD standards with or without reservations receives one of these ratings. To get a strong evidence rating, experiments must demonstrate at least three intervention effects and have no non-effects. To get a moderate evidence rating, an experiment must demonstrate at least three intervention effects but also have at least one non-effect. Experiments where visual analysis supports fewer than three demonstrations of the intervention effect get a no evidence rating.

The panel that developed the SCD standards also provided a rule or reporting threshold for determining whether enough SCD research exists to summarize the findings as evidence of the intervention's effectiveness. Given the small size of each SCD, the Clearinghouse does not make summary statements about an intervention's effectiveness just based on one or two SCDs. The requirements of the reporting threshold are, that there must be at least five studies that meet SCD standards that are conducted by at least three different research teams with no overlapping authorship at different institutions, and include at least 20 total cases across the studies. The reporting threshold is applied to a body of SCD research within a particular outcome domain. The SCD evidenced on FBA-based interventions meets the reporting threshold for two outcome domains. The SCD evidence of *Pivotal Response Training* did not meet the reporting threshold for any outcome domain. In those situations, the WWC reports the results from the individual SCD studies, but it does not provide a rating of intervention level effectiveness.

Recently, the Clearinghouse has worked with a second panel of experts to develop intervention ratings of effectiveness for instances where the reporting threshold is met. The rating category names shown in this table are the same as those used to rate intervention effectiveness from group design studies, but the criteria are different. For example, an intervention would be rated as demonstrating positive effects if at least 80% of the SCD experiment showed strong or moderate evidence of positive effects, none showed negative effects, and at least one met SCD standards without reservations. The other categories are potentially positive effects, mixed effects, potentially negative effects, negative effects, and no discernible effects. I'm now going to turn it over to Martha Bleeker, who will walk you through the findings in the two intervention reports. Martha.

Great. Thanks, Steve. So, our first case study today is based on the intervention report on *functional behavioral assessment-based interventions*, or FBA for short. The study was released in December 2016. As Steve mentioned earlier, this is the first What Works Clearinghouse intervention report that is based solely on single-case design research. I will start by showing you how to access this report on the What Works Clearinghouse website, and then I will show you some key sections of the intervention report.

When you first go to the What Works Clearinghouse website, you will see the chalkboard at the top of the page with a variety of topics listed. Selecting one of these topics will take you to Find What Works, which is an advanced search function that allows you to look at the evidence of the effectiveness of interventions reviewed by the What Works Clearinghouse. You can find evidence related to children and youth with disabilities by selecting that topic here, as indicated by the green arrow on the left.

Once you select "children and youth with disabilities," you will see this page, which lists the interventions reviewed by the WWC that summarize evidence for this population. At the top of the column, you will see the 19 interventions that Steve referenced earlier, and this is just a snapshot of the

full-page here, but each row represents one intervention and lists the grade levels of students that were included in the research for that intervention.

Interventions with evidence covering more outcome domains, or that were based on a larger body of research, are sorted at the top of this list. If you are interested in seeing the FBA intervention report, you would click on that report to get more information. Clicking on the FBA intervention name will bring me to this page, which includes information about all of the research on FBA that has been reviewed by the What Works Clearinghouse. In this case, there is only one product related to this intervention, which is the intervention report that was released in December 2016 by the topic area team focused on children or at risk for an emotional disturbance. If there were other WWC products that focused on FBA, there would be separate green tabs present here. This page includes a link to the full intervention report as indicated by the green arrow. It also includes a high-level description of the intervention at the top of the page and a table with information from the report underneath.

This table at the bottom includes the outcome domains included in the research, the effectiveness ratings for each domain, the number of studies that met WWC design standards, and information about the grade level and number of students included in each of those studies. The improvement index is not relevant for single-case design research, so it shows as not applicable here. We will unpack the information provided in this table in the next set of slides using screenshots from the intervention report. Before we look at the actual intervention report, let me provide a brief description of FBA.

