- [Pamela] Thank you for being with us again. For the last 10 years, Christi and I have collaborated in the areas of reading and autism. Today, we will be sharing with you a framework for planning and implementing literacy lessons for students. Before we get started, we want you to think back to the first webinar. What do you remember about our approach to literacy? When we think about literacy, we remember that literacy is a uniquely social experience. The foundation of literacy is social interaction. Specifically, language interactions that help us develop our vocabularies. For students with ASD, communication differences are influenced by joint attention and executive function differences. Scholars are really beginning to acknowledge that these may be the root for later challenges with literacy, particularly in the areas of comprehension. So the purpose of this webinar is to describe our framework for literacy instruction, which is informed by our understandings of how students with autism develop literacy skills. We will explain the importance of data informed instruction that includes consideration of students' reading profiles. Finally, we'll share some strategies for literacy instruction that can be used in your classrooms tomorrow. Before we describe a literacy framework, we'd like to touch on five important overarching ideas that we think about before we implement literacy interventions. We use a bridge analogy as we see these as overarching ideas that influence how we structure literacy experiences to meet students' needs. First, we think about students' language abilities, both their ability to understand the meaning of words, and their abilities to express ideas using words. Do we need to build new meaning vocabulary, or do we simply need to activate known vocabulary? We also need to be thinking about how students show us what they know, which we call their response system. Can students respond to a question by selecting the answer from an array of two picture choices? Or can they provide a verbal response? We also consider students' discreet literacy skills by summarizing these discreet skills into reading profiles. Reading profiles are composites of students' reading abilities. There are three broad reading profiles for individuals without autism. We have students who can pronounce words better than they can comprehend them, students who can comprehend better than they can pronounce words, and students who are good at both. Although we can find individuals with autism who have each of these three reading profiles, the most typical profile is individuals who are stronger at pronouncing words than comprehending them. Further, our understandings of reading profiles for individuals with autism are also informed by reading comprehension profiles. As we described in our last webinar, in our research, we found that there are three reading comprehension profiles. Text bound, strategic, and imaginative. Text bound individuals cling to what's explicitly in the text. While imaginative comprehenders use the text to create their own stories while interacting with the text. And strategic comprehenders use their known reading strategies as they work their way though comprehending the text. This brings us to our next overarching point. We wanna be aware of how reading comprehension profiles influence the role of background knowledge during reading. Text bound comprehenders are unlikely to retrieve relevant background knowledge during reading, even when they know a great deal about the reading topic, while individuals who lean toward an imaginative profile might overuse their background knowledge and under use what the author put in the passage. Finally, strategic comprehenders will pull out all their reading strategies as we just mentioned in attempt to make sense of what they are reading. However, for these individuals, we know social differences in their understandings about how the world works will still disrupt their comprehension. Taken together, this leads us to think about which evidence based practices we might embed in our literacy lessons to help us draw students' attention to what's important and not distract from comprehension. We know that by using evidence based practices, students will learn what we teach them, thus we believe it is important that we select meaningful literacy targets that support important life outcomes for these individuals. We don't want to waste their time attending to tiny little moves and tiny little things that might really not build their overall understanding of the world more broadly. This is our framework for literacy instruction. When it was first published, we called it Balanced Literacy Instruction. Now it's perhaps better referred to as comprehensive literacy instruction. Our approach balances holistic, meaning focused instruction with explicit skills based instruction. Within this approach, every student should have access to daily reading, writing, and word work that considers students' individualized learning needs, contexts, and texts. In addition, the approach embeds helping students attend to and think about content before, during, and after literacy events. Next, we'll describe this model in a bit more detail. We'd like to draw your attention to the three intersecting circles in the middle of the drawing. The orange

