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Last Name, First Name	Academic/Organizational Affiliation	ORCID ID
Allor, Jill	Southern Methodist University	0000-0003-4556-7230
Gregor, Charlotte	Southern Methodist University	
Al Otaiba, Stephanie	Southern Methodist University	0000-0001-7125-3791

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How to Implement Evidence-Based Literacy Practices with Students with Intellectual and Developmental Disabilities: Examples from a Text-Centered Literacy Intervention

Jill Allor
Southern Methodist University

Charlotte Gregor
Southern Methodist University

Stephanie Al Otaiba
Southern Methodist University

Abstract: The purpose of this article is to describe recommendations for providing evidence-based literacy instruction to students with intellectual and developmental disabilities (IDD), including students with comorbid autism spectrum disorder (autism). We identify six evidence-based practices, highlight key research that supports each practice, and then illustrate how to implement these practices in the classroom. We describe and provide examples from Friends on the Block (FOTB; Allor et al., 2022), a comprehensive literacy intervention designed to apply evidence-based practices in innovative ways to better meet the needs of students with IDD and autism. This program includes the supports and intensive practices teachers need to promote literacy development for students with IDD and autism. We conclude by providing and describing several recommended resources for teaching foundational reading skills to students with extensive support needs.

Literacy is important in improving opportunities and outcomes for students with intellectual and developmental disabilities (IDD; Browder & Spooner, 2014; Cihak & Smith, 2018; Conners, 2003), yet students with IDD typically demonstrate much lower levels of reading achievement than students with other disabilities (Caffrey & Fuchs, 2007; Wei et al., 2011). Research about reading development and instruction for struggling readers is extensive and very encouraging as it demonstrates that reading problems can be prevented or at least greatly reduced with evidence-based literacy intervention. However, much of this research on the *science of reading* has focused on students at risk for reading disabilities and has often excluded students with IDD or students with autism (e.g., Cihak & Smith, 2018; Conners, 2003; Connor et al., 2014; Foorman et al., 2016; National Institute of Health and Human Development, 2000; Polloway et al., 2010). In recent years, the body of evidence informing best literacy practices for students with IDD and autism has grown, resulting in raised expectations and clearer recommendations for literacy instruction; in short, relatively recent research is demonstrating that students with IDD and autism also benefit from evidence-based literacy practices that are consistent with what is now being termed the "science of reading" and "structured literacy" (e.g., Afacan et al., 2018; Allor et al., 2014; Allor et al., 2018; Allor et al., 2020; Browder et al., 2008, 2012; Conner et al., 2014, 2022; Henry et al., 2022; Lemons et al., 2012, 2015, 2017).These researchers are also examining innovative ways to tailor instruction for students with IDD. The *Friends on the Block* literacy program (FOTB; Allor et al., 2022) is one program that weaves together

evidence-based practices (EBPs) with innovations specifically designed to provide increased accessibility to foundational literacy skills, including accessibility for students with intensive needs, such as those with IDD or comorbid IDD and autism. According to the Centers for Disease Control and Prevention (CDC), approximately 33% of students with autism are comorbidly affected with IDD (CDC, 2014, 2020). In this article, we describe EBPs and use FOTB techniques as examples of how to provide EBPs to students with IDD and autism. We will also provide some information on FOTB (details, including some free downloadable materials and eBooks, available at https://www.friendsontheblock.com).

An EBP is a teaching practice supported by rigorous academic research (The IRIS Center, 2014). Organizations such as the What Works Clearinghouse (WWC) provide educators with summaries about practices, the strength of the research findings that support them, and ratings on their effectiveness (U.S. Department of Education). Throughout this article, we will refer to two seminal resources that describe evidence based literacy practices, both written by panels of experts: the report from the National Reading Panel (NRP; National Institute of Health and Human Development, 2000) and the WWC Practice Guide on *Foundational Skills to Support Reading for Understanding in Kindergarten Through 3rd Grade* (Foorman et al., 2016). The NRP report describes evidence supporting literacy instruction in five key areas: phonemic awareness, phonics, fluency, vocabulary, and comprehension (see Figure 1). The WWC practice guide summarizes key research and describes in detail four recommendations that focus on academic language, phonemic awareness, phonics, and connected text. The WWC also cautions when there is not yet enough strong research evidence about a practice to conclude that it is effective or to conclude that it is not effective.

In this article, we describe recommendations for providing evidence-based literacy instruction to students with IDD, including students with autism. We identify six EBPs, highlight key research that supports each practice, and illustrate how to implement these practices with students with IDD. We will also describe and provide examples from FOTB (*Friends on the Block*; Allor et al., 2022), a comprehensive literacy intervention designed to apply EBPs in innovative ways to better meet the needs of students with IDD and include the supports and intensive practice necessary for students with IDD and autism. FOTB innovations provide teachers with tools to address specific needs, including oral language development, early connections between word recognition and meaning, extensive cumulative review of both decodable and irregular high-frequency words in meaningful text and highly engaging learning games. Some of these innovations will be described in more detail in this article as we explain how to implement EBP with examples from FOTB. FOTB was developed and is being researched with the support of federal research grants (H324K040011, R324A130102, & R324A200151). We have conducted a series of single-case design (SCD) research studies that provided strong support for a statistically significant functional relation between the intervention and word recognition (Allor et al., 2013; Allor et al., 2018; Allor et al., 2020). Descriptive measures also illustrated student growth on a variety of academic skills and teachers reported increases in student engagement and comprehension (Allor et al., 2018). A randomized control trial is currently underway that will examine a broader range of literacy and language outcomes with a larger sample of students with intensive needs.

Figure 1. National Reading Panel's Five Key Areas in an Effective Reading Program

Implementing Evidence-Based Practices (EBPs) with Students with Intensive Needs

Dialogic Reading. We begin with the EBP of Dialogic Reading, which promotes learning in two areas identified by the NRP, vocabulary and comprehension, and falls within the first recommendation from the WWC practice guide, *Teach students academic language skills, including the use of inferential and narrative language, and vocabulary knowledge.* During Dialogic Reading the student becomes a storyteller and the adult acts as an active listener. The adult asks questions of the student, provides additional information, and prompts the student to increase the sophistication of their story telling based on the content of the picture book being read to the student (Lonigan & Whitehurst, 1998). This practice supports the development of vocabulary, oral language and comprehension. Evidence from a randomized control trial in which preschoolers with low language were exposed to the practice of dialogic (i.e., interactive) book reading, inclusion in the treatment condition led to significant gains in both the expressive and receptive vocabulary abilities of the participants (Lonigan & Whitehurst, 1998; Wasik & Bond, 2001). These and other studies support positive effects for language development in young children in a variety of settings (U.S. Department of Education, 2007). Similarly, shared book reading practices have been found to promote listening comprehension and language development for students with autism by targeting instruction in vocabulary, connection and observation making, along with a variety of other skills (Henry & Solari, 2020; Lindgren et al., 2009; Rickets, 2011; Whalon, 2018; Whalon et al., 2015, 2016).