Functional behavioral assessment, or FBA, is an individualized problem-solving process for addressing student problem behaviors, such as disruptive and off-task behaviors, noncompliance, and inappropriate social interaction. Researchers and practitioners such as teachers conduct an assessment to identify the purpose or function of a student's problem behavior. This assessment process involves collecting information about the environmental conditions that precede the problem behavior, as well as the subsequent rewards that reinforce that behavior. So, for example, interviews with teachers may suggest that a student is engaging in off-task behavior, such as walking around the classroom and talking with peers, in order to obtain attention from the teacher. Classroom observations may show that peer attention to this off-task behavior is actually reinforcing those undesired activities. The information that is gathered through these functional behavioral assessments is then used to identify and implement individualized interventions aimed at reducing problem behaviors and increasing positive behaviors. Accordingly, the studies evaluating FBA examine different FBA interventions identified for each student.

In the example I just provided, the researcher and the teacher may decide that the teacher will give positive reinforcement to the student when engaging in on-task behaviors and also move the student's desk further away from peers so that the peers can't easily reinforce the off-task behavior. I also want to note here that the Individuals with Disabilities Education Act requires the use of FBA and resulting FBA interventions to address behavioral problems that impede student learning in school settings. As a result, FBA is commonly used as part of the individualized education program, or IEP, development process after a child has been classified with an emotional disturbance.

Because of the individualized nature of FBA, it does not have a single developer that provides materials or guidance on carrying out the practice. Instead, FBA researchers have developed materials, and other researchers and practitioners can use these to gather information about the functional relationships between students' behaviors and their environment, which helped inform the development of FBA interventions for individual students. These materials include interview protocols, survey instruments, and observational tools. Guidance documents and tools to help organize FBA information and develop hypotheses are also available.

Now, we will take a look at the full intervention report. Here on the right is the first page of the report. In the next set of slides, we'll walk through the contents of the report. Here we have zoomed in on the first page. As you can see, the report contents are displayed in the box on the right. A brief overview of the intervention and a summary of findings are presented on the first two pages. We will take a close look at the summary of findings in a minute. A more detailed description of the intervention, the research summary, and effectiveness summary come next, followed by the reference list which includes all of the citations that were identified for review.

After that are several appendices starting on page 30. The first appendix, which is Appendix A, provides research details for each study that met design standards, including information about the setting, the sample, the outcomes, and so on. We will walk through an example in a few minutes. Appendix B describes the outcome measures that were used in each of the studies. Appendix C includes tables which are sorted by outcome domain and publication that provide the findings for each single-case design experiment included in the effectiveness ratings. Finally, Appendix D provides information about the studies with findings in outcome domains that did not meet the reporting threshold that Steve talked about before, and are thus not included in the effectiveness rating. To help readers better understand the report, key rating criteria and a glossary of terms are defined at the back of the report. Now, let's walk through some of these sections.

Here is the Summary of Findings table, which is on page 2 of the FBA report. Here you can learn about the types of outcomes that researchers included in the study and get a sense of whether the intervention had effects on these outcomes across all of the research. According to this table, FBA has potentially positive effects on outcomes in the school engagement and problem behavior domain. As Steve explained earlier, the What Works Clearinghouse summarizes single-case design research for an outcome domain only if the body of research collectively met a set of threshold criteria. These criteria are met if at least five studies meet the design standards with or without reservations, the studies are conducted by at least three different research teams with no overlapping authorship, and the combined number of cases totals at least 20.

These first two domains, which are school engagement and problem behavior, both met the reporting threshold, as you can see with the green circles. For example, for the school engagement domain, 15 studies met standards, and these studies were conducted by seven different research teams across 32 different students or cases. As you can see with the red circles, the third domain, which is social-emotional competence, did not meet the reporting threshold, so a rating of effectiveness is not reported for that domain.

This column describes the rating of effectiveness for each domain, which reflects the consistency of demonstrated effects across all single-case design experiments that met design standards. A rating is provided for these first two domains because they met the threshold to include single-case design evidence. The What Works Clearinghouse found potentially positive effects of FBA on both school engagement and problem behavior, because positive effects were shown in the required range of 51% to 79% of the experiment in these domains, and because no single-case design experiments showed negative effects.

The next two columns show the percentage of experiments demonstrating a positive or negative effect. As you can see here, 74% of the experiments in the school engagement domain demonstrated a positive effect, and there were no negative effects demonstrated, so that is why this domain has a rating of potentially positive effects. Next, we'll walk through the other key sections of the report using one specific study as an example. Let's find all of the detailed information related to the Clark et al. study which was published in 1995.

