Collaborative Strategic Reading – High School

Implementation Manual

Year 3
2014–2015

The Meadows Center
FOR PREVENTING EDUCATIONAL RISK

CSESA
The Center on Secondary Education
for Students with Autism

Acknowledgments

Center on Secondary Education for Students With Autism Spectrum Disorders

Primary Investigators

Sam Odom and Kara Hume
Frank Porter Graham Child Development Institute, The University of North Carolina (UNC) at Chapel Hill

Co-Investigators

Diane Browder and David Test
UNC Charlotte

Sallie Rogers
UC Davis MIND Institute

Erik Carter
Vanderbilt Kennedy Center, Vanderbilt University

Sharon Vaughn and Colleen Reutebuch
The Meadows Center for Preventing Educational Risk (MCPER), The University of Texas at Austin

Leann Smith
Waisman Center, University of Wisconsin–Madison

Laura Hall and Bonnie Kraemer
San Diego State University

MCPER Research and Development Team

Sharon Vaughn, *Principal Investigator*

Colleen Reutebuch, *Co-Principal Investigator and Project Director*

Farah El Zein, *Project Coordinator*

Michael Solis

Min Kyung Kim

Garrett Roberts

Aron Weinberg

MCPER Productions Team

Matthew Slater, *Editor*

Carlos Treviño, *Graphic Designer*

Table of Contents

Introduction

Overview

Reading comprehension is important to academic success and quality of life (Carnahan & Williamson, 2010). However, students on the autism spectrum typically do not have well-developed comprehension skills (Asberg, Kopp, Berg-Kelly, & Gillberg, 2010; Chiang & Lin, 2007; Nation, Clarke, Wright, & Williams, 2006). To address this problem, we developed Collaborative Strategic Reading – High School (CSR–HS) for high school students with autism spectrum disorders (ASD) who access primarily academic content across the school day. CSR–HS is a modified version of Collaborative Strategic Reading (CSR; Klingner & Vaughn, 1996), a fully developed, evidence-based instructional approach to reading comprehension that combines strategy instruction and cooperative learning. CSR has been validated through numerous quasi-experimental and experimental studies (Vaughn et al., 2011; Vaughn et al., 2013). The Center on Secondary Education for Students With Autism Spectrum Disorders, a research and development project funded by the Institute of Education Sciences, aims to investigate the academic consequences of CSR–HS as part of a comprehensive treatment model.

CSR–HS

CSR–HS is a multicomponent intervention for improving comprehension throughout the reading process: **before reading**, **during reading**, and **after reading**. CSR–HS strategies can be applied to instructional practices already in place that support reading for meaning. CSR–HS is not a replacement for content area instruction, but rather an enhancement to help students better manage their thinking and understanding about what they read and how they read, so that when meaning is unclear or confusing, students have tools to enhance their comprehension and better access content knowledge. Additionally, CSR–HS supports the Common Core State Standards involving students' ability to search for and use important information, summarize, and draw inferences.

CSR–HS strategies were designed to meet the learning needs of high-functioning students with ASD and their peers, who work cooperatively to read for meaning in content area disciplines. Developers included university researchers; high school and district administrators, staff members, and educators; parents of students with ASD; and high school students with and without ASD.

The research is part of a multiyear study by the Center on Secondary Education for Students With Autism Spectrum Disorders that focuses on developing, adapting, and studying a comprehensive school- and community-based education program for high school students with ASD. This comprehensive model has five components that work together to meet the needs of students, school staff members, community partners, and families. CSR–HS is part of the academic component, which includes two literacy-based interventions that focus on comprehension. As previously mentioned, the first intervention, CSR–HS, addresses the learning needs of high-functioning students with ASD. The second intervention—Alternative Achievement Literacy, developed by The University of North Carolina at Charlotte—is for high school students with ASD who are permitted to use alternate assessments based on alternate achievement standards. These students work toward the same grade-level standards as their same-age, nondisabled peers, but with alternate achievement targets.

These two distinct, literacy-based interventions are offered to meet the range of support needs that exist among students across the spectrum. CSR–HS is suited for students with ASD who read on a least a second-grade instructional level, have an IQ in the low-average to above-average range (80 and above), and primarily receive instruction in academic content throughout the school day. Alternative Achievement Literacy is appropriate for high school students with ASD who are nonreaders or entry-level readers, focus on alternate achievement of grade-level content, and may have a concurrent intellectual disability.

Theoretical Foundation for Traditional CSR

Traditional CSR is theoretically grounded in cognitive psychology (Flavell, 1992; Palincsar & Brown, 1984) and sociocultural theory (Perez, 1998; Vygotsky, 1978)—theoretical perspectives shown to improve comprehension strategy instruction (Harris & Pressley, 1991). Like reciprocal teaching (Palincsar & Brown, 1984), CSR teaches students how to monitor their comprehension and use procedures for clarifying understanding when difficulties arise. Students learn main idea and questioning practices that assist in reflecting on text while reading and guide group responses to text after reading. Cooperative learning practices are also a critical component of CSR. Through this collaborative approach, both teachers and peers support student learning.

CSR includes elements identified as critical for enhancing the performance of students with learning difficulties, such as: (a) making instruction visible and explicit, (b) implementing procedural strategies to facilitate learning, (c) using interactive groups and/or partners, and (d) providing opportunities for interactive dialogue among students and between teachers and students (Fuchs, Fuchs, Mathes, & Lipsey, 2000; Gersten, Fuchs, Williams, & Baker, 2001; Swanson, Hoskyn, & Lee, 1999; Vaughn, Gersten, & Chard, 2000).