Implementing Dialogic Reading with students with IDD and autism is one way to support growth in vocabulary and language. One component of this practice is to ask a variety of levels of questions to engage students in conversations about a book being read to them, ranging from basic questions to open-ended questions to higher level questions or questions that relate to student experiences. In FOTB, text read to the student is combined with text read by the student, making stories more meaningful and providing students with opportunities to develop vocabulary and listening comprehension. We have incorporated Dialogic Reading into the FOTB book reading activities. As can be seen in Figure 2, the text in the gray background (referred to as *helper text*) is read to the student and the student reads the text in the white background. Examples of levels of questions are in Figure 3. Teachers use these questions as a menu, selecting questions that are appropriate for the students. Teachers model expanded language and engage the student in discussion. For example, if the teacher asked, "How can you tell that it was a beautiful day?" and the student responded, "blue sky." The teacher could expand upon the student's response, "Yes, the sky is blue and it is not raining." For more guidance on how to implement Dialogic Reading, see Flynn (2011). For other recommendations about developing language, see the WWC practice guide (Foorman et al., 2016).

Figure 2. *Sample Pages from Level 4 FOTB Text, Sam and Jazz Take a Walk*

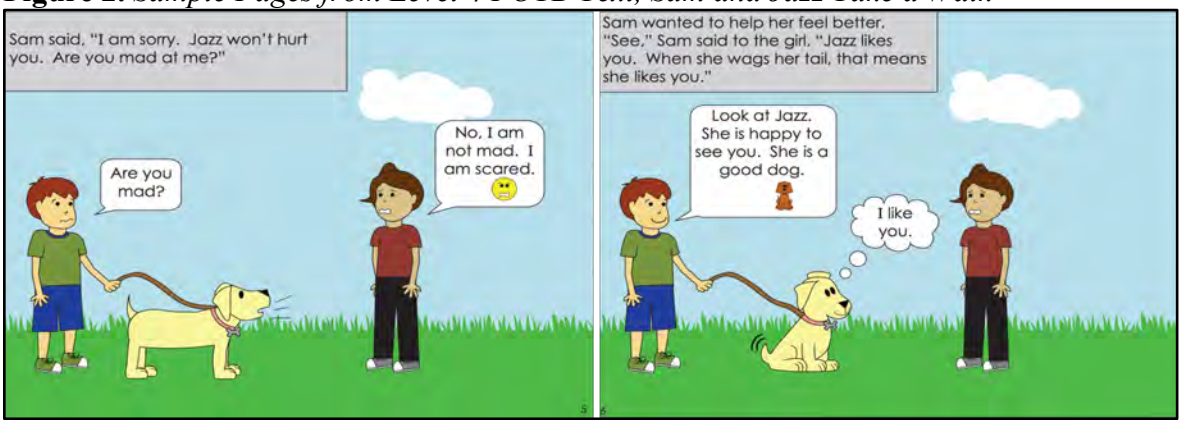
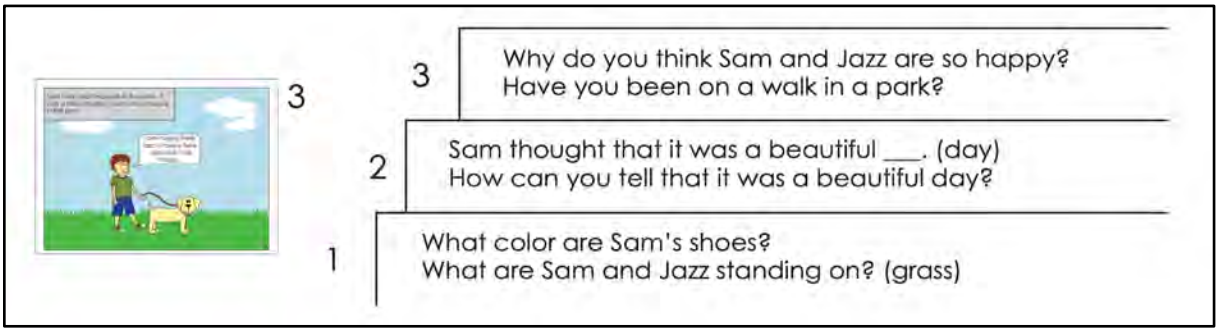


Figure 3. *Sample Comprehension Questions from Teacher Guide for Level 4 FOTB Text, Sam and Jazz Take a Walk*



Phoneme Blending and Segmentation

The next EBP is explicitly teaching phoneme blending and segmentation. These skills are in the area of phonemic awareness identified by the NRP and part of Recommendation Two from the WWC practice guide, *Develop awareness of the segments of sounds in speech and how they link to letters.* Explicitly teaching phoneme blending and segmentation are EBPs involving manipulation of the smallest units of sound in our language, the phoneme. When applied to print, phoneme blending is the process of systematically combining sounds from right to left to read a word (Foorman et al., 2016). Phoneme segmentation is the process of breaking down the sounds in a spoken word, which ultimately enables the student to spell the word. Explicit, systematic instruction of phoneme blending and segmentation leads to significant gains in overall reading achievement (Hagans & Good, 2013). In a randomized control trial with first graders from low socioeconomic backgrounds, this instruction was found to help close the socio-economic gap in early reading performance (Hagans & Good, 2013). In elementary-aged students with borderline to moderate intellectual and developmental disabilities (IQs 40-80), systematic and explicit instruction of phonemic awareness strategies has been shown to lead to significant gains in sound segmentation ability within the context of a multicomponent curriculum (Allor et al., 2014). Direct, daily instruction also leads to significant growth in phoneme blending in primary students with Down syndrome (Burgoyne et al., 2012). Recent research has also demonstrated that the practice of stretching continuous sounds (e.g., /mmm/ is a *continuous* sound, whereas /t/ is a *stop* sound) supports blending and segmenting (Gonzalez-Frey & Ehri, 2021)