circle represents everything we know about the learner. This includes information about how autism influences the student's learning, reading assessment information including reading profiles and comprehension profiles, student interests, response systems, and other factors that enable the student to be available for learning. The green circle represents the learning context and includes classroom structure, lesson structure, group size, and all other environmental factors. Finally, the purple circle represents the texts being used for teaching and includes the readability of the text, embedded text features, genre and length. What's important here is for teachers to plan lessons that address the intersection of these three factors. The intersection represents the sweet spot for instruction. Instruction that is individualized to support students' literacy growth. By this we mean that lessons are appropriately challenging for students through careful attention to structures embedded in both the environment and text. They support students' communication and literacy development while promoting students' independence with content and materials. The independence piece is critical to advance self determination. This means that for most literacy tasks, embedded supports will be faded over time. For example, as students learn to pair words with their meanings, picture supports should be faded. As students learn to comprehend texts, graphic organizers should be faded. The goal is for students to progress toward reading and writing with the least amount of support necessary to promote literacy performances that represent their knowledge. We realize that this will be different for individual students. Also important are the before, during, and after framework which emphasizes the cognitively intensive nature of literacy instruction, thus it's critical that during each facet of every lesson, teachers make explicit the thinking required to actually complete the performance. One strategy that we've used in our intervention work is to embed think alouds during teacher modelling. For example, if we were teaching a student how to decode a word, we might think aloud about why decoding is important in the first place. It's a quick way to identify an unknown word when you're reading, in addition to modelling the decoding and blending piece. We would also think aloud about pairing the meaning of that word with the word that we just pronounced. Another example might be when we're reading a longer piece of text. We might think aloud about how we make an inference during reading, when two sentences contain information that help us make that inference. We might model during writing how we would think aloud about how to come up with support for a main idea with different details. In other words, we are very explicit about what students should be thinking about as they read and write. Finally, taken together, we see this literacy framework as necessary to promote the acquisition of literacy skills for students with autism, more importantly, though, we see this as deeply connected to developing self determination skills that are critical to success beyond school. Through our work with teachers, one of the biggest challenges they face is related to how to use assessment data to inform instruction. A lot of times, the reading assessments that we're required to use with students may not really actually work very well for students with autism. For example, among early readers without autism, reading fluency actually does a pretty good job of predicting reading comprehension, however because students with autism often read words better than they comprehend them, that assessment doesn't work very well as a predictor of reading comprehension. As a result, we have been using this continuum of literacy development pictured here to help us decide what kinds of reading assessments we might actually collect and use to identify important reading targets. If you look at this picture, it represents two different continuums depicted by arrows. The first continuum is shown as a straight arrow, and it represents student involvement in literacy events. The top of the arrow is labeled Interactive. At this end, we find students whose involvement in literacy activities must be initiated and sustained by the teacher. At the bottom of the arrow, the Independent label indicates that the student is able to initiate and sustain involvement in literacy activity on their own. There are several factors that influence students' progress up and down this arrow, and those factors are represented by the three circles in our literacy framework, namely the student, the context, and text factors. For example, if a student has limited communication skills, they may be more dependent on teachers to initiate and sustain literacy activities. Unless your learning context embeds structures to help students know what's expected of them, they're going to be more dependent upon their teachers to get the work completed. Likewise, if a text is too challenging or too easy, independent reading may be really challenging at best. The second arrow is a helix, and it represents literacy development from emergent literacy skills through conventional literacy skills. As we discussed in our first webinar, communication skills

begin developing in babies and continue as learners come to realize that spoken words can be represented by the science we call letters and printed on pages for others to read. Words on pages can represent people's thoughts and ideas, and those ideas can range from poems to stories to other kinds of information we can learn about. We learn how to read so that we can access all the wonder that books represent. Next, we want you to notice the ovals laid atop the straight arrow. These represent different levels of literacy and the kind of interaction that would be required for the learner to be engaged. At level one, near the top of the arrow, we have individuals to whom do not yet have joint attention around literacy events. Individuals in level one need adults to work really hard to engage them and create communication skills such as responding with back and forth, I do, you do, where as students at level two actually have joint attention and thus can begin to profit more fully from instruction and that includes objects. At level three, students are beginning to develop concepts of book, and by the end of level three, they understand concepts of print. The idea that words carry the meaning of text. They might begin developing phonemic awareness, knowledge of sound symbol relationships, and other kinds of current, related information. At level four, students are really beginning to be beginning readers who might still need support from a teacher to remain engaged in literacy tasks. And then finally at level five, we have students who can perform all kinds of different literacy activities independently. It's also important for us to tell you that these levels are not necessarily connected to students' ages. For example, we've worked with secondary students who are at level one. Also important