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Review Article

Reading instruction for students with intellectual disabilities

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Abstract

Reading is creating meaning with print. Students with intellectual disabilities can learn to create meaning with print if taught within a meaningful context. This article describes three approach to reading instruction for students with intellectual disabilities: (a) a sight word approach, (b) a phonics approach, and (c) a comprehensive approach. Of these three, the comprehensive approach is most effective in helping students create meaning with print. Ten different teaching strategies for teaching reading are described. These strategies are based on the neurocognitive model of reading and fit within a comprehensive approach to reading instruction.

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Introduction

Comprehensive Approach to Reading Instruction For Students With Intellectual Disabilities

I first encountered Frank at my literacy center. He was a 45-year old male with intellectual disabilities. He desperately wanted to read. He told me repeatedly that nobody ever taught him. Without being able to read, books, signs, email, and text messages are unavailable him. Tony was a 31-year old male. He could barely read when he first came to our literacy center. His 12-year reading education in the public schools was haphazard and rudimentary at best, often taught by special education teachers with little or no knowledge related to literacy or literacy instruction. Without the ability to read, something like driving to into the city was terrifying for him. If he got lost, he would not be able to read the signs to find his way back home. Both of these adults, like many adults with intellectual disabilities are not able to participate fully in society because of their lack reading skills. Often this lack is caused by inappropriate or no reading instruction.

The Problem

It is very hard for anybody to learn to read if that person has not been taught or has had limited exposure to authentic reading and writing experiences. However, this has often been the case with students with intellectual disabilities. In the past, these students were not thought capable of learning to read (Erickson, 2006); hence, they were provided little or no literacy instruction and provided few opportunities to engage in authentic literacy activities (Coyne, Pish, Dalton, Zeph, & Smith, 2012; Katims, 2000). As well, this population has tended to enter school with much less exposure to print at home when compared to students without disabilities; thus, making it even more difficult to learn to read (Koppenhaver, Hendrix, & Williams, 2007). So, it is not surprising that many people with intellectual disabilities are illiterate or under-literate

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(below their capabilities). This severely impacts their future employment opportunities and their ability to participate fully in society (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozinne, 2006; Erickson, 2006). The purpose of this article is to describe what effective reading instruction for students with intellectual disabilities might look like.

Approaches to Reading Instruction

Generally, there have been three approaches to reading instruction for students with intellectual disabilities: (a) sight word instruction, (b) phonics instruction, and (c) comprehensive reading instruction. Each of these approaches is described here.

Sight Word Instruction

At one time, reading instruction for students with intellectual disabilities consisted primarily of sight word instruction (Browder, Ahlgrim-Delzell, Courtake, Gibbs, & Flowers, 2008; Katims, 2000; Hill 2016; Hudson & Test, 2011). Sight word instruction in this context consisted of asking students to memorize a set of functional (sometimes called survival) words, pictures, and symbols that were most likely to be found in their environment. These were words such as: danger, hot, exit, flammable, exit, boys, girls, poison, etc. It should be noted that sight word instruction in this particular context is very much different from how sight word instruction is conceived within the broader literacy community. Sight word instruction in this broader context involves learning to instantly recognize the 100 to 200 most frequent words that are encountered in text. Sight words here include words such as" the, of, and, a, to, and in and are found on common sight word or most frequent word lists such as Fry, Zeno, or Dolch.

Why is this distinction important? Part of early literacy instruction for all students, including students with intellectual disabilities, should involve increasing the number of sight words that are recognized instantly (Ehri, 2014; Pressley, 2006). Automaticity with these high frequency words enables students to read fluently (Cullen, Kessey, Alber-Morgan, & Wheaton, 2013), and it frees up cognitive resources in working memory for comprehending or creating meaning with text (Kuhn & Stahl, 2013; Tunmer & Nicholson, 2011). This is true for all students. However, this is much different from the sight word approach to reading instruction traditionally provided to students with intellectual disabilities. There is very little (if any) empirical evidence supporting a purely sight-word approach to reading instruction for any population. This has sometimes been called a look-say or whole word approach. This is not an effective way to teach reading because students do not learn to generalize or to identify new words beyond those memorized. Thus, it should not be the primary mode of reading instruction for anybody, including students with intellectual disabilities (Browder, Ahlgrim-Delzell, Courtake, Gibbs, & Flowers, 2008; Erickson, Hanser, Hatch, & Sanders, 2009; Fautsch-Patridge, McMaster, & Hupp, 2011; Schwarts, Hahs-Vaugh, & Nye, 2013). However, it is reasonable to spend a small amount of instructional time helping students at emergent and beginning levels to automatically recognize the 100 to 200 most frequent words that they will encounter in text.

