

Intensive Intervention Practice Guide: Explicit Instruction in Reading Comprehension for Students with Autism Spectrum Disorder

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What is it?

In this *Intensive Intervention Practice Alert*, we evaluate the effectiveness of explicit instruction for teaching reading comprehension to students with autism spectrum disorder (ASD). Explicit instruction is a model for teaching that utilizes thorough and carefully planned lessons in which the instructor clearly outlines learning goals and implements structured lessons with the aim of student mastery of distinct, sequential learning objectives (Archer & Hughes, 2011). Broad learning goals are broken apart into smaller objectives (i.e., skills) required for mastery of the goal, and each objective is targeted individually. The philosophy of explicit instruction is that teaching should be clear and free of misunderstandings in order to quickly accelerate student learning. During explicit instruction, the teacher models the desired skill, provides opportunities for practice, feedback during each step, and assesses whether or not re-teaching is needed.

Below we give an example of how explicit instruction might look by describing what it looks like in practice for Ms. Sheldon—a fictional special education teacher who is implementing a reading lesson for students with ASD using explicit instruction.

Step 1: Identify the learning goals and break apart the knowledge and skills required for student mastery of the goal.

Ms. Sheldon identifies that her students with ASD are struggling with reading comprehension. She understands that reading comprehension, or understanding the meaning of a text, requires both knowledge and a large number of skills. Ms. Sheldon knows she needs to focus on one skill at a time, so she needs to make a decision about what skill to address first with her students. She makes a list of the skills they need to learn and creates a sequence for teaching the skills that she feels will make the most sense for her students.

Step 2: Clearly identify the learning objective.

Ms. Sheldon decides to focus on making inferences about pronoun references for her first lesson, as her students frequently are frustrated with not knowing to whom sentences are referring. She determines that she will focus on pronoun inferences that can be made by looking at other words in the sentence, as she hypothesizes that this will be an easier skill for students to master than having to make an inference based on the clues in surrounding sentences.

Step 3: Carefully plan the lesson.

Ms. Sheldon knows that first, she must make sure all students understand the meaning of an inference. She plans to use the metaphor of an iceberg to show how sometimes what we see when we first look at something isn't the whole picture and that we often understand a more complete picture if we can look below the surface. Ms. Sheldon locates a picture of an iceberg to

provide a visual reminder to students of how sometimes the words on the page are just the “tip” of the story and we have to look deeper to get a clear picture of meaning. In addition to discussing the meaning of an inference, Ms. Sheldon also plans to define a pronoun for her students. Because her students are individuals with ASD, she decides to keep the language clear and concise, and will describe a pronoun as a “small word that refers to another word.” In addition, Ms. Sheldon plans to make a list of pronouns with her students. Finally, Ms. Sheldon selects sentences from the story her students have been reading as a class. She plans to model the skill of making an inference about a pronoun with a few different sentences. Afterward, she plans to ask students to practice the strategy as a class, thinking aloud as they work together. Finally, she plans for her students to demonstrate understanding of the skill during independent practice.

Step 4: Implement the lesson.

Ms. Sheldon carefully implements the lesson with her students. She models the skill, making sure she uses clear language to prevent students from misunderstanding the meaning of what she is saying. She provides sentences for practice as a group, giving feedback to each student who makes a mistake and modeling her own thinking as she corrects students’ misconceptions. Finally, after Ms. Sheldon feels that all students have demonstrated an understanding of how to make an inference about a pronoun, she gives each student a set of sentences to practice pronoun inferences independently.

Step 5: Assess whether or not re-teaching is required.

Following the lesson, Ms. Sheldon reviews her students’ work to determine if each student demonstrated mastery of the skill. Most students appear to have a solid grasp of how to make an inference about a pronoun, but one student is still struggling. Ms. Sheldon knows she must make a plan to address this skill with this student the following day. She plans to repeat the process of planning an individual lesson for her struggling student using explicit instruction, but searching for different ways to teach this skill so that all students in her class can demonstrate mastery.

Which students benefit from explicit instruction?

Explicit instruction has been used to successfully improve the reading comprehension of children in general education classrooms (e.g., Ryder, Burton, & Silberg, 2006), students with learning disabilities and intellectual disabilities, students who are English language learners, and students at-risk for reading difficulties (Carlson & Francis, 2002). Research demonstrates positive effects of explicit instruction on reading comprehension skills for students across a range of ages from early elementary (Carlson & Francis, 2002) to middle school (Grossen, 2004).