Research on Effective Comprehenders

Many instructional practices suggested for poor readers were derived from observing both good and poor readers, questioning them about their reading strategies, and asking them to "think aloud" while they read (Dole, Duffy, Roehler, & Pearson, 1991; Heilman, Blair, & Rupley, 1998; Jiménez, Garcia, & Pearson, 1995, 1996). These reports found that good readers coordinate a set of highly complex and well-developed skills and strategies before, during, and after reading to understand, learn from, and remember what they read (Paris, Wasik, & Turner, 1991). When compared with good readers, poor readers are considerably less strategic (Paris, Lipson, & Wixson, 1983). Good readers monitor the structure and organization of text; monitor their understanding while reading; make, check, and revise predictions; integrate what they know about the topic with new learning; and summarize and self-check their learning (Jenkins, Heliotis, Stein, & Haynes, 1987; Kamil, 2003; Klingner, Vaughn, & Boardman, 2007; Mastropieri, Scruggs, Bakken, & Whedon, 1996; Pressley & Afflerbach, 1995; Swanson, 1999; Wong & Jones, 1982). Knowledge of what good readers do was integrated into the process for teaching students how to read for understanding through CSR.

Effective Practices From Reading Comprehension Intervention Studies

Several reviews of intervention research have reported positive outcomes for students who are taught to use comprehension strategies (e.g., Edmonds et al., 2009; Gajria, Jitendra, Sood, & Sacks, 2007; Gersten et al., 2001; Mastropieri et al., 1996; Mastropieri, Scruggs, & Graetz, 2003; National Institute of Child Health and Human Development, 2000; Scammacca et al., 2007; Swanson et al., 1999; Talbott, Lloyd, & Tankersley, 1994; Vaughn, Gersten et al., 2000). Other reviews have analyzed unique components of comprehension instruction (see Maccini, Gagnon, & Hughes, 2002, for a review of technology approaches; Kim, Vaughn, Wanzek, & Wei, 2004, for a review of graphic organizers; and De La Paz & MacArthur, 2003, and Gajria et al., 2007, for reviews of strategy instruction for expository text types).

In summary, practices that have been associated with improved outcomes include students using strategies to figure out the meaning of unknown words, accessing prior knowledge to inform the text being read, monitoring their understanding during reading, using or creating graphic organizers, generating questions about text, understanding narrative and expository text structures, and using cooperative learning to increase engagement. In addition, explicit instruction in reading comprehension strategies is associated with improvements in reading comprehension, particularly for students in secondary grades (Scammacca et al., 2007). A recent study (McKeown, Beck, & Blake, 2009) suggests that extended, well-constructed conversations about the content of text may be equally or more effective than strategy instruction.

CSR: Review of Previous Studies

Early studies of CSR focused on evaluating effectiveness within science and social studies content area instruction. In one such study (Klingner, Vaughn, & Schumm, 1998), CSR was taught to intact, heterogeneous fourth-grade classes for 45 minutes per day during an 11-day Florida history unit. The comparison group of intact classes received instruction reflective of the school's typical practice. Students in the CSR group made greater gains in reading comprehension and equal gains in content knowledge.

To determine whether these findings would hold true for science instruction, fifth-graders were provided CSR instruction for 30 to 40 minutes per day, 2 to 3 days per week, over a 4-week period during science classes (Klingner & Vaughn, 2000). Students frequently engaged in verbal discourse that supported vocabulary and content knowledge development. Students made gains in target vocabulary over time.

In a subsequent quasi-experimental study, fourth-grade teachers in the treatment condition were provided CSR training and in-class demonstrations. A comparison group of teachers continued typical-practice instruction. On a norm-referenced measure of reading comprehension, students in the CSR group outperformed students in the comparison group (Klingner, Vaughn, Argüelles, Hughes, & Ahwee, 2004). Likewise, students of third-grade teachers who received either CSR or partner reading training performed well on tests of oral reading rate, accuracy, and reading comprehension (Vaughn, Chard et al., 2000), providing additional evidence for the use of CSR with upper-elementary students.

Four studies have tested CSR at the middle school level. In one study, researchers developed a computer-adapted version of CSR (Kim et al., 2006) and used it with sixth- through eighth-grade students with learning disabilities. Students were randomly assigned to either the computer-based CSR intervention or a typical-practice comparison group. On a norm-referenced measure of passage comprehension, students in the CSR group outperformed students in the comparison group. In another middle school study, CSR was one of several intervention practices to enhance schoolwide reading comprehension (Bryant et al., 2000). Students demonstrated gains on word identification but not reading comprehension.

Through a series of studies conducted over 15 years, CSR has been developed, implemented, and evaluated through quasi-experimental, descriptive, and randomized controlled trial research designs. However, the efficacy of CSR has not previously been determined with high school students with reading comprehension difficulties and ASD. The purpose of our pilot study, conducted in the spring of 2013, was to determine the efficacy of an adapted version of CSR, CSR–HS, for three adolescents in high school peer-directed intervention sessions. This manual was developed and refined as a result of the pilot year implementation in Central Texas. In year 2, CSR–HS will be implemented in Texas and North Carolina. In the 3 subsequent project years, the literacy interventions will be implemented as part of a comprehensive treatment model at 30 sites across the country.

How to Use This Manual

This manual provides an overview of traditional CSR and how CSR–HS was developed. We outline the steps for planning and preparation that implementers should take before conducting CSR–HS lessons. CSR–HS implementation is described to familiarize you with the before-, during-, and after-reading stages and the steps that both the lesson instructor and students should follow. Masters of teacher and student materials are included in the binder. Implementers need to make copies for partners and individual students as directed.

We offer three model lessons at each of reading levels 2 to 8. We recommend initially using these lessons. Below-grade-level reading material can be used for initial introduction and practice. Once students are familiar with the lesson format and the before-, during-, and after-reading phases, you can select text that aligns and supports the topics in your class. Sample illustrations that accompany the model lessons are provided as a separate booklet.

To use CSR–HS, first become familiar with the strategies and materials. Then follow the steps detailed below for each CSR–HS session.