As I mentioned earlier, the first appendix in the report, which is Appendix A, provides the research details for each study that met WWC design standards and had findings in an outcome domain that met the reporting threshold. The Research Details page for each study includes information that teachers and other practitioners can use to determine if the findings might be relevant to their own students. For example, for the Clark et al. study shown here, the description of the setting provides information about the school or classroom where the students received intervention. Under study sample, we provide a description of the students, including their age or grade level and their disability classification. Note that single-case design studies typically assign participants a pseudonym, and we used the pseudonym provided by the study authors in this report so that our WWC ratings can be easily mapped back to the correct single-case design in the original study. This study includes single-case design research for three students. Ahmad, Juan, and Shane all met the eligibility requirements for inclusion in this report. The study also included a fourth student, Arnold, who was not eligible for inclusion in this intervention report, which is focused on children identified with or at risk for an emotional disturbance, because he was diagnosed instead with autism. Next, this appendix describes the intervention conditions, including details about the specific FBA-based intervention that was used with each student. The comparison condition description provides information about the type of single-case design experiment used in the study. This study used a reversal-withdrawal design for all three students. A description here provides information about the baseline and the withdrawal conditions for each student.

The next column includes high-level information about the outcomes measured in the study and refers readers to Appendix B for more information, which we will look at next. If the study authors presented information about any training or support provided to the teachers who deliver the intervention, that will be described under Support for Implementation. The Maintenance section describes any follow-up phases in which outcomes were measured. And under Author Reported Findings, we show how the original study authors characterize the findings from their study. Here you can see that the authors reported that the FBA interventions increase desirable behavior and decrease destructive behavior for all three students. So, the What Works Clearinghouse characterization of the findings is shown in Appendix C, which we will examine later. Finally, the What Works Clearinghouse study rating is provided. If the study met design standards with reservations, the reason behind those reservations is described here.

If you would like to know more about the instruments and methods that researchers used to measure the outcomes of each domain, you can find detailed information in Appendix B. Here on this slide, you can see the outcome measures used to measure school engagement listed in alphabetical order. The row with the arrow shows you the description of the desirable behavior measure that was used in the Clark et al. study and includes information about the scoring and the intervals of measurement, as well as a detailed description of the measure. The description provided here also notes any differences in measurement across the three students.

Next, Appendix C includes tables which are sorted by outcome domain and publication that provide the findings for each single-case design experiment included in the effectiveness rating for that domain. This is the place to go if you're interested in seeing the findings from a particular study or publication covered in this report. Here on this slide is the first page of findings from the School Engagement domain. The arrow is pointing to the findings from the Clark et al. study. Each row under the Clark et al. heading represents one experiment in the publication that meets WWC design standards and includes information about the outcome measure, the case (or participant), the type of single-case design experiments, and the evidence level.

This column provides information about each case, including the pseudonyms where relevant, so that the evidence level can be mapped back to the correct experiment in the original study. For the Clark et al. study, the table provides information about all three students who had single-case design experiments with outcomes in the school engagement domain. The next two columns provide information about the ages or grade levels of each case and the type of single-case design that was used for each experiment. In terms of the design type, as Steve mentioned earlier, What Works Clearinghouse single-case design standards apply to a wide range of designs, such as reversal-withdrawal and multiple baseline designs. This next column shows whether the intervention led to an overall positive effect, which is indicated with a plus sign; a negative effect, which is indicated with a negative sign; or is, there was no evidence on the effect. Remember that an effect is documented when the data pattern in one phase, such as the intervention phase, differs more than would be expected from the data pattern observed in a previous phase, which is, such as the baseline phase. This column also describes the evidence level, which is determined by the number of intervention effects shown in the last two columns. As you can see here, Ahmad's single-case design experiment was characterized as providing strong positive evidence because it demonstrated a positive effect during all three attempts. Juan's experiment only demonstrated two effects, so provides no evidence of a causal relationship. Shane's experiment demonstrated at least three positive effects, but it also had at least one demonstration of no effect, so it provides moderate evidence of a positive causal relationship.