Previous studies have demonstrated that many individuals with ASD have challenges in the area of reading comprehension (Gersten, Fuchs, Williams, & Baker, 2001; O'Connor & Hermelin, 1994; O'Connor & Klein, 2004). Reading comprehension might be particularly challenging for individuals with ASD as it often requires students to understand others' point of view or perspective (Frith, 2012; Peterson, 2014), which is a common skill deficit exhibited by individuals with ASD. In addition, students with ASD often struggle to bring details together into one central idea or theme (Frith, 2012). Finally, many students with ASD have difficulty with executive functioning skills, which could interfere with the ability to sequence events in a story, monitor their comprehension, or summarize what they have read (Carnahan, Williamson, & Christman, 2011). Due to these areas of deficit, students with ASD may benefit from explicit instruction in reading comprehension given that explicit instruction is unambiguous (Roux et al., 2015). Recent studies have demonstrated that explicit instruction might be a promising instructional method for teaching reading comprehension to individuals with ASD (e.g., Flores & Ganz, 2007; Flores & Ganz, 2009; Knight et al., 2015), but the number of published studies is limited.

How does it work?

The general principles for implementing explicit instruction include descriptions of the specific skill being taught, clear and concise modeling, opportunities for students to practice, and specific feedback immediately following the student's attempt (Archer & Hughes, 2011; Rupley, Blair, & Nichols, 2009). For this reason, lessons are designed and implemented in a specific sequence - following a format of opening, body, and closing. The opening of a lesson includes building background knowledge, measuring previously mastered skills, and establishing a purpose for the lesson. Throughout the body of the lesson, the new skills and information are delivered and practiced, and during the closing, students have opportunities to review, reflect, and discuss next steps (Archer & Hughes, 2011). Data collection on the student's individual performance should determine which skills are targeted and when teachers can introduce new objectives.

How adequate is the research knowledge base?

The use of explicit instruction for improving the reading comprehension skills of struggling readers is well-established (Archer & Hughes, 2011). However, we identified only four peer-reviewed studies investigating the effects of explicit instruction on the reading comprehension skills of students with ASD (see Table 1). After a systematic search, we included studies which were published in peer-reviewed journals and included data on students diagnosed with ASD. If studies included students without an ASD and did not provide disaggregated data, we did not include them in this Practice Alert. We also excluded studies that did not explicitly document that the intervention being implemented utilized explicit instruction.

Two studies evaluated the effects of lessons from the packaged curriculum *Corrective Reading Thinking Basics: Comprehension Level A* on students' performance on probes across a variety of reading comprehension skills (e.g., making inferences, inductions; Flores & Ganz, 2007; Flores & Ganz, 2009). Across both studies, four students with ASD, ages 11-14, demonstrated improved performance on researcher-created reading comprehension probes following the intervention. Additionally, students demonstrated maintenance of improved comprehension skills up to two months after the intervention was discontinued.

A recent study used explicit instruction in addition to computer-based texts to increase the reading comprehension skills of four, 11-14-year-old students with autism (Knight et al., 2015). Two of the four students demonstrated an improvement in reading comprehension, but only when additional intervention components were added. One of the four students improved when explicit prompting was added and an additional student when unfamiliar words were explicitly taught as part of the intervention package. Results of this study should be interpreted with caution given that a limited number of data points were collected during each phase.

Finally, Roux et al. (2015) conducted a randomized control trial to evaluate the effects of explicit instruction on the reading comprehension skills of elementary school students with ASD who were considered high-functioning. Students in the treatment group participated in explicit reading instruction (i.e., lessons with a clear protocol and consistent terminology) on vocabulary, oral reading, and comprehension skills. Researchers reported that the students who received the intervention outperformed those in the control group on one of the two measures of reading comprehension (i.e., retell without instructed vocabulary words) as well as identification of definitions, main ideas, and pronoun-references.

It appears that explicit instruction may benefit students with ASD but that additional research is warranted to identify which strategies are most appropriate. Both studies investigating a packaged reading comprehension program reported positive results across all learners (Flores & Ganz, 2007; Flores & Ganz, 2009); however, replication with additional students with ASD is needed given that only four participants were included. Knight et al. (2015) reported minimal improvements in reading comprehension skills following the use of explicit instruction. Findings from the randomized control trial (Roux et al., 2015) indicated that students who received the intervention improved on only one of the two reading comprehension measures. The authors suggest that adaptations to the intervention may improve the performance of students with ASD. Evidence from published studies suggests that explicit instruction is a promising approach but additional research is needed to identify explicit instruction techniques which consistently improve specific reading comprehension skills for students with ASD.

How practical is it?

Explicit instruction is generally considered an efficient intervention for teaching reading comprehension skills to students who are struggling academically (Archer & Hughes, 2011; Rupley et al., 2009). Studies often report marked improvement in student performance in a brief period of time. Despite the rapid student growth, explicit instruction interventions are designed to be implemented daily, which could pose time constraints for schools. Classroom teachers have learned to implement explicit instruction for reading comprehension with high levels of fidelity (Nelson-Walker et al., 2013; Reiss et al., 2007). Additionally, explicit instruction can be delivered in a variety of instructional settings (e.g., whole group, small group, 1:1 instruction).

How effective is it?

