CHAPTER 25: STUDENTS WITH DYSLEXIA

*This chapter is from my book,Designing Meaning-Based Interventions for Reading
published by Guildford Press. In version contained in the book I removed some of the
reference citations to enhance readability. This version contains all the reference
citations.*

Dear Dr. Johnson,
I have the K-12 reading license and was considering joining the Orton-Gillingham course
that costs over $2000 and is full for the summer at the Reading Center in [deleted]. Is it
beneficial? Please let me know. I applied for the admission and scholarship and I am on
the waiting list.

I am ending this book with a chapter on dyslexia. In Minnesota where I live, and in many
other states, representatives from the International Dyslexia Association (IDA) have lobbied state
legislatures to mandate a certain type of reading instruction for students with dyslexia. These
mandates prohibit teachers from using their research-based knowledge, expertise, and
understanding of the individual readers with whom they work. Instead, they are forced to
implement a certain type of instruction for students who are severely struggling readers. Could
you imagine if similar mandates were imposed on doctors, therapist, lawyers, dentists, and other
professional practitioners. If you had gall bladder problems, would you feel comfortable if your
doctor was forced to use a certain type of treatment because the International Gall Bladder
Association (IGBA) had lobbied your state legislature?

Orton-Gillingham

According to the International Dyslexia Association, the answer for all reading problems
is Orton-Gillingham or something similar. Orton-Gillingham is an approach to teaching reading
that uses instruction that is "multisensory, sequential, incremental, cumulative, individualized,
phonics-based, and explicit" (Rippel, 2020). The Orton-Gillingham website says that the
approach is "direct, explicit, multi-sensory, structured, sequential, diagnostic, and prescriptive"
(see Figure 25.1). If effectiveness were determined by the number of adjectives used to describe
it, then Orton-Gillingham would indeed be one of the most effective programs you could buy.

Figure 25.1. Orton-Gillingham as described by Orton-Gillingham.

The Orton-Gillingham Approach is a direct, explicit, multisensory, structured, sequential,
diagnostic, and prescriptive way to teach literacy when reading, writing, and spelling does not
come easily to individuals, such as those with dyslexia. It is most properly understood and
practiced as an approach, not a method, program, or system. In the hands of a well-trained and
experienced instructor, it is a powerful tool of exceptional breadth, depth, and flexibility.

https://www.ortonacademy.org/resources/what-is-the-orton-gillingham-approach/

Buy is the operative word here. An individual Orton-Gillingham course costs over
$2,000 and associate level training costs $4,000 plus $250 for materials. There are various levels

of training and certification that can be purchased. What you get for your money is an expensive, Humpty-Dumptian approach to reading instruction where children are taught a specified list of reading subskills in a predetermined order and in a specified way. In other words, the complex act of reading is broken into little bitty pieces so that a highly trained Orton-Gillingham specialist can help children put the little bitty pieces back together again one little bitty piece at a time. And the Orton-Gillingham magic ingredient is "multisensory" instruction. This means it uses visual, auditory, and kinesthetic modalities when teaching. In other words, as children are learning, they see things, hear things, and do things.

This is called multimodal instruction. Elementary teachers have been using it for years. But an effective meaning-based approach to reading instruction is even more multimodal in its multimodality. I call it meta-multimodal instruction. It includes imagination, emotion, and social interaction as well as visual, auditory, and kinesthetic modalities. So effective meaning-based reading instruction would have children see things, hear things, do things, imagine things, emote things, and say things. There you go. Meta-multimodal instruction. And I did not charge you $4,000 plus $250 for materials.

What about the research that "proves" the effectiveness of Orton-Gillingham? Besides some of the methodological problems described in chapter 23, the research used to support the use of Orton-Gillingham often measures students' progress using pseudo-reading or nonreading tasks (Lim & Oei, 2015), uses measures of questionable validity (Hill, 2005), does not use a comparison group (Bas, 2008) is derived from unpublished master's or doctoral theses (Blockinger, 2004), is a study as opposed to peer-reviewed research put out by groups or organizations that have a vested interest in a certain outcome (Arndt, 2006) or makes claims of superiority without controlling for covariates such as gender, socioeconomic status, ethnicity, verbal IQ, or initial skills (Ritchey & Goeke, 2006). Despite the claims of being heavily research-based, it is simply not (Compton, et. al., 2014; ILAa, 2016; ILAb, 2016; Layton, 2017; Ritchey & Goeke, 2006; Stahl, 1998).