Several techniques are important when teaching students to blend and segment phonemes. One consideration is sequencing instruction from simple to complex. Teachers should begin with isolating initial sounds in spoken words, providing examples and practice with words that begin with continuous consonants, that is, consonants that can be stretched without distorting or adding to the sound (e.g., *sun*, *mom*, and *fish* all begin with consonant sounds that are continuous). Teachers should have students practice saying the first sounds in given words (e.g., What's the first sound in *sun*? Response: /sss/) and blending the first sound with the rest of the word, or the rime (e.g., Listen. /sss/ un. What word? Response: *sun*). As students' skills develop, teachers should move to the more difficult tasks of saying all the sounds in a simple word (e.g., Tell me the sounds in *sun*. Response: /sss/ /uuu/ /nnn/) and blending three phonemes into a word (e.g., Listen. /sss/ /uuu/ /nnn/. What word? Response: *sun*). Teachers should also be careful to pronounce isolated sounds the same way they are pronounced in words, stretch sounds that can be stretched (i.e., *f, l, m, n, r, s, v, z*), and keep stop sounds short (/t/ instead of /tuh/). Pronouncing sounds in isolation can be difficult and requires practice (for an excellent video about this, see https://www.youtube.com/watch?v=b78icf-bB7Q). Blending and segmenting are best learned through modeling and frequent practice with feedback. In the early levels of FOTB, brief, routine practice of these skills are conducted daily and fun, engaging games that provide intensive practice are also provided, such as the Bingo game in Figure 4. As we will discuss below, phoneme blending and segmenting should also be practiced with print as students learn to connect sounds to print. In our research, we have observed that most students with IDD require intensive practice with blending and segmenting and some do not master these skills until print (i.e., written letters) is added. This is just one reason why it is important to

teach letter-sound relationships alongside phoneme blending and segmenting. We also do not recommend spending instructional time on phonological sensitivity (i.e., phonological awareness of rhymes, onsets and syllables) with students who are struggling, particularly those with IDD as research does not support this type of instruction after pre-k and we have observed in our research many students with IDD become highly skilled in blending and segmenting, sounding out and spelling words well, while never having mastered some of the phonological sensitivity tasks, such as rhyming (see Brady, 2020, for discussion).

Letter-Sound Relationships

The next EBP is explicitly teaching letter-sound relationships, including individual letter sounds and the sounds of common letter patterns. These skills are in the area of phonics identified by the NRP and are another part of Recommendation Two from the WWC practice guide, *Develop awareness of the segments of sounds in speech and how they link to letters.* Teaching letter-sound relationships, along with phonemic awareness, is an essential step in preparing students to decode. At this early stage in literacy development, it is essential that students learn how letters represent the individual speech sounds in written words, a concept called the alphabetic principle (Foorman et al., 2016). Understanding of the alphabetic principle and one to one letter sound correspondence is an important first step to decoding words well. Once students have mastered the ability to decode using simple one sound to one letter correspondences, they then begin learning more complex letter-sound patterns. The method of teaching students to sound out words using knowledge of correspondences between letters and groups of letters and the sounds they make in an alphabetic language (such as English) is called phonics. Evidence from a meta-analysis of studies including students with IDD shows these students benefit from phonics instruction and learn to use phonics strategies while reading (Joseph & Seery, 2004). Furthermore, systematic and explicit instruction of letters, sounds, and

Figure 4. *FOTB Level 1 Game, Sounds Bingo*

Objectives:

Blending - Orally blend sounds (phonemes) into words

- Teacher says each sound in the word (holding continuous sounds and saying stop sounds quickly).
- Student thinks of the word and says it aloud.
- Student finds the matching picture on the board and covers it with a bingo marker.

OR

Segmenting - Say the sounds (phonemes) in spoken words.

- Teacher chooses a word from the list and says the word.
- Student says each sound in the word.
- Student finds the matching picture on the board and covers it with a bingo marker.

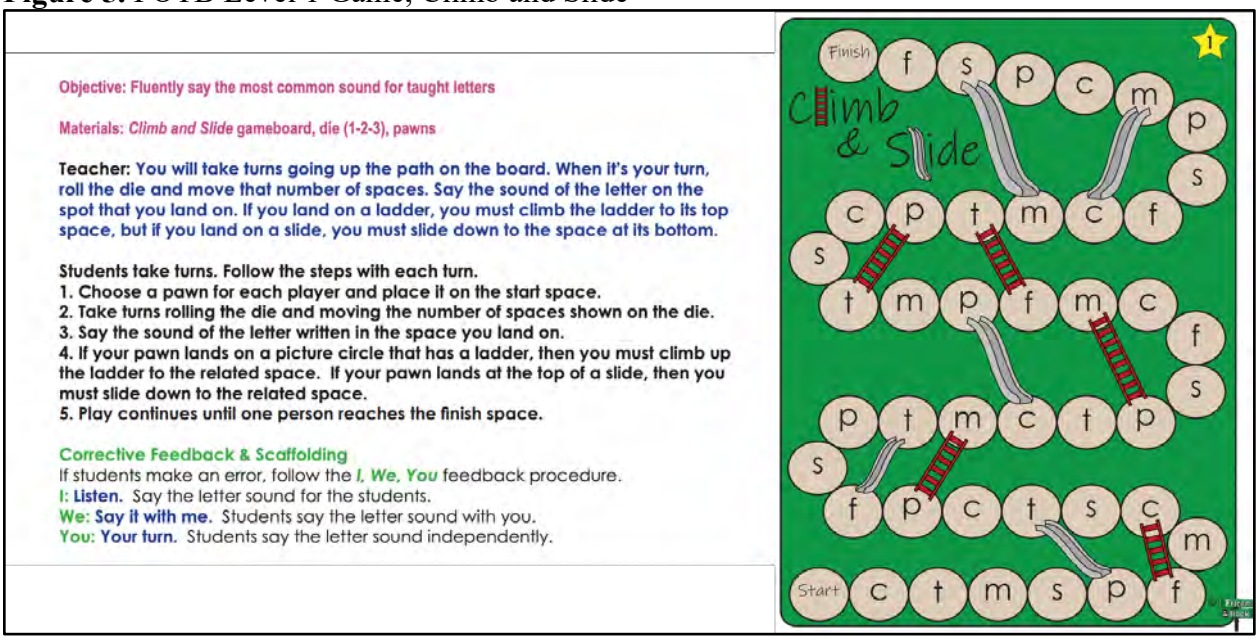
phonics strategies to elementary-aged students with borderline to moderate IDD (IQs 40-80) leads to significant gains in their phonics ability within the context of a multicomponent curriculum (Allor et al., 2014).