is what we use this tool for is to inform our broader understanding of the learners we're working with so we can decide what kinds of communication and literacy assessments we might use to help inform instruction, so for example, if you have a student at level three, you might want to understand which concepts of book he or she knows, you might also wanna know more about their language. For example, does she know that toast is a kind of bread, and that red is a color word? Does she use two or more words to communicate her wants? Or are typical utterances longer and more complex? For students at level four, you might wanna know what his reading levels are for stories and his reading level for informational text. And you might also want to even understand his listening comprehension levels if you're trying to help him access grade level social studies content in a general education classroom. Thus, the big idea is that these levels give you an idea of what kinds of instructional, what kinds of assessment tools you might use to inform your instruction. So for example, with level two and three, you might assess a student's understanding of book concepts at level three you might understand and assess their print concepts, phonemic awareness and listening comprehension. Once students are reading sentences, it would be more important to include assessments that directly are associated with comprehension such as reading inventories, informal reading inventories and not just simply assessments that should have a relationship to comprehension, like fluency assessments. Once you've decided what kinds of information about the student's literacy level you need to collect, you'll need to interpret what your data suggests about both your literacy targets and instructional supports as you pursue developing the literacy skills of this particular learner. Here, we have our Instructional Decision Making tool. This tool emphasizes the relationships among assessment results, literacy targets, goals and objectives, and selections of evidence based practices, supports, and strategies to facilitate student learning. You will notice that the literacy target should include the big three, reading, writing, and word study. Together, these three help students with autism better understand the reciprocal nature of oral and written communication and reading and writing. We communicate to exchange thoughts, words, and ideas, and we learn to read and write so our thoughts, words, and ideas can exist outside of the present. Up to this point, we've discussed overarching ideas that inform literacy instruction for individuals with autism an instructional framework for thinking about instruction, how to develop literacy assessment data that can help inform instruction, and how to make decisions about which literacy targets to address, along with evidence based practices, supports, and strategies to improve the power of your instruction to move student outcomes. Next, we will discuss instructional methods that can be used to address word study, reading, and writing for students functioning at different levels. Beck, Mckeown, Kucan gave us a useful way to approach vocabulary instruction. They note that vocabulary words fall into three tiers. Tier one words include words used in our everyday speech. For typically developing children, tier one words are frequently learned through conversation and rarely need to be explicitly taught. For students with autism, some may require explicit teaching of tier one words. We also include core words as tier one words

for students with autism. Core words are usually though of as foundational words that improve communication. Core words include social words such as please and thank you. They also include words that can represent many different ideas such as pronouns and determiner words. For example, the word she can mean any number of different females in different contexts, while the word some can refer to a quantity of any number of different things. Core words also include high impact words for questions, prepositions, and verbs that form the backbone of social speech. Explicitly teaching core words is preferred to teaching dolch sight words to students with autism as meaning is more easily emphasized. Tier two words are high frequency words that are used across many content areas and in many different contexts. They are juicy words that teachers frequently assume someone has already taught students. Once again, for students with autism, tier two words are important targets as students develop more sophisticated literacy skills. Given their wide use, they are important words to teach and for the same reason, they can be more challenging for students to learn. They often have multiple meanings which represents special challenges for students with autism for example, the word marble can be a kind of stone, a toy, or even a technique for making paper. Tier three words are highly specialized words that are frequently associated with specialized content. We often refer to these words as terms. Determining what tier words fall into can help you make decisions about what may be important for teaching them. For tier one words, it is important to understand students' capacity for abstraction. Can they learn the word from photos, colored pictures, line drawings? Pictures paired with words or words alone? Plans to generalize both receptive and expressive word use need to be developed, as well as plans to generalize the word across contexts. For tier two words, it is important to begin flexibility, building flexibility around word meanings as soon as possible. You want to explicitly teach students how to determine the context around that targeted word which will lead to an understanding of the meaning. Instruction might include presenting sentences that highlight different word meanings while thinking aloud about how to find semantic clues, picture clues, and syntactic clues to help develop correct meanings. Semantic clues include conceptual categories to determine possible word meanings, for example, if the target sentence was, Kaitlin was a nurse, and she cared for a person with diabetes, we could use our knowledge of what a nurse does, she cares for sick