Phonics Instruction

More recently, research has shown that students with intellectual disabilities benefit from phonics instruction (Allor, Mathes, Roberts, Cheatham & Al Otaiba, 2014; Alnahdi, 2015; Fautsch-Patridge, McMaster, & Hupp, 2011; Fredrick, Davis, Albert, & Waugh, 2013; Hill, 2016). That is, they can learn to generalize and apply these skills in order to identify unknown words. This also includes students with severe intellectual disabilities (Browder, Ahlgrim-Delzell, Courtake, Gibbs, & Flowers, 2008; Erickson, Hanser, Hatch, & Sanders, 2009; Erickson & Koppenhaver, 1995; Scruggs, 2008; Schwarts, Hahs-Vaugh, & Nye, 2013). But what often occurs in special education settings is that this becomes the primary focus (Hill, 2016; Katims, 2000). That is, reading instruction is reduced to drill and practice with a set of highly abstract reading subskills, taught using direct instruction, and decontextualized from any real meaning (Coyne, Pish, Dalton, Zeph, & Smith, 2012; Erickson, Hanser, Hatch, & Sanders, 2009; Hedrick, Katims, & Carr, 1999; Katims, 2000). Here there is little (if any) focus on creating meaning with print (comprehending). As well, students

are rarely provided opportunities to do what is most important in becoming literate: read authentic text and write for real purposes (Allington, 2012; Pressley et al., 2001).

While research has shown that phonics-based instruction for students with intellectual disabilities can lead to increased scores on phonics-based measures (Allor, Roberts, Cheatham, & Al Otaiba, 2014; Fredrick, Davis, Albert, & Waugh, 2013, Hill, 2016; Schwartz, Hahs-Vaugh, & Nye, 2013); there is little evidence to demonstrate that this type instruction has any have long term effect on students' ability to create meaning with print (Allington, 2012; Johannessen & McCann, 2009; McCormick, 2007; Strauss, 2011). Instead, reading becomes an abstract and meaningless endeavor for a population that needs learning experiences to be concrete and immediate.

Thus, while phonics instruction is necessary, it should not be the sole component in any reading program for any population (Erickson, Hanser, Hatch, & Sanders, 2009; McCormick & Zutell, 2011; NICHD, 2000). Instead, reading instruction for students with intellectual disabilities should be balanced and comprehensive, and use connected text to emphasize reading as a meaning-making endeavor (Coyne, Pish, Dalton, Zeph, & Smith, 2012; Erickson, 2006; Erickson & Koppenhaver, 1995; Hendrick, Katims, & Carr, 1999; Hudson & Test, 2011; Katims, 2000). This does not mean that phonics instruction should not be used. Rather, it should be included within a balanced approach to reading instruction and embedded within authentic contexts to the greatest degree possible.

Comprehensive Approaches to Reading Instruction

Students with intellectual disabilities learn to read using the same basic cognitive processes as other students (Erickson, 2006). Thus, they should be taught to read using methods that are similar to students without intellectual disabilities (Allor, Champlin, Gifford, & Mathes, 2010; Alnahdi, 2015; Erickson, Hanser, Hatch, & Sanders, 2009; Hedrick, Katims, & Carr, 1999; Katims, 2000). Instruction should be comprehensive, contextual, and focus on creating meaning with text (Coyne, Pish, Dalton, Zeph, & Smith, 2012; Erickson, 2006; Katims, 2000). Any differences in instruction should not be in kind, but in degree. This means reading instruction should address the same five core elements recommended by the National Reading Panel for all beginning readers: phonemic awareness, phonics, vocabulary, fluency, and comprehension (Coyne, Pish, Dalton, Zeph, & Smith, 2012; Erickson, Hanser, Hatch, & Sanders, 2009; Fautsch-Patridge, McMaster, & Hupp, 2011; NICHD, 2000).

Four Blocks: One such comprehensive approach to reading instruction that has been shown to be effective with students with intellectual disabilities in special education or general education classrooms is based on the Four Blocks™ literacy model (Erickson & Koppenhaver, 1995; Erickson & Koppenhaver, 2007; Hedrick, Katims, & Carr, 1999). Here students receive a mix of traditional and holistic instruction as they engage in four types of instruction each day: (a) word work focusing on letter sounds and patterns; (b) guided reading focusing on comprehension skills and strategies, vocabulary and background knowledge, and genre; (c) writing using a writing workshop approach to teach the writing process and specific skills in the context of students' self-selected writing topics; and (d) self-selected reading in which students are able to choose the books they wish to read using a reading workshop format. This approach to reading instruction recognizes that students learn in different ways and need varying levels of instructional support (Allington & Cunningham, 2007). Four Blocks™ uses reading and writing activities that are multi-level to account for the variety of different literacy levels and learning styles found in all classrooms (special education and general education).