In our research with students with IDD, we have observed a relative strength in learning the important skill of letter sounds. As recommended by the WWC practice guide, the scope and sequence of FOTB teaches students the most common sounds for individual letters a few at a time, including the short vowel sounds for the letters *a* as in *apple*, *e* as in *Ed the elephant*, *i* as in *icky*, *o* as in *octopus*, and *u* as in *umbrella* (see https://www.youtube.com/watch?v=b78icf-bB7Q). In order to help students with blending, it is important to have them acquire the habit of stretching sounds that can be stretched; therefore, teachers should model this when practicing letter sounds and encourage students to always stretch continuous sounds 2-3 seconds and keep stop sounds short. In FOTB, letter sounds are practiced in brief, warm-up routines in every lesson and engaging games are provided for additional, more intensive practice and cumulative review (see Figure 5).

Blending Letter Sounds into Words

As students learn letter sounds, they should begin to blend those letter sounds into words. This skill is also part of the area of phonics (see Figure 1) and the final part of Recommendation Two from the WWC practice guide, *Develop awareness of the segments of sounds in speech and how they link to letters.* "Sounding out a word is a type of blending that involves saying the sound of each letter or letter combination one by one until the end of the word, and then saying them all together again quickly" (Foorman et al., 2016, p. 42). This EBP is the process by which students apply their knowledge of phonics to read words. Systematic and explicit instruction of sounding out strategies to elementary-aged students with borderline to moderate IDD (IQs 40-80) leads to significant gains in word attack ability with both real and nonsense words (Allor et al.,

Figure 5. FOTB Level 1 Game, Climb and Slide



2014). Word attack refers to the ways in which students flexibly apply phonics skills and other techniques they have learned to systematically decode words that are not yet familiar to them by sight.

Students with IDD require intensive practice to become proficient at blending letter sounds into words, moving from simple to more complex words. The modeling described in the previous two practices continues, with teachers stretching continuous sounds and modeling how to connect sounds. Given the printed word, *sun,* the teacher points to each sound as it is pronounced, /sss/ /uuu/ /nnn/, and then says the whole word, *sun* (note that all three sounds in *sun* should be stretched). The students repeat this with the teacher and then on their own. To make this more concrete, it is common to use sound boxes, as is described in the WWC practice guide. One way we have applied this with students with IDD is through the game, I Got It (see Figure 6) in which students draw letter cards, say the sounds, and cover the associated letter in the sound box. When all letters are covered, they sound out the word and then read the sentence with the word. In FOTB, these sentences relate to the books being read to assist students with connecting individual words to their meanings. When a word is familiar to a student, the word is easier for them to sound out. As with phoneme blending and segmenting, words that begin with continuous sounds are easier to sound out. The top of Figure 7 provides a list of letter sounds and common words made up of those sounds. These are particularly important for students to practice because these words are not only decodable, but they are high-frequency words students will see frequently in many stories.

High-Frequency Irregular Words

Some words are challenging to decode using only the knowledge of typical sound-spelling patterns, particularly in the earliest stages of reading. These words are referred to as irregular words because the known sounds of the letters that make up the word do not add up to the correct pronunciation (e.g., the word *was*); they have exceptions that make them difficult to decode (Foorman et al., 2016).

Figure 6.
FOTB Level 4 Game, I Got It

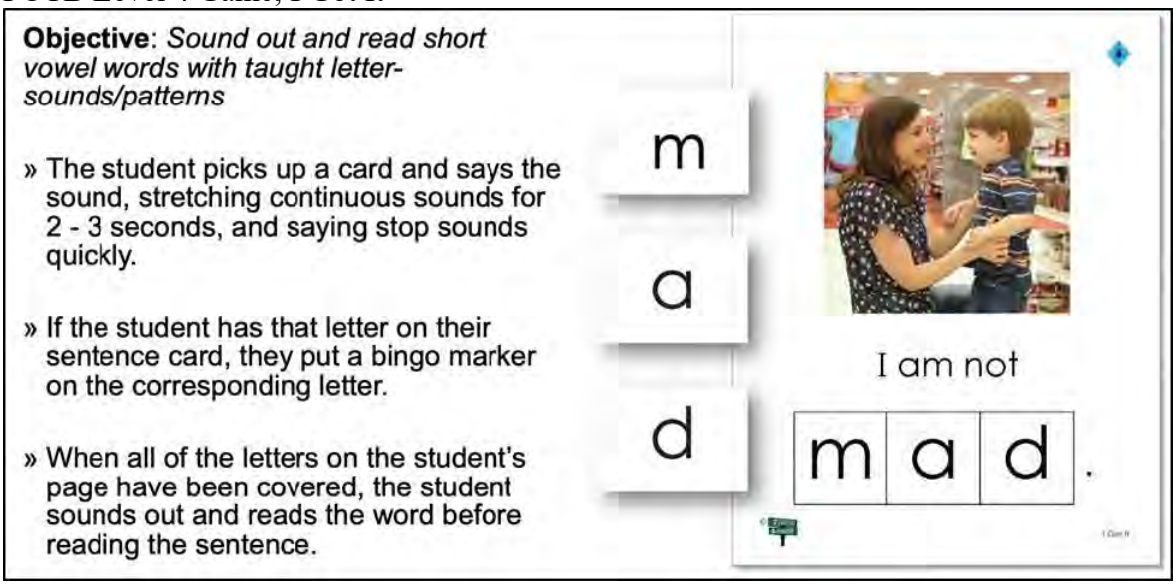
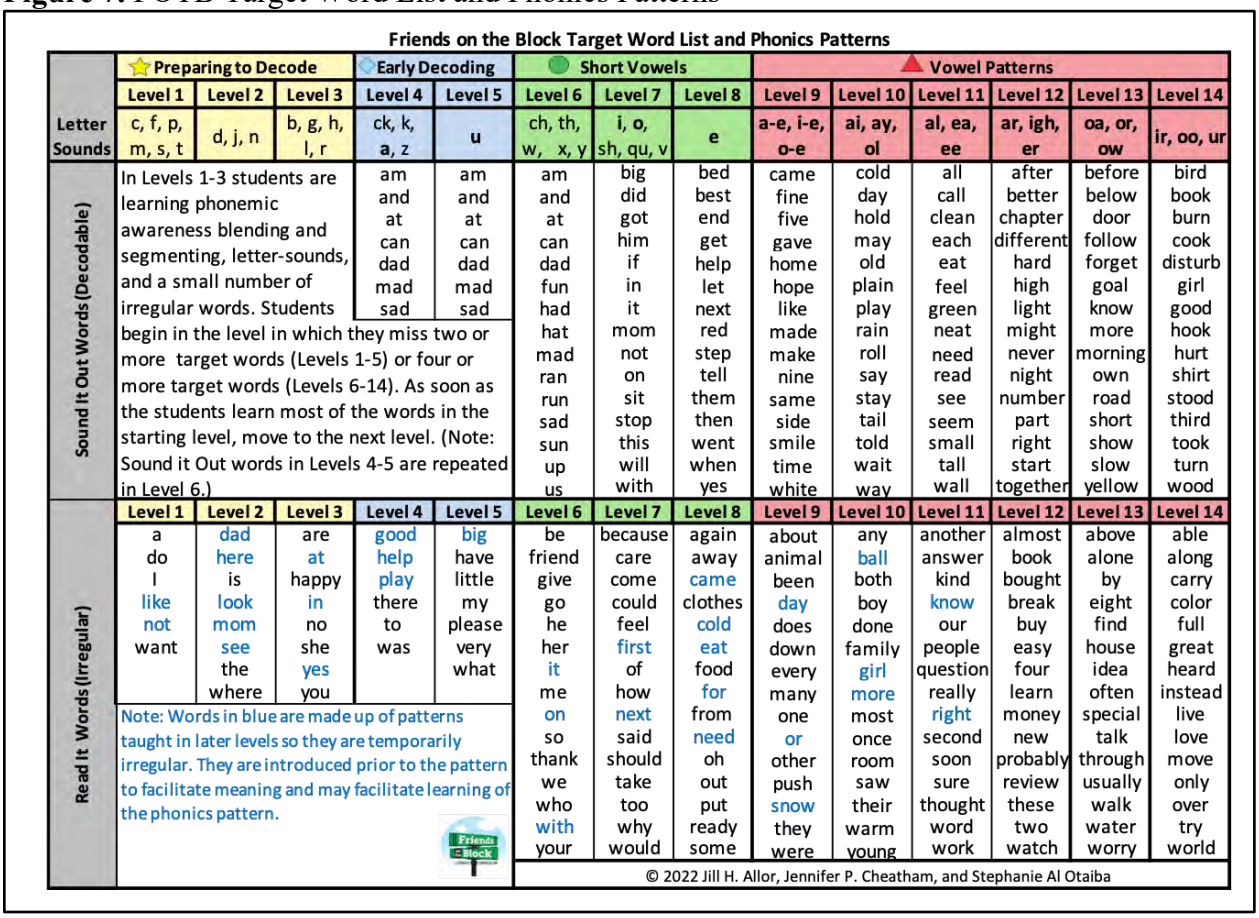