people, to determine that diabetes must be some kind of medical problem that people might need care for. We could also use syntax to figure out the grammar role of a word and figure out the word's meaning as a result. For example, if the sentence was, she serendipitously came across a new recipe for a cake, if we identify the word serendipitously as an adverb, we know it has something to do with how she found the recipe. For tier three words, teaching morphemic decoding can be useful. The first step is to identify word parts, including affixes, base, and root words, along with your associated meanings. Next, students are taught to dissect multi-syllabic words into cards and use that knowledge of word part meanings to estimate the meaning of the whole new word. For example, if the new word was monologue, we could break the word into mono, which means one, and logue, which means words in discourse. We might be able to infer that the word monologue means one person who is talking for a long time. When it comes to teaching reading comprehension, research based approaches are continuing to be developed. We will focus on three research based interventions that target comprehension. The first strategy is called dialogic reading. Our colleague Kelly Whalon modified this intervention for early literacy learners to work with students with autism. The other two strategies are drawn from our own work with readers and include text structure instruction, specifically for reading science texts, and character event maps, which were used to teach comprehension of a novel. Dialogic reading has been used for decades in early language intervention. Using books, it systematically engages students in progressively sophisticated dialogue about those books. The key is to select a book that includes pictures that tell stories, for example, concept books, or books that just show different pictures about one topic, shoes for example, would not really work for dialogic reading. While they might be useful at earlier levels, level one, where we're just asking students to talk about pictures, they would not be useful in level three, where we're asking students to explain why something might be happening in the story and to also relate that to their own prior experiences. As shown here, dialogic reading includes three levels through which the students progress. During level one, the idea is for teachers and students to have a conversation through the use of close ended questions. For example, the teacher might ask the student to identify a picture, an object in the picture. When the student identifies the object, the teacher would repeat the

student's answer with a slight elaboration. For example, if the object was a car, the teacher might elaborate on the student's car response by saying, yes, that's a red car, what do you think a car's used for? At level two, questions shift primarily to open ended questions such as, what do you see on this page? The idea is that the student is responsible for expressing what they see instead of commenting on what the teacher sees. Finally, during level three, conversations emphasize higher order thinking, such as, why do you think the man drove his car to school? The idea is for students to begin making predictions about what's happening in the book. In addition, the teacher begins asking what are called distancing questions. Distancing questions relate to what's happening in the book, relates what is happening in the book to previous experiences the students might have had. This is very important for language development as students have to think rather than only responding to the visual prompts contained on the page of the book. The next strategy we'd like to describe is a Text Structure Intervention. This intervention was based upon the work of Joanna Williams who developed it for use with struggling primary students. She was using it to teach them expository text structure, or the structure of informational texts. We have conducted two different studies that included students with autism who were reading as low as the primer level and first grade levels. Our second study was with students who were reading at the intermediate level, but they were already in high school, so in all cases they were individuals who were much older than their reading levels would have suggested. We've written an article for teachers regarding how to do this intervention, and it's available in the journal called Interventions in School and Clinic for those of you who might like additional information on this strategy, but today we're gonna share enough information to get you started. Informational text has a unique structure when compared to stories. The structure of narratives is called story grammar. The elements of story grammar include characters, setting, plot, and solution, whereas the macrostructure of informational texts includes very structured, selected by authors, to help people learn from what they've written. For example, an author might begin with a description of their topic that's followed by a comparison with presumably a familiar topic. Unlike story grammars that follow essentially the same structure across all stories, informational text authors have a lot of latitude about how they construct texts to help students learn. What's important here is that research suggests that if students understand how a text is structured, this knowledge can compensate for their lack of background knowledge on a topic. This is critical for students with autism as sometimes their knowledge bases are more specialized than other students might be. In other words, their interests help them develop deep knowledge rather than broad knowledge than might be really necessary for them to ensure that they're prepared for life after school. So the basic idea of text structure interventions is to let students with autism in on the secret of how authors organize their texts. This is done through explicitly teaching a language used by authors to signal particular structures, and these signal words are then paired with graphic organizers that represent visually how the brain should be organizing this new information. Here we present a graphic we adapted from the work of Zwiers