Now, we're going to switch gears and look at the intervention report on *Pivotal Response Training*, or PRT. This report was released in December 2016 by the WWC topic area team focused on children and students with an autism spectrum disorder. In contrast to the FBA report, this intervention report is based on both group design and single-case design research.

Before we delve into the report, let's talk about the intervention. *Pivotal Response Training*, or PRT, is designed for children with autism spectrum disorders. It can be used with autistic children ages 2 through 18 and is also known as *pivotal response therapy*, *pivotal response treatment*, or *natural language paradigm*. Robert Koegel and Lynn Kern Koegel developed PRT in the 1970s. This intervention focuses on pivotal or core areas affected by autism, such as communication and responding to environmental stimuli. PRT sessions typically begin with a parent or teacher providing clear instructions to the child, having the child help choose the stimulus, and then focusing the child's attention on that stimulus. The stimulus can be a toy or other object found in the child's regular environment. The parent or teacher then encourages the desired behavior by providing rewards if the child implements or attempts to implement the desired behavior. For example, a teacher may present a toy car to a child and prompt the child to ask, "What is that?" When the child attempts to answer the question, the teacher verbally identifies the toy car and hands it to the child for interaction. Parents and teachers often model the appropriate behavior or use the stimulus to the child.

The stimuli used in the desired behaviors are varied to improve motivation. As the child progresses, the focus of each session changes to accommodate more advanced goals and needs. To consistently provide PRT through the day, parents, teachers, and peers often collaborate on implementation, with parents often serving as the primary intervention agent. Implementation should incorporate the family context, such as household routines, as well as the school contexts, enabling children to participate in a natural setting. By improving functioning and response in the pivotal areas affected by autism, PRT aims to develop other important social and academic skills, creating generalized improvement.

Here we have zoomed in on the first page of the PRT report. As you can see, the report contents differ from the FBA report, because this report also includes group design research. In addition, the single-case design research reviewed for this report did not meet the reporting threshold for any of the outcome

domains. So, the single-case design research does not inform the effectiveness ratings in this intervention report. Instead, the effectiveness ratings are based only on the group design research. As a result, this report mostly focuses on the group design research, and the single-case design studies are all described in an appendix at the end.

Here is the summary of findings table for PRT, which is on page 2 of this intervention report. Similar to the FBA report, this table summarizes the findings for each outcome domain. In this report, the table is based only on group design research which provided evidence in one domain, communication and language competencies. This domain was rated as having no discernible effects based on the two group design studies with a total of 85 students. Here in Appendix C, we report the study level findings for the communication and language competencies domain again based just on the group design research. Findings are presented separately for each study with a domain average at the bottom. Because this table reports on group design research, it reports the mean, standard deviation, effect sizes, and p -values for each contrast. Across the two studies that reported findings, the mean effect of the intervention on outcomes in this domain was neither statistically significant nor with an effect size large enough to be substantively important. That is why the rating of effectiveness listed in the summary table was no discernible effect.

In addition to the group design research, four studies that use single-case designs were reviewed for this intervention report and met WWC design standards. They are described here in Appendix B. This appendix provides the research details from each study, including information about the sample, the setting, the intervention, and so on. Even though they do not inform the effectiveness rating, the study level findings from three of the four single-case design studies are presented here in Appendix D.3 because they reported outcomes in the communication domain. Similar to the study level findings of the FBA report, this table reports the findings for each single-case design experiment by publication. Most of these experiments show no evidence of an effect of the PRT on communication or language competencies.

Today, we have shown you how the What Works Clearinghouse evaluates research and supports educators through intervention reports, demonstrated how to access these reports on the What Works Clearinghouse website, and presented reports that include single-case design research. The inclusion of single-case design research has allowed the What Works Clearinghouse to increase the evidence base on interventions for children with disabilities. We hope the addition of these research and accessibility of reports will provide you with a broader base of information to make evidence-based decisions about what works in education.

Here are some web links to help you stay connected to the What Works Clearinghouse. You can search for and download WWC intervention reports on the Find What Works website. Joining our email-based newsletter and following us on Facebook or Twitter are the best ways to stay informed about future intervention report releases, webinar opportunities, and other events. You can also send us an email through our Help Desk. We look forward to hearing from you there. With that, I will turn it over to Shannon Monahan, who will moderate the question-and-answer portion of the webinar.