Figure 7. FOTB Target Word List and Phonics Patterns



Friends on the Block Target Word List and Phonics Patterns

	Preparing to Decode			Early Decoding		Short Vowels			Vowel Patterns					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Level 12	Level 13	Level 14
Letter Sounds	c, f, p, m, s, t	d, j, n	b, g, h, l, r	ck, k, a, z	u	ch, th, w, x, y	i, o, sh, qu, v	e	a-e, i-e, o-e	ai, ay, ol	al, ea, ee	ar, igh, er	oa, or, ow	ir, oo, ur
Sound It Out Words (Decodable)	In Levels 1-3 students are learning phonemic awareness blending and segmenting, letter-sounds, and a small number of irregular words. Students begin in the level in which they miss two or more target words (Levels 1-5) or four or more target words (Levels 6-14). As soon as the students learn most of the words in the starting level, move to the next level. (Note: Sound it Out words in Levels 4-5 are repeated in Level 6.)			am and at can dad mad sad	am and at can dad mad sad	am and at can dad fun had hat mad ran run sad sun up us	big did got him if in it mom not on sit stop this will with	bed best end get help let next red step tell them then went when yes	came fine five gave home hope like made make nine same side smile time white	cold day hold may old plain play rain roll say stay tail told wait way	all call clean each eat feel green neat need read see seem small tall wall	after better chapter different hard high light might never night number part right start together	before below door follow forget goal know more morning own road short show slow yellow	bird book burn cook disturb girl good hook hurt shirt stood third took turn wood
Read It Words (Irregular)	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Level 12	Level 13	Level 14
	a do I like not want	dad here is look mom see the where	are at happy in no she yes you	good help play there to was	big have little my please very what	be friend give go he her it me on so thank we who with your	because care come could feel first of how next said should take too why would	again away came clothes cold eat food for from need oh out put ready some	about animal been day does down every many one or other push snow they were	any ball both boy done family girl more most once room saw their warm young	another answer kind know our people question really right second soon sure thought word work	almost book bought break buy easy four learn money new probably review these two watch	above alone by eight find house idea often special talk through usually walk water worry	able along carry color full great heard instead live love move only over try world

Note: Words in blue are made up of patterns taught in later levels so they are temporarily irregular. They are introduced prior to the pattern to facilitate meaning and may facilitate learning of the phonics pattern.

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Many of these irregular words are also high frequency, meaning that they appear often in a variety of texts and they may also represent parts of longer multisyllabic words (Foorman et al., 2016). Learning high-frequency irregular words and word parts is part of recommendation three of the WWC practice guide, *"Teach students to decode words, analyze word parts, and write and recognize words,"* specifically part five of this recommendation, *"Teach regular and irregular high-frequency words so that students can recognize them efficiently."* It is efficient to directly teach a bank of these words to students so that they can be recognized by sight and to support a strategy of flexible decoding when typical sound spelling patterns may not work. Decades of research supports that sight (i.e., irregular) word instruction is highly effective for individuals with a variety of disabilities (Browder & Xin, 1998, meta-analysis of 48 studies, participants included individuals with IDD, learning disabilities (LD), emotional disturbance (ED), and autism).