for use in our studies. In the first column, the text structure is named. You will notice there are four different structures represented in rows on this guide. The second column explains the purpose of the structure or what the author's hoping you will learn during the reading of that section of the text. For example, when an author uses the compare contrast structure, the author's showing how two topics are alike and different from a cognitive perspective, comparing two similar but different ideas has the potential to provide a deep learning opportunity as your brain thinks about how to keep this information separate. In the third column, features of the structure are listed. This column highlights what is part of the structure. The fourth column contains signal words and questions that can be answered from reading this kind of structure. Finally, in the last column, are graphic organizers that can be used with each structure to visually represent the information contained in the text. We talk about this as showing students how their brain organizes the information they just read about and learned. You might be saying to yourself this seems like a lot of information to have on one page, and it is. When you teach text structures, you must first identify which structure or structures you wish to teach. We suggest that you look at the text you want them to be able to read, perhaps their science textbook. Next, you read and identify the most useful structures contained in that text. Based upon reading levels, select one structure for students who are reading at lower levels, or two or three for students who are reading at higher levels, and then you modify this form, so that only the targeted information is there. We'll show you how we did this with our lower readers using one text structure. For

students in our study who were ready at the primer and first grade levels, we elected to explicitly teach them the compare contrast text structure. We took the information from the chart we just showed you and put it into two separate sheets. The organization guide here, and the graphic organizer sheet, which we'll talk about next. To teach students this process, we also developed model passages that only compared and contrasted two topics. In addition, we made sure they only contained the signal words listed on this guide and we bolded them in the passage. Using a task analysis, we explicitly taught students each part of this signal sheet. We explained that in an informational text, the author is trying to help us learn new information. To do this, the author uses signal words to alert us to what we should expect and understand. For example, there are signal words that alert us that the information is about how two things are the same and there are signal words that show us how two things are different. Next, we had students read the model passage aloud. They identified the topics that were being compared with the help of signal words embedded in the text. As soon as they finished reading, we explicitly taught students how to complete this diagram. They began by labeling the topics being compared in the text and they used the signal words that signified the same to identify information that would be placed in the center of this diagram. We emphasize that this was the author teaching us how two topics were the same. Next, we explicitly taught them how to use signal words that indicated how topics were different or unique to complete the rest of the diagram. After the diagram was completed, we asked students to verbally summarize how the topics were alike and different. In this study, the intervention improved students' reading comprehension of passages. In a follow up with these same students, we found that students were able to maintain gains and comprehension with the use of these tools. We also noticed that students began recording fewer details from passages over time while still maintaining high levels of comprehension. We speculated that this meant students were beginning to internalize how to understand the information and likely needed less support from the tools. As we mentioned at the beginning of this webinar, fading support over time is critical for longer term outcomes. If you use this intervention, consider this progression to fade support. First, put students in passages that are not tightly controlled and discontinue the use of the organization guide. Let them continue to use the graphic organizer. Once you see their comprehension is still good, fade the organizer to test whether or not they need it for comprehension. Finally, as we mentioned earlier, we also used a similar intervention to teach grade level texts to students who were reading at middle school levels in high school. For that intervention, we explicitly taught them to manage three text structures at a time using very similar techniques. Again, the intervention was effective for all students in the study. As we noted in the beginning of the section, this is a research based strategy to teach students with autism how to comprehend informational texts. Next, we will describe a research based approach to teaching narrative text. As we mentioned earlier, narrative texts are organized by story grammar. Explicitly teaching story grammar is a useful intervention for students who read short books. However in our work with older students in high school, it became clear that simply teaching story grammar for a novel was not as useful. This makes sense if you think about it. Plots unfold slowly across many pages, and authors include interesting details that may not be important for understanding the important information contained in the novel. As a result, we develop the character event map strategy to teach students how to comprehend novels by understanding critical interactions among characters. We also explicitly taught students how to comprehend literary terms, which are expected content in high school English classes. For our study, students were reading The Hunger Games, which was a novel selected by their teacher. We created maps for each chapter of the novel where we summarized what happened is the center column. That was how the form was presented to students. After reading, students were asked to identify which characters were involved in the incident listed in the center column. This information was recorded in the first column of the form. Next, students discussed the meaning of the incident and recorded that information in the third column. In addition, we introduced students to literary terms used by the author in the novel, including metaphor, foreshadowing, and irony. We provided students with definitions of these terms, and we've provided examples from the novel. Teachers were asked to model how to think about these terms, locate them, and figure out what they meant by comparing them to this form. As shown here, students were provided with examples of each literary term from the chapter they were reading, and they were asked to record which characters the terms referred to. Next, they were asked to determine the meaning of the terms. This helped students better understand the