The ILA and NCTE

The International Literacy Association (ILA) and the National Council of Teachers of English (NCTE) are two professional organizations that I generally turn to when seeking a research-based perspective on literacy learning and instruction. These nonprofit organizations have been around for over 60 and 100 years respectively and include thousands of researchers, scholars, teachers, and other educators with a variety of theoretical perspectives but with the single goal of enhancing literacy instruction through research and professional development (as opposed to generating profit). You can trust that positions statements put out by these organizations have been vetted and are based on solid, peer-review research. Also, books, journals and other publications have been reviewed by reviewers with solid literacy-based credentials. Just as the American Medical Association (AMA) and the National Academy of Medicine (NAM) and their related professional journals are the guideposts in the medical field, the ILA and NCTE are the two professional organizations that are best positioned to provide an

objective, research-based perspective on literacy learning and instruction based on a wide variety of research from a wide variety of fields.

In regard to Orton-Gillingham approaches used with students with dyslexia, the International Literacy Association wrote,

> "As yet, there is no certifiably best method for teaching children who experience reading difficulty (Mathes et al., 2005). For instance, research does not support the common belief that Orton-Gillingham–based approaches are necessary for students classified as dyslexic (Ritchey & Goeke, 2007; Turner, 2008; Vaughn & Linan-Thompson, 2003). Reviews of research focusing solely on decoding interventions have shown either small to moderate or variable effects that rarely persist over time, and little to no effects on more global reading skills. Rather, students classified as dyslexic have varying strengths and challenges, and teaching them is too complex a task for a scripted, one-size-fits-all program (Coyne et al., 2013; Phillips & Smith, 1997; Simmons, 2015). Optimal instruction calls for teachers' professional expertise and responsiveness, and for the freedom to act on the basis of that professionalism" (ILAa, 2016, p. 3).

Algorithmic Solutions

To be fair, there are aspects of Orton-Gillingham that work for some students for some aspects of their reading instruction. One teacher with whom I work has been very successful in individual tutoring sessions using parts of Orton-Gillingham; however, she selectively adopts and adapts specific parts as needed for individual students and she incorporates many of the meaning-based strategies described in this book.

The problem with Orton-Gillingham and similar for-profit programs (Lindamood, Wilson Language Training, Barton System, etc.) is that they try to reduce teaching to an algorithm. An algorithm is a formula for solving problems in which you follow a step-by-step set of procedures in order to achieve a specific outcome. In other words, by correctly following a prescribed set of steps in the specified order, you will be led to a predefined solution. Algorithms are useful in mathematics and computer science for calculation, data processing, and automatic reasoning. For teaching struggling readers? Not so much.

However, Orton-Gillingham and the State of Minnesota would have you believe that if the teaching algorithm is followed explicitly, the teacher can be assured that students will learn to read. And if the algorithm does not work, you run them through the algorithm again … and again … and again. What these algorithmic programs offer is a false sense of certainty. Despite all the certainty thrown about, research to support the long-term effectiveness of these "*direct, explicit, multi-sensory, structured, sequential, diagnostic, and prescriptive*" interventions in improving struggling readers' ability to create meaning with print is simply not evident (Compton, et. al., 2014).

DEFINING DYSLEXIA

So let us now try to understand what dyslexia is or might be. There is not a single, universal definition or conception of this term.

A Sound-Out-Words Perspective

If reading was simply sounding out words, then these first definitions below would be wholly adequate. Figure 25.2 contains the International Dyslexia Association definition that has been replicated by Minnesota and other states.

Figure 25.2. Minnesota/IDA definition of dyslexia

"Dyslexia" means a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate or fluent recognition of words and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge.

The Mayo Clinic, being a medical institution, uses a medical model to understand dyslexia (see Figure 25.3). It is a "disorder" that must be diagnosed and cured. However, they also state that, "*There's no cure for dyslexia.*"

Figure 25.3. May clinic definition of dyslexia.