Thanks, Martha. Good afternoon, everyone. My name is Shannon Monahan, and I work on topical products for the What Works Clearinghouse. I also had the privilege of working with a group of experts who developed the SCD standards in 2009. We have received several questions. Thank you to all who submitted. For those who are interested in submitting a question, please feel free to use the Q&A tool to submit them. We will try to reply to as many questions as we can.

For this first question, this one is for Steve. Steve, this has to do with, if there is a relationship between the strength of evidence and the direction of evidence. So, the question is, how does the strength of evidence, such as no evidence, moderate, or strong evidence rating for each individual study, translate to positive versus negative effects for the evidence summary of multiple studies? In other words, is a positive effect only counted for a study if it demonstrates strong evidence, or is moderate evidence also counted as a positive effect?

Thank you, Shannon. This is a really good question. Experiments rated as providing either strong evidence or moderate evidence are counted as showing positive effects, provided that the intervention effect that is demonstrated is in the desirable direction. To have a negative effect at the intervention level, you need to have a strong or moderate evidence in a truly contrary direction.

Thank you, Steve. Okay. Martha, the next question is for you. It is actually about slide 20. It has to do with understanding the FBA intervention report summary of findings. The question is, in that particular table, where the denominators come from in determining percentages, because they don't look as if they are the same as the number of participants.

Yes. This is another really good question. The denominators on page 20 are actually referring to the number of a single-case design experiments for a given domain. So, you could have a study where you have three cases, three students, but they each have, maybe, two different single-case design experiments in that study, because maybe we are measuring two different outcomes for each of those students. So, this denominator would reflect the total number of experiments rather than the total number of cases. It is always going to be either the same or more than the number of cases or students in the study. So, if you actually -- if you look at the intervention report and you go to Appendix C, an example of which is here, if you counted each row of findings in Appendix C, that will give you the number of experiments. Each experiment gets its own row here in Appendix C. It looks like on this page, every case had just one experiment, but there are other studies that we cover in the intervention report where some of the students had more than one single-case design experiment because they are measuring more than one outcome.

Great. Thank you very much, Martha. Martha, the next question is for you as well. What other special-education interventions has the WWC studied, and are more intervention reports planned in this area?

Yes. The What Works Clearinghouse has published 19 intervention reports that report on evidence findings for different groups of children and youth with disabilities. The interventions include ones that you might know, such as *Coping Power*, *social skills training*, *peer assisted learning strategies*, *First Step to Success*, *Fast Track*, and others. All of this information is available by clicking on the Children and Youth with Disabilities icon, which is on the homepage of the What Works Clearinghouse website. So that chalkboard that I showed you at the beginning of my section. We're going to continue to review studies in the special education area and are hoping to release additional intervention reports in the coming year.

Great. Sort of by way of follow-up, will the What Works Clearinghouse update early intervention reports to add findings from SCDs? I think earlier, it was mentioned that there were already 19 intervention reports on interventions for children and youth with disabilities.

Yes. That is another good question. We do periodically update the findings from past intervention reports, especially when we know that new research has become available and we want to add that to the evidence base. I think the current focus right now of the Clearinghouse is to actually summarize evidence for additional interventions that haven't been covered yet. So, that will be the focus kind of moving forward and in the near future.

Great. Thank you very much. Steve, I actually have a question for you. Does the What Works Clearinghouse ever contact an author to let them know their study is being reviewed?

Good question. In general, no. We do contact authors if we have a question about their study and require information to complete our review. For example, the disability classification for a student participant might not be provided in a publication, so we might query the author to make sure the student was classified with the disability group that we're focused on for a particular review. For example, if we were reviewing interventions for students with autism, we might query the author to confirm that the participant had an autism spectrum disorder. Alternatively or in addition, we might also ask authors for information, like to send us information on inter-assessor agreement on their outcomes that we need to rate the experiment against the design standards. All the information that we receive through an author query that is used in intervention report is made available to the public and is documented in the final report.

Great. Thank you very much. Martha, I have a question for you. Where could a person go to get more information on using FBA and PRT in their schools?