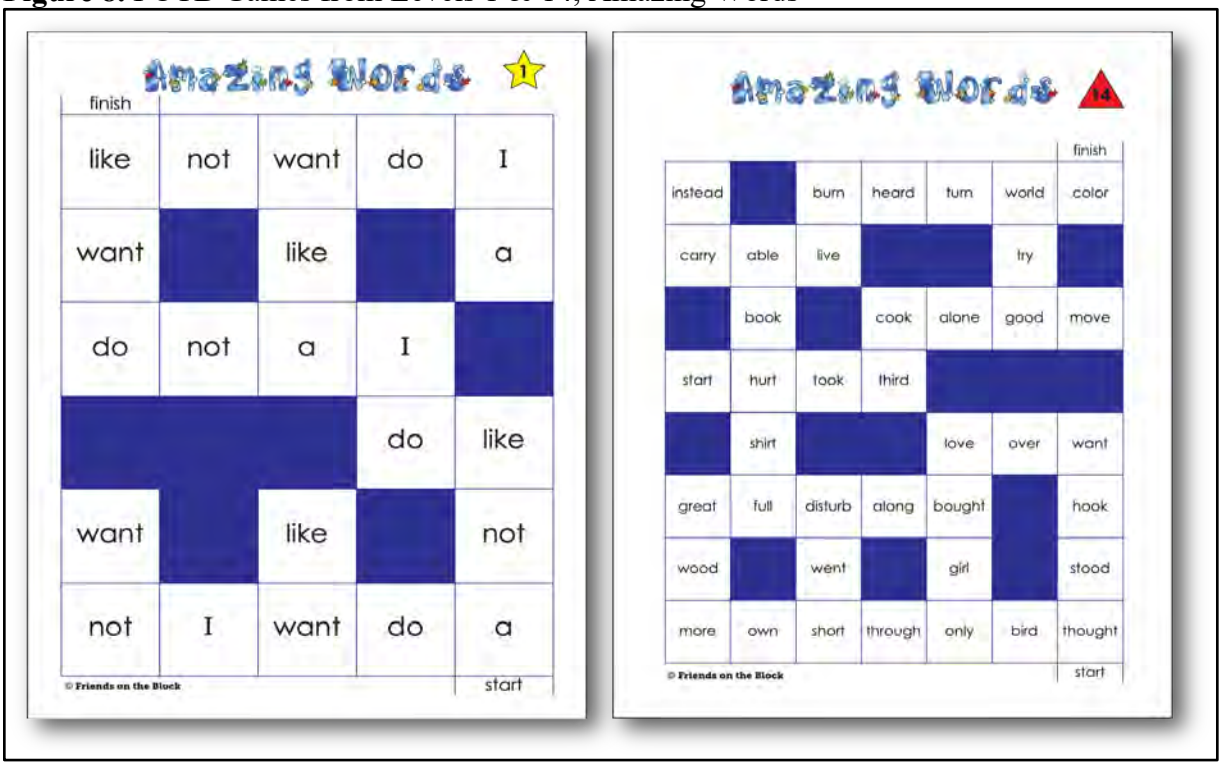
Although students learn irregular words more quickly once they have strong phonics skills, teaching at least a few irregular words while students are learning letter sounds and phonemic awareness is necessary for students to begin reading those words in meaningful sentences. These early words can be taught using a basic echo procedure with a small set of words (see detailed recommendations in the WWC practice guide). Although initial practice requires an echo procedure, the teacher needs to withdraw the echo as soon as

the student is successful without it. Immediate corrective feedback should always be provided quickly (i.e., within 2-4 seconds), and should follow an I (model), We (read it together), You (read it by yourself) procedure. Words are chosen that can be combined to form simple sentences, often with a picture included. For example, the first words taught in FOTB are *a, do, I, like, not,* and *want*, so students can begin building simple sentences with a few pictures added (e.g., *I like pizza [picture of a slice of pizza]*). Students are shown a simple sentence and then they build that sentence with word cards. Instruction is initially highly scaffolded and supported by the teacher. The FOTB sequence (see Figure 7) supports spoken language as it includes words that are common in early spoken language and in written language, enabling practice of these words in sentences and simple stories. Words can also be practiced with simple games (see Figure 8).

Daily Reading of Connected Text

The final EBP includes fluency and comprehension (see Figure 1) and is the fourth recommendation of the WWC practice guide, *Ensure that each student reads connected text every day to support reading accuracy, fluency, and comprehension.* Implementation of reading programs that include frequent engagement with connected text have been shown to lead to significant gains on measures of word reading, oral reading fluency, and reading comprehension in typically developing early learners (Begeny et al., 2010). Furthermore, daily use of connected text within the context of a multicomponent curriculum has been shown to lead to significant gains on a variety of measures of language and literacy for elementary-aged students with borderline to

Figure 8. FOTB Games from Levels 1 & 14, Amazing Words



moderate IDD (IQs 40-80); (Allor et al., 2014). The repeated exposure and opportunities for practice within a text-based contextual format provides students with authentic opportunities to strengthen their language comprehension and word recognition skills, facilitating the transfer and integration of skills and reinforcing the purpose of reading and why the process of learning to read is important.

Reading connected text every day is particularly important to students with IDD who demonstrate extreme challenges transferring skills from one context to another (Conners et al. 2006). Although a complete description of the series of books written for FOTB is outside of the scope of this article, we will highlight a few features and techniques that we have used in our research to support reading connected text in the earliest stages of learning to read. We have already mentioned teaching some high-frequency irregular words that can be combined into sentences. Another technique is to use what we have referred to as *helper text* that is read by a teacher or helper. An example of this can be seen in the gray boxes in Figures 2 and 9. You will notice the helper text provides more context and meaning to the story. The teacher or helper reads the gray helper text and the student only reads the text with the white background. This method combines listening and reading comprehension and enables students to read more meaningful stories before they know how to read very many words. Helper text like this can be added to any decodable reader to provide more context and meaning to the story, facilitating listening comprehension. Alternatively, sticky notes with student text can be added to any book that is read to the student. The teacher reads as usual, and the student only reads the sentences on the sticky note that are made up of words the student is ready to practice. Another feature is the use of pictures underneath words the student is not yet ready to practice. In Figure 2, you see a picture underneath the word *scared* because the structure of this word is too complex for the student to read independently at this stage and the word is needed for the story as it is a story about a girl who is scared of dogs. Similarly, in Figure 9 the word *drink* has a picture beneath it as this pattern has not been taught yet in the program. Figure 10 also provides some guidance for a simple book reading routine that we have used in our research. It includes making predictions, reading, and discussing text. More detailed explanations of this routine are available at https://www.friendsontheblock.com/resources and explanations of other routines are available in the WWC practice guide.

Figure 9. Sample Pages from Level 4 FOTB Text, Mom Gets Sick

Figure 10. Guidance for Book Reading

Objectives	Read and Discuss Routine
Make oral predictions about text.	Briefly preview vocabulary and encourage the student to make predictions about the book. Model, as needed.
Read text made up of taught irregular words and decodable words.	Teacher reads helper text and student reads student text. Teacher corrects word recognition errors quickly using the I, We, You routine.
Discuss text and vocabulary words when prompted by the teacher	Stop periodically to prompt student to discuss the book, modeling expanded responses, and encouraging the student to repeat the teacher's model.