Prior to CSR–HS Session

1. Select, topics, text, and key vocabulary.

2. Complete the CSR–HS lesson template for your lesson.

3. Compile all necessary student and teacher materials.

4. Pair students, so that each pair has a more capable student who will provide modeling and support.

5. Remind students of expectations for paired work.

6. Invite students to contribute examples and nonexamples of appropriate CSR–HS behaviors if necessary.

Note: If you use the provided model lessons, numbers 1 and 2 above have already been completed for you.

Before and During Reading

1. Complete the teacher introduction.

2. Complete the before-reading steps.

3. Complete the during-reading steps.

After Reading

1. Complete the after-reading steps.

2. Complete the wrap-up.

3. Based on data from lesson progress monitoring and the learning log rubric, plan for additional instruction or reteach during tutoring if necessary.

4. Based on student performance, decide how to proceed during the next lesson.

Additional Considerations

The goal of implementing CSR–HS is for the reading strategies to become habitual for students. To establish routines and procedures, we recommend implementing CSR–HS for a minimum of 16 lessons. Because the goal is for students to generalize the strategies to all reading, after students are comfortable and proficient with the strategies, you can fade the use of the learning log and partners. Depending on the targeted student, weekly check-ins or tutorials may still be warranted.

Adapting Traditional CSR for High School Students With ASD

Background

In redesigning traditional CSR for high school students with ASD, it was necessary to consider school structures and student characteristics that interfere with classroom success. First of all, reading often is not seen as a skill that high school teachers should remediate. The expectation for students in secondary settings is that foundational reading skills have already been developed in earlier grades. The focus on reading in most high schools is "reading to learn," not "learning to read." Secondly, most content area teachers are not skilled in dealing with reading difficulties and are at a loss as to how to address them within their specific domains.

Students on the autism spectrum do not have well-developed comprehension skills (Asberg et al., 2010; Chiang & Lin, 2007; Nation et al., 2006). Additionally, students with ASD may demonstrate impairments in social communication and engage in restricted, repetitive, and stereotypic behaviors. These behaviors present challenges for instruction and have been proven to be predictive of future academic achievement (Estes, Rivera, Bryan, Cali, & Dawson, 2011).

Focus Groups

Six focus groups were conducted in the fall of 2012 in North Carolina and Texas to gather and consider the perspective of persons with ASD and their caregivers, instructors, and service providers regarding our proposed academic interventions targeting reading comprehension. We used the information gathered to adjust our interventions. From the focus groups, we heard recommendations similar the following:

- Make the academic component relevant and tied to real-world goals.

- Consider text type and motivational levels of students to read the texts, as classical literature does not motivate many students with ASD.

- Provide a lesson template for teachers to follow across content areas.

- Use a checklist for students to monitor their progress.

- Pull out students with ASD for instruction, as they do not want to be the focus of special attention in general education classes.

- Teach peers to understand autism and to work with students with ASD.

- Make sure that high achievers and students with greater support needs both benefit from participation in CSR–HS.

- Students with ASD need instruction in "learning to read," not just "reading to learn."

- Be selective about who is chosen for peer partners, as some students are likely to be more supportive and dependable.

We also conducted a meeting to collect ideas from content area general education teachers about the feasibility and sustainability of CSR–HS in their classrooms. The teachers provided the following information:

- We are not reading teachers and do not wish to be.

- There is little time for reading or reading instruction in content area classes.

- Provide the materials, including texts.

- Make the activity a warm-up tied to test preparation and standards.

- Design something that allows us to still cover our content.

- Be cognizant that teaching content is the priority.

CSR–HS, like traditional CSR, combines strategy instruction with cooperative learning to target reading comprehension. CSR–HS, however, takes into consideration that some students with ASD need more support than can be provided classwide. Students with ASD also have characteristics that could make traditional CSR challenging (e.g., lack of motivation, inadequate background knowledge, below-grade-level reading comprehension and inference-making). Therefore, CSR–HS can be delivered as a pullout or classwide in mixed-ability, inclusive classes for students who are closer in achievement to neurotypical peers. See Table 1 for a side-by-side comparison of CSR and CSR–HS.

Table 1. Comparison of Traditional CSR and CSR–HS

	Traditional CSR	CSR–HS
Teacher Introduction	Not explicitly included	Teacher explicitly states steps and expectations for daily lesson
Before Reading	Students: • Preview text and brainstorm what they already know about text • Predict what they will learn from text	Students: • Preview text • Use visual or other anchor to connect with topic

During Reading	Students:
	• Identify "clunks" (words and ideas not understood)
	• Use fix-up strategies to clarify meaning:
	  • Reread the sentence
	  • Reread sentences before and after clunk
	  • Use word parts, content clues, or cognates (for English learners)
	• Identify the most important "who" or "what" after each paragraph or other portion of text
		Students:
		• Identify words, phrases, or sentences not understood
		• Read to answer preselected questions and respond to true/false statements

	Traditional CSR	CSR–HS
After Reading	Students: • Write and answer different levels of questions (right there, think and search, author and you questions) • Review and summarize the entire text section or passage read	Students: • Write and answer questions • Summarize, using a graphic organizer Teacher conducts review and wrap-up of lesson
Materials	• Student learning log for each group member • Grade-level text • Role cards with scripts for cooperative learning group members (leader, clunk expert, gist expert, and question expert—plus timekeeper or encourager if needed)	• Student learning log for each pair • Grade-level text at targeted students' instructional level (however, texts could be used across a class—for example, a lower-level text to practice the strategies) • Checklist with peer prompts • Visuals • Preselected key vocabulary • Question stems
Implementation	• Implemented two to three times per week for full-class session • Learning log reviewed for progress monitoring • Students work in heterogeneous groups identified by teacher	• Implemented two to three times per week (maximum of 30 minutes per session) • In peer tutoring model, one tutoring session a week for targeted student only (student with ASD) • Learning log and percentage of comprehension questions answered correctly used for progress monitoring • Students work in pairs (higher-support-need students paired with neurotypical or higher-achieving student)