In the small number of peer-reviewed studies on the effects of explicit instruction on the reading comprehension skills of students with ASD, positive outcomes were reported for 30 out of 32 participants. It appears that explicit instruction may benefit students with ASD but that additional research is warranted to identify which strategies are most appropriate. Both studies investigating a packaged reading comprehension program reported positive results across all learners (Flores & Ganz, 2007; Flores & Ganz, 2009); however, replication with additional students with ASD is needed given that only four participants were included. Knight et al. (2015) reported minimal improvements in reading comprehension skills following the addition of explicit instruction. Findings from the randomized controlled trial (Roux et al., 2015) indicated that students who received the intervention improved on only one of the two reading comprehension measures. Overall, evidence from published studies suggests that explicit instruction is a promising approach but additional research is needed to identify explicit instruction techniques which consistently improve specific reading comprehension skills.

What questions remain?

Given that the current studies were conducted by researchers, future studies should examine the effects of explicit instruction when implemented by the classroom teacher or instructional assistant. Additional questions include:

- What participant characteristics (e.g., prerequisite skills, functioning level) predict success with explicit instruction?
- Do students maintain improvements in reading comprehension during long-term follow-up assessments?
- Do improvements in reading comprehension generalize across different types of text? For example, do students who are taught reading comprehension strategies using expository texts apply the skills to narrative text?
- How can we measure the effects of additional strategies and supports that are implemented in conjunction with explicit instruction?

How can I learn more?

Listed below are resources for learning additional information related to explicit instruction for teaching academic skills.

- **Archer, A.L., & Hughes, C.A., (2016). *Explicit Instruction: Effective and Efficient Teaching. Explicit Instruction*. Retrieved from: <http://explicitinstruction.org/>**
This resource offers tools, strategies, and excerpts from a book on explicit instruction. It provides special and general education teachers with a framework for understanding and developing lessons using explicit instruction. The authors provide example lesson plans and instructional videos.
- **U.S. Department of Education (2016). *Direct, Explicit Comprehension Strategy Instruction. All about adolescent literacy*. Retrieved from: www.adlit.org/article/27740/**
The above website, *adlit.org*, is an educational initiative which provides resources and information to improve the educational outcomes of students who need additional support with reading instruction. Both parents and educators can find helpful resources and tools to work with their child or student. The website provides a section dedicated to discussing the use of explicit to teach reading comprehension skills. Details are provided that may be helpful for instructors interested in implementing explicit instruction to teach comprehension strategies (i.e. visualization, questioning) to build students' independent reading skills.
- **The University of Texas at Austin (2016). *Instructional Walkthrough Tools. Capacity Building: RTI*. Retrieved from: <http://buildingrti.utexas.org/links-websites/anita-archer's-explicit-instruction-website>**
This resource is provided by The University of Texas at Austin. The tools available include observational resources and professional training tools (e.g., presentations, sample videos) for instructional leaders to help build the capacity of educators to deliver effective teaching practices, including explicit instruction.

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Table 1. Characteristics of Studies Investigating Explicit Instruction with Students with ASD

Citation	Participant Characteristics	Research Design	Intervention Agent	Independent Variable	Dependent Variable(s)	Outcomes
Flores & Ganz (2007)	N = 2 (1 male, 1 female) Aged 11-14 years With ASD (n = 2)	SCD: Multiple probe across behaviors	Researchers	<i>Corrective Reading Thinking Basics: Comprehension Level A</i>	Performance on researcher-created probes for statement inferences, using facts, and analogies	Improvements for both participants across all skills
Flores & Ganz (2009)	N = 2 (1 male, 1 female) Aged 12-14 years With ASD (n = 2)	SCD: Multiple probe across behaviors	Researchers	<i>Corrective Reading Thinking Basics: Comprehension Level A</i>	Performance on researcher-created probes for picture analogies, deductions, and inductions	Improvements for both participants across all skills
Knight et al. (2015)	N = 4 (3 males, 1 female) Aged 11-14 years With ASD (n = 4)	SCD: ABCD multiple baseline across participants	Graduate assistant	Phase 2: <i>Book Builder</i> and explicit instruction Phase 3: <i>Book Builder</i> and explicit instruction with referral to definition	Answers to researcher-created vocabulary, literal comprehension, and application questions	Improvement for 1 out of 4 participants in Phase 2; improvement for an additional participant in Phase 3
Roux et al. (2015)	Control group: N = 21 (20 males, 1 female) Aged 6-12 years With ASD (n = 8); with Asperger syndrome (n = 13) Intervention group: N = 24 (17 males, 7 females) Aged 6-12 years With ASD (n = 8); with PDD-NOS (n = 3); with Asperger syndrome (n = 13)	RCT	Research assistant	Structured and explicit instruction	Identification of definitions, main ideas, anaphoric relations, and comprehension (retell with and without instructed vocabulary words)	Intervention group improved over control group in definitions, main ideas, anaphoric relations, and comprehension (retell without instructed vocabulary words)

ASD Autism Spectrum Disorder, PDD-NOS Pervasive Developmental Disorder–Not Otherwise Specified,
RCT Randomized Control Trial, SCD Single-Case Design