Four general recommendations

Based on the above, four general recommendations for reading instruction for students with intellectual disabilities are offered:

First, direct and explicit instruction should be used to teach phonics and other reading subskills (Alberto, Waugh, & Fredrick, 2010; Hill, 2016, Wharton-McDonald, 2011); however, this instruction should occur

within a meaningful context with connected text to the greatest extent possible (Alberto, Waugh, & Fredrick, 2010; Coyne, Dalton, Zeph, & Smith, 2010; Erickson, Hanser, Hatch, & Sanders, 2009; Katims, 2000).

Second, there should be daily opportunities for students to read real books and listen to children's literature and other high quality text (Erickson, Hanser, Hatch, & Sanders, 2009; Hedrick, Katims, & Carr, 1999; Hudson & Test, 2011; Katims 2000). Students need a significant amount of time every day to read interesting, high-quality books that are at their independent level or below (Allington & Cunningham, 2007; Allington, et al., 2010; Johnson, 2016).

Third, students should be provided daily opportunities to write (Erickson, 2006; Erickson & Koppenhaver, 1995, Katims, 2000; Hendrick, Katims, & Carr, 1999). These should be authentic writing activities in which students are asked to describe their thoughts and experiences. Writing is one of the most effective ways to develop both phonological and syntactic cueing systems (Johnson, 2016). Writing for this population can include sentence combining, talking word processing programs and other assisted technologies (Erickson, 2006), as well as scaffolded writing, facilitated writing, assisted writing, sentence mix-ups, and predictable writing work for students at emergent or beginning levels (Johnson, 2016).

And finally, comprehension skills should be taught in the context of authentic literature or whole connected text (Coyne, Pish, Dalton, Zeph and Smith, 2012; Hedrick, Katims, & Carr, 1999; Katims, 2000). Explicit instruction along with cognitive modeling should be used here to teach and demonstrate cognitive processes necessary for creating meaning with print such as monitoring comprehension, inferring, predicting, summarizing, and evaluating (Erickson, Hanser, Hatch, & Sanders, 2009).

A Neurocognitive Approach

The research-based strategies below are based on the neurocognitive model of reading (Johnson, 2016). This model defines reading as creating meaning with print, not simply sounding our words. According to this model, the brain uses three cueing systems to recognize words during the act of creating meaning with print: (a) semantic, (b) syntactic, and (c) phonetic. Effective reading instruction then is comprised of activities that develop all three.

The strategies here can be used for reading instruction with students with mild and moderate intellectual disabilities. They can also be modified to meet the needs of students with severe reading disabilities. It should be noted that what is described below is not an approach or method. There is no single approach or method that works best for any population including students with intellectual disabilities. Instead, these are a series of research-based activities that are appropriate and effective for use with students with intellectual disabilities. Each activity should be adopted and adapted to meet the specific needs of the students with whom one is working, one's teaching situation, and one's individual teaching style and philosophy.

Instruction

Scaffolded oral reading. Scaffolded oral reading (ScORe) is a technique that enables students to successfully engage with text that is at their instructional level. It is a variation of the neurological impress method (Flood, Lapp, & Fisher, 2005). Here the teacher and the student read the text together out loud. The teacher acts as a scaffold by reading a millisecond ahead of the student in order to maintain a steady, comfortable pace. If a student pauses or stumbles, the teacher keeps reading. The teacher should not stop to let the student sound out the word. The student learns to relay on the teacher's voice to act as a scaffold in identifying words during the process of reading.

During ScORe the teacher reads using a quiet voice, providing just enough support to keep the pace moving. If the student seems to be reading fluently, the teacher provides less scaffolding by sounding out just the beginning parts of some words or by dropping out completely in places. The goal is to act as a scaffold to enable students to read at a reasonable pace without frustrating them or having to stop to figure out any of the words. This also allows students to enjoy reading the book while lessening the cognitive demands on working memory used to identify words.

In small group, this becomes a form of choral reading. Just like ScORe that is done individually, the teacher should point at the words as they are being read and keep the pace moving. As well, ScORe should be used with all the activities below.

Language experience activities. It is recommended that each session start with a language experience activity (LEA). Here students dictate a story to the teacher. The teacher records what students say. (This can be done individually or in small group.) Students should be able to see what is being written as the teacher is writing. A computer screen, smart board, poster paper, or a notebook can be used here. These stories should be a minimum of five sentences and put in paragraph form.