"Dyslexia is a learning disorder characterized by difficulty reading. Also called specific reading disability, dyslexia is a common learning disability in children. Dyslexia occurs in children with normal vision and intelligence. Sometimes, dyslexia goes undiagnosed for years and isn't recognized until adulthood.

"There's no cure for dyslexia. It's a lifelong condition caused by inherited traits that affect how your brain works. However, most children with dyslexia can succeed in school with tutoring or a specialized education program. Emotional support also plays an important role."
http://www.dyslexia-reading-well.com/dyslexia-definition.html

The National Center for Learning Disabilities defines dyslexia as a type of learning disability related to reading with specific symptoms (see Figure 25.4):

Figure 25.4. National Center for Learning Disabilities definition of dyslexia

Dyslexia is the term associated with specific learning disabilities in reading. Although features of LD in reading vary from person to person, common characteristics include:
• difficulty with phonemic awareness (the ability to notice, think about and work with individual sounds in words)
• phonological processing (detecting and discriminating differences in phonemes or speech sounds)
• difficulties with word decoding, fluency, rate of reading, rhyming, spelling, vocabulary, comprehension and written expression
Dyslexia is the most prevalent and well-recognized of the subtypes of specific learning disabilities.
https://www.ncld.org/wp-content/uploads/2014/11/2014-State-of-LD.pdf

The Learning Disabilities of America definition of dyslexia includes impaired orthographic processing (the visual system used to form, store, and recall words) (see Figure 25.5. Word recognition skills seem to be both a cause and effective of dyslexia.

Figure 25.5. Learning Disabilities of America definition of dyslexia.

> *Dyslexia is characterized by deficits in accurate and fluent word recognition. Individuals with dyslexia struggle with word recognition, decoding, and spelling. Reading comprehension is sometimes impaired due to very poor word reading skills. Individuals with dyslexia often have deficits in phonemic and phonological awareness, which refer to the ability to hear, identify and manipulate the sound structure of a spoken word, including its phonemes, syllables, onsets and rimes. Individuals with dyslexia may also have impaired orthographic processing, which interferes with connecting letters and letter combinations with sounds accurately and fluently.*

The National Institute of Neurological Disorders and Strokes defines dyslexia as a "brain-based" condition, the characteristics of which are difficulties with phonological processing, spelling, and/or rapid visual-verbal responding (see Figure 25.6). Rapid visual-verbal respond means that readers have slower than normal rates of naming letters and individual words that appear in print.

Figure 25.6. National Institute of Neurological Disorders definition of dyslexia

> *Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read. These individuals typically read at levels significantly lower than expected despite having normal intelligence. Although the disorder varies from person to person, common characteristics among people with dyslexia are difficulty with phonological processing (the manipulation of sounds), spelling, and/or rapid visual-verbal responding.*
> https://www.ninds.nih.gov/Disorders/All-Disorders/Dyslexia-Information-Page

A Meaning-Making Perspective

But reading is not merely sounding out words. It is creating meaning with print. During this process, the brain uses three cueing systems to recognize words, not one. Also, it is an interactive process between what is in the head and what is on the page. And during the process of reading almost ten times more information flows from the cortex down than from the page up. Based on this, all the definitions above are highly inadequate.

The International Literacy Association does not provide an official definition of dyslexia. However, it does offer two ideas that inform our understanding (see Figure 25.7).

Figure 25.7. The International Literacy Association's understanding of dyslexia

> *"However, it would be more accurate to say that some children experience difficulty acquiring literacy, which is often related to inadequate phonological analysis skills along with instruction that does not address comprehension, text fluency, phonemic*

awareness, phonics, automatic word recognition, vocabulary, and writing in ways that motivate children to read and write widely. There is no evidence for the value of inserting the construct dyslexia into this claim" (ILAb, 2016, p. 8)

"Many researchers accept the idea that dyslexia/severe reading difficulties results from difficulties in analyzing and manipulating sounds in words (Vellutino, Fletcher, Snowling, & Scanlon, 2004). These difficulties, however, do not of themselves allow us to distinguish readers with dyslexia from other readers encountering difficulties, or from younger readers with the same level of reading proficiency. Errors in reading and spelling made by children classified as dyslexic are not reliably different from those of younger children who are not classified as dyslexic. Rather, evidence suggests that readers with similar levels of competence make similar kinds of errors. This does not suggest a greater incidence of dyslexia, but instead that some difficulties in learning to work with sounds are normal" (ILAa, 2016, pp.2-3).