Prior to CSR–HS Implementation

Determine whether CSR–HS is appropriate for the target student(s) with ASD. Note that CSR–HS is not a "learn-to-read" intervention. Students should have basic foundational reading skills in place and read on at least a second-grade instructional level. Further development and improvement of a student's reading comprehension skills should be the goals. Specifically, students who receive CSR–HS should be in high school, have ASD, and meet the following additional criteria:

- Access primarily academic content across the school day

- Read and comprehend on a least a second-grade instructional level

- Have an IQ in the low-average to above-average range (80 and above)

- Be willing to participate

- Possess skills and abilities to share their ideas, contribute to conversation, and work cooperatively with another student and/or tutor to complete reading activities that use the strategies

Selecting the Model, Initial Level, and Partner

First, identify the target student's reading level. (As discussed above, if the student is a nonreader and has very little comprehension ability, CSR–HS is NOT an appropriate choice for an intervention.) Then, use the following guidelines to select the most appropriate model to use.

CSR–HS **classwide implementation** may be a good fit if the target student with ASD has skills comparable with peers, including the following:

- Can read and write close to grade level (may be several grade levels below but can achieve with appropriate supports in place)

- Has ability and experience in working with a peer (can make eye contact and participate in a conversation)

- Is willing to work cooperatively on reading comprehension tasks with a peer

- Can work independently on reading tasks (reading and using strategies to answer comprehension questions)

- Already participates in classwide academic tasks (i.e., not assigned to class solely to build social and communication capacity to fill time goal for being in an inclusive setting)

CSR–HS **peer-paired tutoring sessions** may be a good fit if the target student with ASD does not yet have skills comparable with peers, including the following:

- Reads and writes far below grade level (may be three or more grade levels below peers)

- Has inability and lack of experience in working successfully with peers in a general education class setting

- Needs to build social and communication skills (optional tutoring ideas related to developing necessary skills for peer work is provided later in this manual)

- Is very distractible or anxious in classwide settings

Next, use the target student's instructional reading level to determine how to introduce the CSR–HS strategies. For example, for a student with an instructional reading level of 2.0, use a 2.0 grade-level text when introducing the CSR–HS strategies and procedures (the first number in each lesson title is the reading level). Once the target student is comfortable with the strategies and with working with a peer, you can use text that is one to three grade levels higher.

Finally, select an appropriate peer partner. It is important that the partner be available for the duration of implementation, as consistency and feeling comfortable with a partner are important. CSR–HS partners should meet the following minimal qualifications:

- Current high school student in target student's grade level with average to above-average reading comprehension skills

- Identified by school staff as a good match for target student

- Available to participate during target student's CSR–HS sessions (if offered as a pullout tutoring session)

- Has some experience in working with target student

Preparing Target Students

After identifying the target student's reading level, the model of CSR–HS to be implemented, and the grade-level peer assigned to work with the student with ASD, we recommend that you schedule at least one session to introduce CSR–HS. Students identified for CSR–HS peer-directed tutoring sessions may first need to work solely with an instructor to build the skills necessary for successful peer-paired relationships. And though the classwide model may be introduced to all members of the class at once, the implementer may decide to introduce CSR–HS to the target student with ASD prior to the classwide introduction.

Determining Frequency

An implementation schedule of two to three times per week is recommended; however, continually review and possibly alter this schedule, depending on target student and school day conflicts. Content area classes may not be able to devote more than one 30-minute class period to CSR–HS during the week. However, for consistency, at least two sessions peer week are recommended.

Selecting Text

CSR was primarily designed to be used with expository text. Initially, select reading material that is conducive to strategy application. Such material is characterized by the following:

- Clues that help students predict what they will learn

- Main ideas (**not** just lists of information)

- Context that helps students connect information

- Content that is interesting and meaningful

- Ideally, content that is integrated into class curriculum or units of study

In this binder, we provide model CSR–HS lessons and a wide range of grade-level texts to get started. CSR–HS implementers are encouraged to use class reading materials or supplemental materials that support class content instruction and topics of focus.

Selecting Vocabulary and Concepts to Preteach

The model lessons and accompanying texts contain preselected key vocabulary. However, you may find that your student(s) needs help with vocabulary or key concepts other then those selected. Keep in mind that not all vocabulary words are of equal significance. Below are some guidelines to follow when selecting vocabulary and key concepts to teach as part of the before-reading process.

- Consider students' background knowledge on the topic and choose words that will support students' understanding.

- Preview the text and identify words and concepts with potential for greatest impact on students' overall reading comprehension (i.e., words that are not too familiar or too rare).

- Meet with students who need help with basic words and concepts that the majority of students already know (e.g., *state*, *war*) before classwide instruction.

- Even though they are not frequently used across domains, it may be necessary to provide an overview of content-specific words (e.g., *status quo*, *metamorphoses*) to aid comprehension.

- Students with ASD might need additional help in understanding challenging words and concepts (e.g., homonyms, homophones, pronouns, idioms).

Preparing for Paired Work

Prior to introducing CSR–HS, the instructor (i.e., classroom implementer or tutor) must do the following:

- Pair students, so that the membership reflects heterogeneous, or varied, skills and abilities.

- Establish expectations for group work, so that all contribute and work cooperatively with each other.

- Invite students to contribute examples and nonexamples of expected behavior during CSR–HS work groups.

Supporting Use and Understanding of CSR–HS Through Technology

This manual provides everything needed to get started with implementation; however, some may find that technology enhances the ability of target students to learn and apply the CSR–HS strategies. If already familiar with technology (e.g., smart phones, tablets, computers), reading text on a computer or tablet may provide the motivation needed for a reluctant reader to participate. In addition, certain applications might be useful for students who need reminders or prompts about next steps when using CSR–HS strategies, especially when students are expected to use the strategies in other settings.