Conclusion

The purpose of this article was to describe and show how to implement recommendations for providing evidence-based literacy instruction to students with IDD, including students with autism. We focused on six evidence-based practices (EBPs), highlighted key research that supports each practice, and then illustrated how to implement these practices in the classroom. We used examples from *Friends on the Block* (FOTB; Allor et al., 2022), a comprehensive literacy intervention, designed with federal research funding, to apply EBPs in innovative ways specifically to better meet the needs of students with IDD and autism. The program includes the supports and intensive practice teachers need to promote literacy development for students with IDD and autism. For more information on how to support students as they learn to read, visit https://www.friendsontheblock.com/resources for sample lessons and materials, https://www.friendsontheblock.com/blog for practical tips for implementing EBP with students with a variety of needs, https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/wwc_foundationalreading_040717.pdf for more information on how to implement evidence-based recommendations, https://ufli.education.ufl.edu/resources/ for a wide range of resources, and see Flynn (2011) for further details about how to implement Dialogic Reading.

We mentioned earlier we are currently conducting a large-scale experiment to understand the impact of FOTB on a broader array of language and reading comprehension measures. Although our program is consistent with the evidence about what works to improve these domains, we cannot yet report the specific effect or how long it will take students with IDD and autism to read with comprehension. We are learning more about individual differences in how students respond to programs and there is not yet clear evidence for how much growth or response should be expected. For example, is it reasonable for all students with IDD and autism to read at a second grade level after participating in the program? One avenue for future work is to conduct experimental research to test the efficacy of *Friends on the Block* with other students, including those at risk for specific learning disabilities, dyslexia, or emotional and behavioral disorders. Another avenue is to examine the impact of learning to implement the program on teaching behavior and teachers' self-efficacy to teach students who struggle to learn to read after receiving pre-service training and professional development

teaching FOTB. Anecdotally, the program has been used effectively by university faculty to train preservice and inservice general and special education teachers in how to deliver evidence-based literacy practices consistent with the science of reading, providing teachers and future teachers with clear models and lessons for guided practice. In addition, during some stages of our research paraprofessionals and parents have also reported success reading the books and playing the games with children. Furthermore, the interventionists in our research studies have included some initially less experienced teachers and they have successfully implemented the program with a high degree of fidelity. By fidelity, we mean that they successfully learned to teach and adhere to each of these six EBPs, among others, within the context of the program.

References

Afacan, K., Wilkerson, K. L., & Ruppar, A. L. (2018). Multicomponent reading interventions for students with intellectual disability. *Remedial and Special Education*, *39*, 229–242.

Allor, J. H., Cheatham, J. P., & Al Otaiba, S. (2022). *Friends on the Block.* Richardson, TX: Friends on the Block. Retrieved from *www.friendsontheblock.com*

Allor, J. H., Gifford, D. B., Al Otaiba, S., Miller, S. J., & Cheatham, J. P. (2013). Teaching students with intellectual disability to integrate reading skills: Effects of text and text-based lessons. *Remedial and Special Education*, *34*, 346–356. http://dx.doi.org/10.1177/0741932513494020

Allor, J. H., Gifford, D. B., Jones, F. G., Al Otaiba, S., Yovanoff, P., Ortiz, M. B., & Cheatham, J. P. (2018). The effects of a text-centered literacy curriculum for students with intellectual disability. *American Journal for Intellectual and Developmental Disabilities, 123,* 474-494. http://dx.doi.org/10.1352/1944-7558-123.5.474

Allor, J. H., Mathes, P. G., Roberts, J. K., Cheatham, J. P., & Otaiba, S. A. (2014). Is scientifically based reading instruction effective for students with below-average IQs? *Exceptional Children*, *80*(3), 287–306. https://doi.org/10.1177/0014402914522208

Allor, J. H., Yovanoff, P., Al Otaiba, S., Ortiz, M. B., & Conner, C. (2020). Evidence for a literacy intervention for students with intellectual and developmental disabilities. *Education and Training in Autism and Developmental Disabilities, 55,* 290-302.

Begeny, J. C., Laugle, K. M., Krouse, H. E., Lynn, A. E., Tayrose, M. P., & Stage, S. A. (2010). A control-group comparison of two reading fluency programs: The Helping Early Literacy with Practice Strategies (HELPS) program and the Great Leaps K–2 reading program. *School Psychology Review*, *39*(1), 137–155.

Brady, S. (2020). A 2020 perspective on research findings on alphabetics (phoneme awareness and phonics): Implications for instruction. *The Reading League Journal*, 1(3), 20-28.

Browder, D. M., Ahlgrim-Delzell, L., Courtade, G., Gibbs, S. L., & Flowers, C. (2008). Evaluation of the effectiveness of an early literacy program for students with significant developmental disabilities. *Exceptional Children*, *75*, 33–52. https://doi.org/10.1177/00144 0290807500102

Browder, D. M., Ahlgrim-Delzell, L., Flowers, C., & Baker, J. (2012). An evaluation of a multicomponent early literacy program for students with severe developmental disabilities. *Remedial and Special Education*, *33*(4), 269 –282. https://doi.org/10.1177/0741932510387305

Browder, D. M. & Spooner, F. (2014). More language arts, math, and science for students with severe disabilities. (Book review). (2017). *Education & Treatment of Children*, *40*(3), 419–. West Virginia University Press.

Browder, D. M., & Xin, Y. P. (1998). A meta-analysis and review of sight word research and its implications for teaching functional reading to individuals with moderate and severe disabilities. *The Journal of Special Education*, *32*(3), 130–153. https://doi.org/10.1177/002246699803200301

Burgoyne, K., Duff, F. J., Clarke, P. J., Buckley, S., Snowling, M. J., & Hulme, C. (2012). Efficacy of a reading and language intervention for children with Down syndrome: A randomized controlled trial. *Journal of Child Psychology and Psychiatry*, *53*(10), 1044–1053. https://doi.org/10.1111/j.1469-7610.2012.02557.

Caffrey, E., & Fuchs, D. (2007). Differences in performance between students with learning disabilities and mild mental retardation: Implications for categorical instruction. *Learning Disabilities Research and Practice*, *22*(2), 119–128. https://doi.org/10.1111/j.1540-5826.2007.00236.

Centers for Disease Control and Prevention (CDC). (2014). Autism and Developmental Disabilities Monitoring Network Surveillance Year 2010 Principal Investigators. Prevalence of autism spectrum disorder among children aged 8 years - autism and developmental disabilities monitoring network, 11 sites, United States, 2010. *Morbidity and Mortality Weekly Report: Surveillance Summaries*, *63*, 1–21. https://doi.org/10.15585/mmwr.ss6706a1

Centers for Disease Control and Prevention (CDC). (2020). *National center on birth defects and developmental disabilities*. Centers for Disease Control and Prevention.