Dyslexia can be understood as simply a designation for those on the lower end of the reading continuum (Elliot & Grigorenka, 2014; Protopapa & Parrila, 2018; Stanovich, 1994). These would be students who usually score two or more standard deviations below the mean on standardized reading achievement tests. However, Constance Weaver (1998) provides what I have found to be the most apt definition of dyslexia (see Figure 25.8)

Figure 25.8. Constance Weaver's definition of dyslexia.

"Most educators steeped in miscue analysis would prefer not to think of readers themselves as dyslexic at all. Rather, we might define dyslexia as the ineffective use or coordination of strategies to construct meaning from conceptually appropriate and aurally comprehensible texts. Locating dyslexia within the strategies and their coordinated use, not within the reader, this reconceptualization emphasized the possibility that the ineffectiveness of the strategies may result partly or mostly from teachers' or parents' conceptualizing reading as first and foremost a matter of identifying words, and providing instruction that reflects this view" (p 300).

SEVEN THINGS WE KNOW ABOUT DYSLEXIA

Depending on studies and definitions, anywhere from 3% to 5% of students are severely struggling readers or students with dyslexia. This is what we know about dyslexia:

1. Dyslexia is not related to visual problems (ILA, 2016a; Strauss, 2011; Weaver, 1994). Students with dyslexia do not perceive letters backwards or jumble up words to any greater degree than beginning readers or readers of similar ability.

2. Dyslexia is not a brain disorder (Coles, 2004; Straus, Goodman, & Paulson, 2009)**.** There is no reliable evidence to show that the brains of students with dyslexia are qualitatively different from the brains of other students (Coles, 2004; Moreau, Stonyer, McKay & Walkie, 2018; Protopapa & Parrila, 2010; Ramus, Altarelli, Jednorog, Zhao, & di Covella, 2018; Vandermosten, Hoeft, & Norton, 2016; Velluntio, Fletcher, Snowling, & Scanlon, 2004). The brain imaging research that purports to demonstrate "dysfunction" or "abnormalities" is fraught

with methodological concerns (Bishop, 2013; Coles, 2004: Hruby, 2011; Ramus, Altarelli, Jednorog, Zhao, & di Covella, 2018; Velluntio, Fletcher, Snowling & Scanlon, 2004; Strauss, Goodman, & Paulson, 2009). These concerns are usually related to small sample size, the type of subjects used in studies, using single-word reading tasks, the use of the phonological model to define and understand reading, the types of data collected, the over-interpretation of the data, and the kinds of generalizations made based on the data.

This is not to say that there are not differences when comparing the brain images of students with dyslexia to students without. However, many of the differences can be explained by differences in instruction and experience (Vandermosten, Hoeft, & Northon, 2016). These differences largely disappear with the right kinds of instruction and experience (Coles, 2004).

3. Students with dyslexia often have difficulties in analyzing and manipulating sounds in words (ILA, 2016a; Strauss, 2011; Ziegler & Goswami, 2005). They often struggle processing phonological data; but this is not always the case (Elliott & Grigorenko, 2014; Hadzibeganovic, et al., 2010; Snowling, 2008). As well, the types of word reading errors made by readers identified with dyslexia are not remarkably different from those made by other struggling readers or from beginning readers at the same level (Elliott & Grigorenko, 2014; ILA, 2016b; Weaver, 1994).

4. Students with dyslexia often have difficulties with spelling (Moreau, Stonyer, McKay, & Waldie, 2018; Snowling, 2008**).** Spelling proficiency is related to visual memory capacity (Gentry & Gilbert, 2006; Johnson, 2008). Good spellers are better able to store and retrieve letter patterns from their long-term memory than are less able spellers. Since students with dyslexia often have trouble processing phonological data, it follows that this would result in spelling difficulties. Thus said, spelling has little to do with one's ability to create meaning with print. And, drill and practice on weekly spelling lists does little or nothing to help students become better spellers or to enhance their ability to create meaning with print (Krashen, 1989).