writer's use of craft during the completion of the story. Once again, we used the evidence based practice of task analysis to explicitly teach students how to complete the character event maps during and after reading. Students then were asked to summarize what happened in the chapter using their character event maps and make predictions about what they thought might happen in the next chapter. Before reading subsequent chapters, students were asked to revisit their summaries and predictions for that next chapter. They would complete the character event map for the day's chapter and repeat the process they outlined, we outlined, rather. It was important for them to think about those predictions also and make sure that the predictions were accurate or inaccurate and they would describe why they were accurate or weren't accurate after the day's reading. Another support we embedded in this study was the use of an unabridged recording of the story. Students followed along as the recording played in their own books. The research on recordings used during reading told us that this alone would not help comprehension. Instead, we used it in our study to maintain students' attention to the book. We have followed up on this study, and in that intervention we taught students explicitly about how authors use characters to teach them how to separately categorize information that's interesting in the story from information that's important to the story. Although this study has not yet been published, we can share that explicitly teaching students how authors use round and flat characters to move story plots forward was effective. In summary, our work and the work of others all seems to suggest that when we explicitly teach students with autism how to determine what is important during reading, it impacts their reading comprehension in powerful ways. We've also learned that it's very important to systematically determine the most straight forward path to comprehension using the language that author's use when writing. Finally, it is critical to explicitly teach students with autism how to think during reading. This might be the most important takeaway of all. Next, we will briefly talk about writing. Perhaps not surprisingly, studies all suggest that as students with autism have a strength in writing, it is their ability to manage spelling, perhaps not perfectly, but in a way that will communicate what they mean, and grammar, compared to writing ideas and connecting those ideas together in a cogent piece of writing. We would call that second piece really an indicator of writing quality. Thus when we talk about writing, we are primarily interested in students' abilities to generate and express ideas. For student with autism, it is also important for them to connect reading with writing. They reinforce learning about the other. Simply stated, it is very good practice for students to write about what they are reading and to read what they are writing. Although teaching different writing strategies is beyond the scope of this webinar, we want to provide you with some important information. Graham and Harris developed the Self-Regulated Strategy Development model of writing instruction for students who had learning disabilities. Scholars in the area of autism, including Delano, Pennington, and even ourselves, have begun using this strategy effectively with students who have autism. Similar to reading interventions, scholars have embedded evidence based instructional practices for students with autism within protocols associated with the SRSD methods. We see evidence of task analyzed instruction, use of visuals, and we also see the use of mnemonic devices embedded in SRSD to aid recall of procedures designed to improve the overall writing quality, and also the writing quality of particular genres, so our best advice for you is to have students write what they read. If you're teaching them how to read compare contrast text structures, have them write compare contrast about two topics of interest. We'd also suggest using the graphic organizer used during reading to brainstorm the ideas that they will write about. They can also use the organization guide as a source of signal words that can be used in their writing. For early writers, we suggest giving them picture prompts and themselves as a stimulus for writing. They might summarize what they see so they could send a text message about what's happening at school, with the teacher's help of course, to their mom. For beginning writers, you'll want to give them sentence frames that increase in complexity as their writing develops. In summary, students with autism need to be writing early and often, just like their peers. In summary, this webinar described our framework for literacy instruction which is informed by our understandings of how students with autism develop literacy skills. We explained the importance of data informed instruction that includes consideration of students' reading profiles. Finally, we shared strategies for literacy instruction that can be used in your classrooms tomorrow. We want to sincerely thank you for your attention during this presentation. We hope that you found some information that you will find useful as you go forth and make a difference in the lives of the children you work with.