We caution, however, that such applications and devices can be distracting, especially when students first learn and practice CSR–HS. We recommend limiting technology use to tutorials or support, if needed, after tutoring sessions are discontinued.

Reading Strategies and Steps

Teacher Introduction (2–3 minutes)

During the introduction, the teacher reviews the CSR–HS strategies for the before-, during-, and after-reading stages and the expectations for the lesson. The teacher explicitly teaches these expectations as a proactive method of preventing student off-task behavior. The following activities are recommended for the teacher introduction:

- Have materials ready and organized.

- Ensure pairs are in place and prepared for CSR–HS.

- Communicate expectations by providing clear, explicit indications of goals for assignments and activities.

- Provide explicit instruction for the assignment and activities.

Student Materials

- One per student:
  - Text with key words
  - Learning log
  - Writing utensil

- One per pair:
  - Checklist with discussion prompts
  - CSR–HS graphic
  - Question stems

Teacher Materials

- CSR–HS lesson plan with text and key words
- CSR–HS strategies sheet (accompanies lesson plans)
- Visual or other display for introducing topic (e.g., photograph, graphic, short video clip)
- Timer
- Learning log evaluation rubric
- Note cards, sticky notes, or whiteboard for key words (optional)

Before Reading (2–3 minutes)

No matter the text length, the before-reading strategies should occur only once—prior to reading the entire selection. In this stage, the teacher and students scan the text to activate background knowledge, make connections between the topic and prior knowledge, and set the purpose for the day's reading. During this phase, the teacher guides students through the following steps:

- Introduce the topic.

- Preteach key words and/or proper nouns.

- Build background knowledge or connect to students' prior knowledge (e.g., through pictures, videos, demonstrations).

- Set the purpose for reading.

- Have students write key words in their learning logs.

The before-reading portion of the student learning log is pictured below.

Before Reading	
The key words are:	**I have looked at the:** ❏ Title ❏ Key words ❏ Pictures
_____	**I have visualized the:** ❏ Pictures ❏ Demonstrations ❏ Video clips
_____	
_____	
_____	

During Reading (10–12 minutes)

Fix Up Meanings

The first activity of the during-reading phase requires students to read the assigned text, stopping when words, phrases, or sentences do not make sense. Students attempt to "fix up" the meaning of these unclear words, phrases, or sentences by putting them into their own words on their learning log. During this activity, the teacher acts as a guide, monitoring and assisting students by doing the following:

- Checking whether students identify and record words, phrases, or sentences from the text that they do not understand

- Providing verbal prompts for students who struggle

- Providing examples (i.e., pieces of text expected to be difficult to comprehend) for students who continue to struggle

The fix-up activity in the during-reading portion of the student learning log is shown on the following page.

During Reading

Fix Up Meanings

This does not make sense to me.	Now I get it!

True or False?

   The second activity in this phase asks students to consider whether statements are true or false. This task aids students in monitoring their comprehension. Initially, the teacher creates the true/false statements and either writes them on the board or adds them to students' learning log for the day. Once students are skilled in responding to the true/false statements, students can be challenged to create their own to test their partner. Partners discuss whether the statements are true and record their answer on their learning log. If a statement is false, students go back to the passage to determine the necessary correction to the statement. Students then rewrite the statement on their log to make it true. During this activity, the teacher guides student pairs by doing the following:

- Checking whether students stop at the predetermined places

- Checking whether students answer and briefly discuss the statements

- Checking whether students continue reading after discussing a statement

- If a statement is false, helping students figure out why

The true/false activity in the during-reading portion of the student learning log is shown below.

True or False?

Write the statement.	Answer	If false, rewrite to make the statement true.
	T / F	
	T / F	
	T / F	

After Reading (10–12 minutes)

The after-reading phase requires students to review the important ideas learned. It consists of two steps for students: (1) generating and discussing questions with the group and (2) summarizing the text, using a graphic organizer. Additionally, the teacher conducts a wrap-up of the lesson to review the topic and what was learned about it.

Question Generation

The first activity, generating and discussing questions, provides students with an opportunity to think about what they just read and learned. After students finish reading, they create and answer questions about the important ideas in the text. Students create one "why" question; one "how" question; and one "what," "where," or "who" question. During this activity, the teacher supports students by doing the following:

- Reminding students to use the provided question stems

- Checking whether students share their questions and answers with their partner

- Scaffolding difficult questions

- Helping students who struggle to create questions by brainstorming with the students or offering question stems

The question generation activity from the after-reading portion of the student learning log and the provided question stems are pictured below and on the following page.

After Reading

Generate Questions

"Why" Question	Response
_____	_____
_____	_____
_____	_____

"How" Question	Response
_____	_____
_____	_____
_____	_____

"What," "Where," or "Who" Question	Response
_____	_____
_____	_____
_____	_____

Why	How	What	Where	Who
Why are… Why did… Why is… Why was…	How are… How did… How much… How many…	What is… What are… What do you think will happen if… What is the reason that…. What is the difference between… What do you think caused… What would you do if… What is one…	Where are… Where did… Where is…	Who is… Who are… Who did…

Summarizing With a Graphic Organizer

The second activity in the after-reading phase, summarizing with a graphic organizer, requires students to independently restate in their own words what they just read. After reading the assigned text and creating questions about it, students individually identify the most important information in the text and record it in a graphic organizer on their learning log, which is shown below.

Graphic Organizer

Who or **what** is the story is mainly about?

What are the three most important things about the **who** or **what**?

1 _____ _____ _____ _____ _____

2 _____ _____ _____ _____

3 _____ _____ _____ _____

Summary   Use the graphic organizer to construct a summary about the reading topic.