Cihak, D. F., & Smith, C. C. (2018). Teaching academic skills to elementary-age students with intellectual disability. In R. M. Gargiolo & E. C. Bouck (Eds.), *Instructional strategies for students with mild, moderate, and severe intellectual disability* (pp. 231– 265). Sage.

Connor, C. M., Alberto, P. A., Compton, D. L., & O'Connor, R. E. (2014). *Improving reading outcomes for students with or at risk for reading disabilities: What have we learned?* [Synthesis of IES Research]. National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Conner, C., Allor, J. H., Al Otaiba, S., Yovanoff, P., & LeJeune, L. (2022). Early reading outcomes in response to a comprehensive reading curriculum for students with autism spectrum disorder and intellectual disability. *Focus on Autism and Other Developmental Disabilities*, 108835762211379. https://doi.org/10.1177/10883 576221137905

Conners, F. A. (2003). Reading skills and cognitive abilities of individuals with ID. In L. Abbeduto. (Ed.). *International review of research in mental retardation* (Vol. 27, pp. 191–229). Academic Press.

Conners, F. A., Rosenquist, C. J., Sligh, A. C., Atwell, J. A., & Kiser, T. (2006). Phonological reading skills acquisition by children with mental retardation. *Research in Developmental Disabilities, 27*(2), 121-137.

Flynn, K. S. (2011). Developing children's oral language skills through dialogic reading: Guidelines for implementation. *Teaching Exceptional Children*, *44*(2), 8-16.

Foorman, B., Beyler, N., Borradaile, K., Coyne, M., Denton, C. A., Dimino, J., Furgeson, J., Hayes, L., Henke, J., Justice, L., Keating, B., Lewis, W., Sattar, S., Streke, A., Wagner, R., & Wissel, S. (2016). *Foundational skills to support reading for understanding in kindergarten through 3rd grade.* (NCEE 2016-4008). National Center for Education

Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. http://whatworks.ed.gov.

Gonzalez-Frey, S. M., & Ehri, L. C. (2021). Connected phonation is more effective than segmented phonation for teaching beginning readers to decode unfamiliar words. *Scientific Studies of Reading*, *25*(3), 272–285. https://doi.org/10.1080/10888438.2020.1776290

Hagans, K., & Good, R. (2013). Decreasing reading differences in children from disadvantaged backgrounds: The effects of an early literacy intervention. *Contemporary School Psychology*, *17*(1), 103–117.

Henry, A. R., Conner, C., Zajic, M. C., & Solari, E. J. (2022). Feasibility and initial efficacy of an adapted telepractice listening comprehension intervention for school-aged children with autism. *Journal of Autism and Developmental Disorders*, *53*, 1–11. https://doi.org/10.1007/s10803-022-05474-6

Henry, A. R., & Solari, E. J. (2020). Targeting oral language and listening comprehension development for students with autism spectrum disorder: A school-based pilot study. *Journal of Autism and Developmental Disorders*, *50*, 3763–3776. https://doi.org/10.1007/s10803-022-05474-6

Joseph, L. M., & Seery, M. E. (2004). Where is the phonics?: A review of the literature on the use of phonetic analysis with students with mental retardation. *Remedial and Special Education*, *25*(2), 88–94. https://doi.org/10.1177/07419325040250020301

Lemons, C. J., King, S. A., Davidson, K. A., Puranik, C. S., Al Otaiba, S., Fulmer, D., Mrachko, A. A., Partanen, J., & Fidler, D. J. (2017). Developing an early reading intervention aligned with the Down syndrome behavioral phenotype. *Focus on Autism and Developmental Disabilities*, *32*(3), 176 –187. https://doi.org/10.1177/1088357615618941

Lemons, C. J., King, S. A., Davidson, K. A., Puranik, C. S., Fulmer, D., Mrachko, A. A., Partanen, J., Otaiba, S. A., & Fidler, D. J. (2015). Adapting phonological awareness interventions for children with down syndrome based on the behavioral phenotype: A promising approach? *Intellectual and Developmental Disabilities*, *53*, 271–288. https://doi.org/10.1352/1934-9556-53.4.271

Lemons, C. J., Mrachko, A. A., Kostewicz, D. E., & Paterra, M. F. (2012). Effectiveness of decoding and phonological awareness interventions for children with Down syndrome. *Exceptional Children*, *79*(1), 67–90. https://doi.org/10.1177/001440291207900104

Lindgren, K. A., Folstein, S. E., Tomblin, J. B., & Tager-Flusberg, H. (2009). Language and reading abilities of children with autism spectrum disorders and specific language impairment and their first-degree relatives. *Autism Research*, *2*, 22–38. https://doi.org/10.1002/aur.63

Lonigan, C. J., & Whitehurst, G. J. (1998). Relative efficacy of parent and teacher involvement in a shared-reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly*, *13*(2), 263–290. https://doi.org/10.1016/S0885-2006(99)80038-6

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* (NIH Publication No. 00 – 4769). U.S. Government Printing Office.

Polloway, E. A., Lubin, J., Smith, J. D., & Patton, J. R. (2010). Mild Intellectual Disabilities: Legacies and Trends in Concepts and Educational Practices. *Education and Training in Autism and Developmental Disabilities*, 45(1), 54–68.

Ricketts, J. (2011). Research review: Reading comprehension in developmental disorders of language and communication. *Journal of Child Psychology and Psychiatry*, *52*, 1111–1123. https://doi. org/10.1111/j.1469-7610.2011.02438.x

The IRIS Center. (2014). *Evidence-based practices (Part 1): Identifying and selecting a practice or program*. https://iris.peabody.vanderbilt.edu/module/ebp_01/

U.S. Department of Education, Institute of Education Sciences (2007). *What Works Clearinghouse: Dialogic Reading* (WWC Intervention Report).

Whalon, K. (2018). Enhancing the reading development of learners with autism spectrum disorder. *Seminars in Speech and Language*, *39*, 144–157.

Whalon, K., Hanline, M. F., & Davis, J. (2016). Parent implementation of RECALL: A systematic case study. *Education and Training in Autism and Developmental Disabilities*, *51*, 211–220.

Whalon, K., Martinez, J. R., Shannon, D., Butcher, C., & Hanline, M. F. (2015). The impact of reading to engage children with autism in language and learning (RECALL). *Topics in Early Childhood Special Education*, *35*, 102–115. https://doi.org/10.1177/0271121414 5655

Wasik, B. A., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, *93*(2), 243–250.

Wei, X., Blackorby, J., & Schiller, E. (2011). Growth in reading achievement of students with disabilities, Ages 7 to 17. *Exceptional Children*, 78(1), 89–106. http://dx.doi.org/10. 1177/001440291107800106.

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