Yes. That is a good question. I would recommend actually starting with our intervention report. I think that is a good place to start. With FBA on page 3 of the intervention report, we list the citations there for where you can find the interview protocols, the survey instruments, and observation tools that have been developed to actually gather and organize FBA information. So, that is a good place to go to find those citations. Also in the FBA intervention report, if you go to Appendix A, that is where we provide details about the specific studies that we covered in the report, so that is a good place to go to get more detailed information about the exact interventions that were used in each of the studies. You can go there and find what studies maybe included students that are similar to your students and see which interventions were developed for the students and potentially get the full text for the study to get more information. For PRT, they are similarly -- it is on page 3 of intervention report where we include a website that you can go to get more information about PRT. The website is www.autismPRThelp.com. Again, that is on page 3 of intervention report. If you go there, you can find information about

implementation in PRT and also a bunch of information about the training that teachers and parents we need to get before they can deliver an intervention.

Great. Thank you, Martha. Steve, we got another question that just came in. Do the standards, the SCDS standards, require information about treatment integrity or probably what we sometimes refer to as implementation fidelity?

The short answer is no. The standards cover four main areas. The first one is that they require active manipulation of the independent variable on part of the researcher or the interventionists. The second is the part about intercessor agreement of the outcome. The third is about requiring that there is at least three attempts to introduce or withdraw the intervention at three different points in time. That is to show that there is a replication within the design. The fourth is requirement on the number of data points within each phase of the design. You need to have three data points within each phase to meet standards with reservations and five to meet standards without reservations.

Thank you very much. Martha, this question is for you. How do you determine which interventions to focus on when writing intervention reports?

Yes. Another good question. So, each of the special education topic areas in the What Works Clearinghouse, each of those topic areas has their own review protocol that actually defines the scope of the review. So, it includes things like the student population of interest, the outcomes that we want to look at, and keywords to be used in literature searches. So, if you go to the What Works Clearinghouse website, you can actually see those protocols on the website for each of the topic areas. After we establish one of those protocols, then we conduct a broad topic search that assesses the literature and identifies all the interventions that are used within a given population. For example, we did a broad topic search to identify all of the interventions that have been used with students with an autism spectrum disorder back when we first kicked off the autism topic area. That literature search included both published and unpublished research literature, as well as any submissions that folks might have sent to the What Works Clearinghouse Help Desk. Then, we also contacted some content experts to identify any studies that we might not have picked up in our various electronic database searches. Then, all of the citations that were gathered through this process went through a preliminary screening so we can determine whether each of the studies met the criteria that were established in our review protocol. For instance, we look at each study to make sure that the students, or at least some of the students, in the study had been identified with an autism spectrum disorder. Then, because of the large amount of research literature that is uncovered in the process, we then have to sift through everything and prioritize the order in which we are going to look at or review interventions. So, that process for prioritizing interventions is based on a standard scoring system that is described in the What Works Clearinghouse Procedures and Standards Handbook, which is again up on our website if you are interested in seeing that. Basically, we used information in the title of the study and the abstract or in the full text. We score each study based on things such as the research design that they used and the sample sizes of the study. The scores of all the studies are then combined for each intervention, and the interventions with the highest scores are those that are actually prioritized for review.

In the autism spectrum disorder topic area, the lit search and that prioritization process ultimately resulted in a high score for the PRT intervention, which is why would prioritize that one for review.

Excellent. Thank you so much, Martha. So, thank you very much to Martha and Steve. We are coming to the end of our time together, but I would like to thank you all participants on behalf of the What Works Clearinghouse, and to remind you that if you have additional questions, please contact us through the What Works Clearinghouse Help Desk. In addition, there will be a very good survey that will pop up at the end of this webinar, and we would really appreciate your feedback on this webinar. So, now I'm going to send this back to our producer, Brice.

Thank you. So, this concludes the webcast for today. Please submit feedback to our presentation team in your browser window when the event concludes. If you're unable to provide your feedback at this time, you can view the on-demand recording of the event and access the survey which is there. The on-demand will be available approximately 1 day after the webcast has ended and can be accessed using the same audience link that was sent to earlier. Alternatively, you can submit feedback to the Contact Us form on our website, whatworks.ed.gov. Thank you, and have a great day.