_____

_____

_____

_____

_____

Specifically, each student summarizes the text by doing the following:

- Identifying the most important "who" or "what" in the text

- Identifying the most important information learned about that "who" or "what"

- Filling out the graphic organizer on the learning log

- Using the graphic organizer to write a summary (some students may need an adaptation to provide a summary, such as dictating to the implementer or partner)

While students work, the teacher monitors by doing the following:

- Explaining how to use clues to identify the most important "who" or "what"

- Checking whether students identify the most important information about the "who" or "what"

- Providing one-on-one support (i.e., reteaching) to students who struggle

- Prompting students to share their summary statement with each other

- Prompting students to provide detailed feedback about each other's summary

Teacher Wrap-Up

After the summary is completed, the teacher leads a wrap-up of the CSR–HS lesson. The purpose of the wrap-up is to highlight what was accomplished during the session and to facilitate connections students can make between the day's reading, other readings, and the real world. During the wrap-up, the teacher does the following:

- Restates the purpose of the day's reading

- Reminds students of what they were able to accomplish during the session

- Provides brief feedback about student performance and behavior during the lesson

Following the wrap-up, the teacher can assess individual student comprehension on short multiple-choice questions that accompany the texts provided with the model lessons. Another form of progress monitoring is conducted with the provided learning log evaluation rubric. This rubric allows the teacher to document students' proficiency in using CSR–HS to complete their learning logs. If students are less than 100% proficient, the teacher can offer additional instruction or support during tutorials.

Facilitating Social Skills for Working in Peer Pairs

Some target students will need specific instruction in working successfully with a peer. For these students, we suggest a teacher-conducted tutoring session in addition to the two to three weekly peer-tutoring sessions. In our pilot year, we found that targeted students often needed ongoing, additional support to be able to socialize and communicate with a peer appropriately when working on academic tasks, as well as additional instruction on using CSR–HS strategies, reviewing previous CSR–HS sessions, and preparing and rehearsing for future sessions.

For these reasons, we offer a framework for evaluating and supporting target student behaviors when working with a peer: (1) conversation skills, (2) appropriateness of conversation, (3) ability to maintain a conversation, and (4) self-monitoring. We also suggest areas to provide specific feedback and instruction as part of the tutoring sessions (see Table 2).

Table 2. Peer-Pair Behaviors and Instructional Topic Areas

Behaviors necessary for peer pairing	Areas in which to provide instruction
Conversation skills	• Selecting topics • Building background knowledge, so student can contribute to conversation
Appropriateness of conversation	• Remaining on topic • Considering whether topic is interesting to peer
Ability to maintain a conversation	• Taking turns • Listening • Building on what others have said • Understanding social cues • Speaking with prosody
Self-monitoring	• Self-correcting • Reviewing video and audio recordings

In Table 3, we provide information that may be helpful in planning for a student with ASD to work successfully with a peer on an academic task.

Table 3. Planning Considerations

CSR–HS expectation for working with a peer	What do students need to think about?	What will help students?*
Starting a conversation	• What am I going to talk about? • Does my partner know what I am talking about?	• Prompting • Modeling (teacher, peer, and/or video) • Self-monitoring • Generalization (practicing in a variety of settings) • Reinforcement (attention and tangibles)
Knowing whether a conversation is appropriate	• Is this conversation on topic? • Does my partner want to talk about this topic?	
Holding a conversation	• Am I taking turns talking? • Am I listening to what others say? • Does my response build on what was said? • Is my partner looking at me or writing what I say? • Am I talking too quickly or too slowly?	
Evaluating performance	• Am I checking myself? • Am I correcting my mistakes? • Am I reviewing the recordings?	

*See full descriptions of instructional techniques for peer-pair skills in the next section of this manual.

Instructional Techniques to Address Peer-Pair Skills

Most-to-Least Prompting

Most-to-least prompting is a behavioral technique to provide opportunities for error-free learning. In most-to-least prompting, instructors begin by providing students with the highest level of prompts to reduce the probability of error at the beginning of the learning experience. Research has reported that most-to-least prompting is associated with fewer errors than least-to-most prompting (Demchack, 1990).

An example of a high-level prompt is exhibiting the expected conversational skill of indicating agreement with a partner's response and asking a student to repeat: "Repeat after me: 'I agree with your response.'" Then, the instructor could use a less intrusive prompt, such as guiding the student to communicate whether he or she agrees with the partner's response: "Do you agree with what Johnny just said?" The intrusiveness of the prompt could continue to be faded, as long as the student demonstrated success. An even less intrusive prompt would be providing a gestural prompt in lieu of the verbal one (e.g., switching eye gaze, pausing, moving hand). Another way to reduce the intrusiveness of a prompt is transferring the prompting role from the implementer to the reading partner.

Typically, implementers use most-to-least prompting when teaching a novel social skill (i.e., during the acquisition level) and switch to least-to-most prompting when training for generalization.

Modeling

Modeling is a response-prompting technique that has been widely used to teach students with ASD complex behaviors, such as engaging in a conversation (Glendenning, Adams, & Sternberg, 1983; Libby, Weiss, Bancroft, & Ahearn, 2008). This method generally involves the student observing another person (implementer or peer) or self (i.e., video self-modeling) engage in the target behavior. The implementer may choose between in vivo modeling or video modeling, based on the preference and responsiveness of the individual student. Reinforcers (e.g., tokens) sometimes are delivered to the student, contingent upon his or her appropriate imitation of the target behavior (e.g., turn taking during conversation). The implementer provides corrective feedback when a student does not respond to social cues or when a student exhibits related problematic behavior (e.g., changing the topic).

Systematic fading of prompts (including modeling techniques) is needed to promote prompt-free or independent performance.

Positive Reinforcement

Positive reinforcement is a research-based behavioral principle that is widely used to teach students with ASD new skills; how to generalize skills across settings, trainers, and responses; and how to reduce challenging behaviors. Positive reinforcement often takes the form of a token economy system. When students exhibit a target behavior, implementers deliver the reinforcer (i.e., a token) on a variable schedule of reinforcement. For instance, if the social skill being taught is turn taking during a conversation, the implementer would deliver a token when the student talks after the conversation partner has stopped talking. A variable schedule entails that the reinforcer is delivered for some occurrences of the target behavior—not all. At the end of each training session, tokens can be exchanged for rewards, usually items or activities identified through a preference assessment.