To begin the LEA, the teacher usually asks students to describe something that has occurred or is occurring in their lives. The resulting story enables students to practice reading whole, connected texts comprised of their own words and experiences. Stories can be saved with the date on top and used for additional reading practice on successive days. This type of activity is one form of authentic writing that enables the teacher to make personal connections with students.

When completed, students read the story with the teacher using ScORe. Students then reread until fluency was achieved. This usually occurs after two or three readings. Finally, mini-lessons using analytic phonics can be used to reinforce letter sounds. Example: "There's a word in this line that ends in the /duh/ sound. What word is this?"

Scaffolded writing. Writing reinforces letter-sound relationships (phonetic cueing system) and also helps develop the syntactic cuing system. Scaffolded writing is a teaching strategy that enables students to engage in authentic writing activities without overwhelming or frustrating them. Here students are asked to compose a single sentence by first speaking it out loud. As students writes, the teacher provides help in hearing the parts of the individual words by sounding them out. Also, if a computer is being used, the teacher points to the general area on the keyboard where each of the letter keys could be found as students were writing. This is done to reduce frustration and to keep the writing briskly paced. The teacher should repeat the sentence several times during writing to reduce the load on working memory. Depending on their level, students should be asked to compose one to three sentences. After completion of each sentence, it is reread until fluency is achieved.

In small group the steps are similar. If computers are not available to all, students should be writing in a journal or on a piece of paper. As above, the teacher helps students hear the parts of the words by sounding them out as they are writing. To provide scaffolding, the teacher writes the words on a board or screen with students as they are writing. When completed, choral reading or echo reading is used. The sentences are reread until fluency is achieved.

Word work. Word work comes in a variety of forms and should never comprise more than 10% of the lesson. This does not mean that analytic phonics and other activities cannot be used during the contexts of other literacy activities to teach and reinforce letter-sound relationships.

Basic letter-sound relationships need to be learned; however, teachers should not wait for these to be mastered before engaging in authentic literacy activities. There are a variety of authentic, emergent-level reading and writing activities that can be used before the complete mastery of letter-sound relationships have been established (see Figure 1). As well, engaging in these authentic literacy activities enables students to develop syntactic and semantic cueing systems.

1. Pretend reading	6. Driting
2. Scaffolded oral reading	7. Predictable writing
3. Teacher read alouds	8. Scaffolded writing (above)
4. Choral reading	9. Writing using temporary spelling
5. Echo reading	10. Sentence mix-up

Figure 1.
Authentic, Emergent Level Literacy Activities

After initial letter sounds have been established, onset-rime or word building activities can be used to address the 30 most frequent phonograms or word families here (see Figure 2). Beginning consonants, consonant blends, and vowel sounds can then be taught and reinforced as they are encountered (see Figure 3).

ay	ag	ot	ain	op	ow
ill	ack	ing	eed	in	ew
ip	ank	ap	y	an	ore
at	ick	unk	out	est	ed
am	ell	all	ug	ink	ab

Figure 2.
The 30 Most Frequent Phonograms

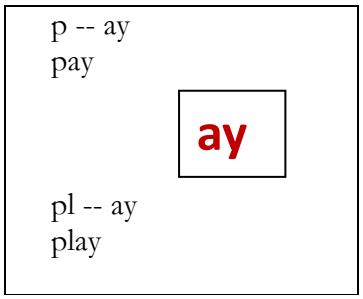

Figure 3.
Examples of Onset-Rime Based On Phonograms

This activity is designed primarily to develop the phonetic cueing system. However, instead of parsing individual letters, the goal is to develop students' ability to recognize letter patterns within the word. This is an example of large unit phonics and is one of the few recommended activities in which students encounter individual words outside of any meaningful context.

Sight word instruction. As described earlier, a very small amount of time should be spent on sight words (no more than five to ten minutes a day). The goal is for students to eventually be able to recognize the 100 or 200 most frequent words automatically without having to use any word identification strategies. Game formats are effective here.

Cloze activities. Here students are given a sentence with a missing word (see Figure 4). Initially, the missing word should include the beginning letter or consonant blend as a clue. As students' skill increases, beginning letter clues can be dropped. The students read the sentence and are asked to guess the missing word. Then the complete sentence should then appear below the cloze sentence. Students re-read this sentence until fluency is achieved. This is designed primarily to develop the semantic cueing systems; however, target phonogram and sight words can be reinforced by including these to the greatest extent possible.