Skills to Address

Tables 4 and 5 list and describe primary and secondary skills that may need to be addressed to facilitate a successful peer-pair working relationship.

Table 4. Primary Skills

Primary skill	Definition	Example	Nonexample
Remaining on topic	Engaging in a conversation (i.e., responding or initiating) without diverging from the main topic	Sharing a personal story about a trip to the beach when the topic of conversation is summer vacation	Asking what a partner had for lunch during a conversation about summer vacation
Listening and turn taking	Exhibiting listening behavior and waiting until the conversation partner is finished before speaking	Facing the speaker, making eye contact, and responding after the speaker has stopped talking	Talking or engaging in a different activity when a partner is talking to him or her
Building on conversation	Responding to what the partner has said by clarifying, providing feedback, making a comment, or answering a question	Partner: "I have never been to a beach." Target student: "I have, once—we went to Galveston last summer."	Partner: "I wonder if sharks come near beaches." Target student does not respond or changes the topic: "I need to sharpen my pencil."

Table 5. Secondary Skills

Secondary skill	Definition	Example	Nonexample
Responding to social cues	Making verbal and/or physical changes during a conversation, based on the partner's body language	When a partner looks at watch, target student says: "Yes, I think we are running out of time."	Smiling during a conversation about how the partner's dog died
Displaying appropriate social cues	Using body language to pass a social message, such as feedback to the speaker or a signal that he or she would like to add something to the conversation	While a partner speaks, target student uses a hand signal to show that he or she wants to say something. Partner: "You were going to say something…"	Talking or engaging in a different activity when a partner is talking to him or her
Speaking with prosody	Using appropriate speech volume, speed, and intonation	Using a moderate (audible) volume while asking a partner: "Do you think this is a good sentence?" Using a high volume and angry intonation while imitating an angry student in the cafeteria	Using an inaudible volume during a conversation with a partner Using intonation that does not match the topic of conversation, such as asking a question without a "wondering" tone

References

Asberg, J., Kopp, S., Berg-Kelly, K., & Gillberg, C. (2010). Reading comprehension, word decoding and spelling in girls with autism spectrum disorders (ASD) or attention-deficit/hyperactivity disorder (AD/HD): Performance and predictors. *International Journal of Language and Communication Disorders, 45,* 61–71.

Bryant, D. P., Vaughn, S., Linan-Thompson, S., Ugel, N., Hamff, A., & Hougen, M. (2000). Reading outcomes for students with and without reading disabilities in general education middle-school content area classes. *Learning Disability Quarterly, 23,* 238–252.

Carnahan, C., & Williamson, P. (2010). *Quality literacy instruction for students with autism spectrum disorders*. Shawnee Mission, KS: Autism Asperger.

Chiang, H. M., & Lin, Y. H. (2007). Reading comprehension instruction for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 22*(4), 259–267.

De La Paz, S., & MacArthur, C. (2003). Knowing the how and why of history: Expectations for secondary students with and without learning disabilities. *Learning Disabilities Quarterly, 26,* 142–154.

Demchack, M. A. (1990). Response prompting and fading methods. A review. *American Journal on Mental Retardation, 94*(6), 603–615.

Dole, J. A., Duffy, G. G., Roehler, L. R., & Pearson, P. D. (1991). Moving from the old to the new: Research on reading comprehension instruction. *Review of Educational Research, 61,* 239–264.

Edmonds, M. S., Vaughn, S., Wexler, J., Reutebuch, C. K., Cable, A., Tackett, K., & Wick, J. (2009). A synthesis of reading interventions and effects on reading outcomes for older struggling readers. *Review of Educational Research, 79*(1), 262–300.

Estes, A., Rivera, V., Bryan, M., Cali, P., & Dawson, G. (2011). Discrepancies between academic achievement and intellectual ability in higher-functioning school-aged children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 41,* 1044–1052.

Flavell, J. H. (1992). *Cognitive development* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Fuchs, D., Fuchs, L. S., Mathes, P. G., & Lipsey, M. W. (2000). Reading differences between low-achieving students with and without learning disabilities: A meta-analysis. In R. Gersten, E. P. Schiller, & S. Vaughn (Eds.), *Contemporary special education research* (pp. 81–104). Mahwah, NJ: Lawrence Erlbaum.

Gajria, M., Jitendra, A. K., Sood, S., & Sacks, G. (2007). Improving comprehension of expository text in students with LD: A research synthesis. *Journal of Learning Disabilities, 40*(3), 210–225.

Gersten, R., Fuchs, L. S., Williams, J. P., & Baker, S. (2001). Teaching reading comprehension strategies to students with learning disabilities: A review of research. *Review of Educational Research, 71*(2), 279–320.

Glendenning, N. J., Adams, G. L., & Sternberg, L. (1983). Comparison of prompt sequences. *American Journal of Mental Deficiency, 88,* 321–325.

Harris, K. R., & Pressley, M. (1991). The nature of cognitive strategy instruction: Interactive strategy construction. *Exceptional Children, 57,* 392–404.

Heilman, A. W., Blair, T. R., & Rupley, W. H. (1998). *Principles and practices of teaching reading* (9th ed.). Columbus, OH: Merrill/Prentice Hall.

Jenkins, J. R., Heliotis, J., Stein, M. L., & Haynes, M. (1987). Improving reading comprehension by using paragraph restatements. *Exceptional Children, 54,* 54–59.

Jiménez, R. T., Garcia, G. E., & Pearson, P. D. (1995). Three children, two languages, and strategic reading: Case studies in bilingual/monolingual reading. *American Educational Research Journal, 32,* 67–97.

Jiménez, R. T., Garcia, G. E., & Pearson, P. D. (1996). The reading strategies of bilingual Latina/o students who are successful English readers: Opportunities and obstacles. *Reading Research Quarterly, 31,* 90–112.

Kamil, M. L. (2003). *Adolescents and literacy: Reading for the 21st century.* Washington, DC: Alliance for Excellent Education.

Kim, A. H., Vaughn, S., Klingner, J. K., Woodruff, A. L., Klein, C., & Kouzekanani, K. (2006). Improving the reading comprehension of middle school students with disabilities through Computer-Assisted Collaborative Strategic Reading (CACSR). *Remedial and Special Education, 27,* 235–248.

Kim, A. H., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effects on the reading comprehension of students with LD: A synthesis of research. *Journal of Learning Disabilities, 37,* 105–118.

Klingner, J., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. *The Elementary School Journal, 96*(3), 275–293.

Klingner, J. K., & Vaughn, S. (2000). The helping behaviors of fifth-graders while using Collaborative Strategic Reading (CSR) during ESL content classes. *TESOL Quarterly, 34*(1), 69–98.

Klingner, J. K., Vaughn, S., Argüelles, M. E., Hughes, M. T., & Ahwee, S. (2004). Collaborative Strategic Reading: "Real world" lessons from classroom teachers. *Remedial and Special Education, 25*(5), 291–302.

Klingner, J. K., Vaughn, S., & Boardman, A. (2007). *Teaching reading comprehension to students with learning difficulties.* New York, NY: Guilford Press.

Klingner, J. K., Vaughn, S., & Schumm, J. S. (1998). Collaborative Strategic Reading during social studies in heterogeneous fourth-grade classrooms. *Elementary School Journal, 99*(1), 3–21.

Libby, M., Weiss, J. S., Bancroft, S., & Ahearn, W. H. (2008). A comparison of most-to-least and least-to-most prompting on the acquisition of solitary play skills. *Behavioral Analysis in Practice, 1*(1), 37–43.

Maccini, P., Gagnon, J. C., & Hughes, C. A. (2002). Technology-based interventions for secondary students with learning disabilities. *Learning Disability Quarterly, 25,* 247–262.

Mastropieri, M. A., Scruggs, T. E., Bakken, J. P., & Whedon, C. (1996). Reading comprehension: A synthesis of research in learning disabilities. In T. E. Scruggs & M. A. Mastropieri (Eds.), *Advances in learning and behavioral disabilities* (Vol. 10, Part B, pp. 277–303). Greenwich, CT: JAI Press.

Mastropieri, M. A., Scruggs, T. E., & Graetz, J. E. (2003). Reading comprehension instruction for secondary students: Challenges for struggling students and teachers. *Learning Disability Quarterly, 26,* 103–116.

McKeown, M. G., Beck, I. L., & Blake, R. G. K. (2009). Rethinking comprehension instruction: Comparing strategies and content instructional approaches. *Reading Research Quarterly, 44*(3), 218–253.

Nation, K., Clarke, P., Wright, B., & Williams, C. (2006). Patterns of reading ability in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 36*(7), 911–919.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read*: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Reports of the subgroups. Washington, DC: U.S. Department of Health and Human Services, National Institutes of Health.

Palincsar, A. S., & Brown, A. L. (1984). The reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1*(2), 117–175.

Paris, A. H., Lipson, M. Y., & Wixson, K. K. (1983). Becoming a strategic reader. *Contemporary Educational Psychology, 8*, 293–316.

Paris, A. H., Wasik, B. A., & Turner, J. C. (1991). The development of strategic readers. In R. Barr, M. L. Kamil, B. P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 609–640). Hillsdale, NJ: Lawrence Erlbaum Associates.

Perez, B. (1998). *Sociocultural contexts of language and literacy.* Mahwah, NJ: Lawrence Erlbaum Associates.

Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading.* Mahwah, NJ: Lawrence Erlbaum.

Scammacca, N., Roberts, G., Vaughn, S., Edmonds, M., Wexler, J., Reutebuch, C., & Torgesen, J. (2007). *Reading interventions for adolescent struggling readers: A meta-analysis with implications for practice.* Portsmouth, NH: RMC Research.

Swanson, H. L. (1999). Reading research for students with LD: A meta-analysis of intervention outcomes. *Journal of Learning Disabilities, 32*, 504–532.

Swanson, H. L., Hoskyn, M., & Lee, C. (1999). *Interventions for students with learning disabilities: A meta-analysis of treatment outcomes.* New York, NY: Guilford Press.

Talbott, E., Lloyd, J. W., & Tankersley, M. (1994). Effects of reading comprehension interventions for students with learning disabilities. *Learning Disability Quarterly, 17*, 223–232.

Vaughn, S., Chard, D. J., Bryant, D. P., Coleman, M., Brenda-Jean, T., Linan-Thompson, S., & Kouzekanani, K. (2000). Fluency and comprehension interventions for third-grade students. *Remedial and Special Education, 21*(6), 325–335.

Vaughn, S., Gersten, R., & Chard, D. J. (2000). The underlying message in LD intervention research: Findings from research syntheses. *Exceptional Children, 67*(1), 99–114.

Vaughn, S., Klingner, J. K., Swanson, E. A., Boardman, A. G., Roberts, G., Mohammed, S. S., & Stillman-Spisak, S. J. (2011). Efficacy of Collaborative Strategic Reading with middle school students. *American Educational Research Journal, 48*(4), 938–964.

Vaughn, S., Roberts, G., Klingner, J. K., Swanson, E. A., Boardman, A., Stillman-Spisak, S. J., . . . Leroux, A. J. (2013). Collaborative Strategic Reading: Findings from experienced implementers. *Journal of Research on Educational Effectiveness, 6*(2), 137–163.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wong, B. Y. L., & Jones, W. (1982). Increasing metacomprehension in learning disabled and normally achieving students through self-questing training. *Learning Disability Quarterly, 5*, 228–240.