This activity should be briskly-paced and relatively brief lasting three to eight minutes. Use six to ten sentences per session. This can also be designed for use as a pre-reading activity by creating sentences describing the upcoming selection. As well, sentences can be created to reinforce vocabulary and concepts covered in other curriculum areas. Keep in mind that the purpose here is to develop students' ability to use meaning (semantics) and word order (grammar) to recognize words. Students should not being "sounding out" words here. And as long as the target word is in their oral vocabulary, students should be able to be successful.

Wh_ _ did you say?
What did you say?

May I **pl**_ _ _ _ go outside?
May I please go outside?

Figure 4.
Examples of Cloze Activities Used To Reinforce Target Phonograms

Maze activities. Maze activities are similar to cloze activities, except the maze target provides students with either two or three word choices. When working on a particular phonogram, use three examples of the same phonogram as your maze target (see Figure 5). This invites students to attend to the beginning consonant or consonant blend. Sight words can also be used as maze targets. With students at the emergent or pre-emergent level, construct mazes using only two maze target words.

Generally, cloze and maze should not be used on the same day. With both of these, the correct target word should be abundantly clear and obvious to students. As above, these activities are used to slowly develop students' ability to rely on context as a means of identifying words during the act of reading (semantic cueing system). And with both of these activities, students are seeing words within whole, complete sentences and not individual words out of a meaningful context.

It's a sunny **[hay - day - pay]** outside today.
It's a sunny **day** outside today.

I will [**stay - ray**] home today
I will **stay** home today.

What did **[he - in - of]** say to you?
What did **he** say to you?

I like **[him - up]**.
I like **him**.

Figure 5.
Examples of Maze Activities Used to Reinforce Target Phonograms

Fluency activities. Find a story or reading passage that is at or slightly above students' reading level. Count off and mark a 30-word passage. Then, read the 30-word passage out loud for students. Next, have students read the 30-word passage through three times. Their times are recorded after each attempt. The results here are put a line graph each day (see Figure 6).

When doing this in small group, one partner is the reader, while the other is the timer and recorder. After the three reads, roles are switched. A separate reading passage is then used for the new partner. When students are consistently able to read the 30-word passages in 12 seconds or less, move to a 40-word passage. These activities helps developed a sense of self-efficacy as students see their times decreasing with each successive read.

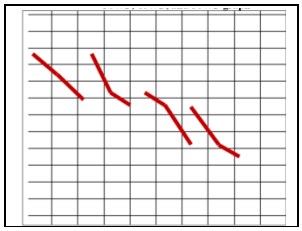

Figure 6.
Line Graph Used For Repeated Reading Activities

Guided reading. Guided reading can be used with small groups to teach specific skills such as word identification skills, comprehension skills, and vocabulary. This enables the teacher to provide direct and explicit instruction in an authentic reading context. This can be done with a big book, or with a piece of text that has been copied or projected onto a screen so all students can see the text.

Keep sessions short (five to no more than fifteen minutes) focused, and purposeful by identifying no more than one or two skills to teach or letters and letter patterns to reinforce. Trying to teach too many skills in one guided reading session will diminish the impact of the lesson. Remember, students learn skills by being exposed to them over time in different ways and in different contexts.

Reading practice. Reading practice should be one of the primary activities in any reading instructional program. Just like learning to play the piano, students need to practice reading every day if they are to get better. Extensive reading has been linked to improvement in general knowledge, vocabulary, spelling, fluency, word identification, and reading comprehension (Cunningham & Allington, 2010; Cunningham & Stanovich, 2001; Krashen, 2004). Thus, reading for enjoyment should not be something that is done after students get their work done; it should be the main work of reading class.

For this to occur, classroom libraries need to include an abundance of high quality books at varying levels that reflect a variety of interests. Students should always practice reading books that are at their independent level or below. One problem often faced by special education teachers is finding books that might be of interest to older students yet written at the primmer through second grade level. High/low and high/very-low books can be used here. Also, LEA stories can be printed off and used for reading practice.

Reading practice usually occurs at the end of a reading lesson, after the skills work has concluded. This enables students to practice newly learned skills in authentic reading contexts.

Final Thoughts

This article described three approaches to reading instruction for students with intellectual disabilities. Based on a review of the literature, a comprehensive approach was recommended. Strategies were described for reading instruction that are in alignment with a comprehensive approach. These strategies are based on the assumption that students with intellectual disabilities acquire the ability to read and write in ways that are similar to other students. Instruction may take more time and growth may occur more slowly; but just like any other student, students with intellectual disabilities are best able learn when reading instruction is provided in meaningful contexts and the focus is on creating meaning and not on mastering isolated reading subskills.

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