5. More phonics is not the answer. What students with dyslexia often receive in intervention programs is a steady diet of phonics and low-level reading skills (Allington, 2012; Weaver, 1994). As has been described in other places in the book, phonics-based instruction can lead to increased scores on phonics-based measures in the short term (Allor, Mathes, Roberts, Cheatham, & Al Otaiba, 2014; Browder, Ahlgrim-Delzell, Flowers, & Baker, 2012; Fautsch-Patridge, McMaster, & Hupp, 2011; Fredrick, Davis, Albert, & Waugh, 2013, Hill, 2016); however, there is little transfer of these skills to authentic reading conditions (Pearson & Heibert, 2013). As well, there is little evidence to demonstrate that this kind of instruction has any have long term effect on students' ability to create meaning with print (Allington, 2012; Johannessen & McCann, 2009; Krashen, 2009; McCormick, 2007; Strauss, 2011).

This is not to say that phonics instruction is not necessary. Phonics instruction in some form is one important part of an intervention for most students with dyslexia; however, it should occur within a meaningful context to the greatest extent possible (Fawcett & Nicolson, 2007; Johnson, 2016). And, phonics instruction should be part of a balanced literacy program that includes practice reading real books. Children who are given daily opportunities to read make as

good or better gains in skills instruction in the long term and typically score higher on tests of reading comprehension (Krashen, 2016; Eldridge, 1991)

      6. There are no standardized pre-packaged programs that are effective in helping students with dyslexia create meaning with print (Allingthon, 2012; Coles, 2004; Gabriel, 2018; ILA, 2016a; Phillips, Hayward, & Norris, 2011; Pitt & Sonia, 2018). Despite the "research-based" claims made by commercial programs such as Orton-Gillingham. Lindamood-Bell LIPs, Simultaneously Multisensory Teaching, Phonics First, Open Court, Fast Forward, or Barton, there are no one-size-fits-all programs that will "cure" dyslexia. The research-based claims made by these for-profit entities should be suspect as they have a financial interest in particular outcomes. Also, you will find no valid research to support the superiority of these skill-based programs in helping struggling readers create meaning with print when compared to a balanced approach to literacy instruction or meaning-based interventions that includes extensive reading practice.

      Skills-based programs may result in a short-term bump in skills-based measures but does not result in long-term gains in comprehension (Krashen, 2009). Again, some decoding instruction is important; however, children who are immerse in good books with daily opportunities to read, make as good or better gains in skills instruction in the long term and typically score higher on tests of reading comprehension (Krashen, 2016; Eldridge, 1991)

      7. Students with dyslexia do not need dramatically different kinds of instruction (Allington, 2012; Wharton-McDonald, 2011). Students with dyslexia, like all struggling readers, need interventions that provide more intense versions of the kinds of research-based instruction they are currently receiving in a general education setting. As stated in chapter 2, when an intervention is substantially different from classroom instruction, it creates a splintered curriculum.   Here struggling readers are presented with different types of instruction and learn different sorts of skills in different places throughout the day. This makes it harder to develop their reading skills; not easier. As stated earlier in this book, struggling readers need consistency in order to reinforce developing skills. This is not to say that there are not differences in instruction between students with and without dyslexia, but the differences are in emphasis and intensity, not in kind.

      And as stated in a previous chapter, intensity here refers to (a) more time, (b) more time-on-task, (c) more time engaged in authentic literacy activities [reading and writing], and (d) smaller instructional groups (3 to 7 students) (Allington, 2012; Wharton-McDonald, 2011). Intense, supplemental instruction (or an intervention) can occur within or outside of a general education classroom setting. The big question always when students leave the general education classroom for this supplemental instruction is, what will you have them miss?

INTERVENTIONS FOR STUDENTS WITH DYSLEXIA

      Some specific recommendations: Intervention sessions for students with dyslexia should occur no less than four days a week and should include variations of the same seven elements

that were described in Chapter 6 and are listed again in Figure 25.9. This would be part of a Tier III intervention in an RTI context.

Figure 25.9. Elements to include in a reading intervention

1. **Word work.** Direct, explicit, and systematic instruction and practice related to letters and letter patterns. This includes synthetic phonics, analytic phonics, and large unit phonics.
2. **Word identification.** Direct, explicit, and systematic instruction and practice related to the four word-identification strategies: (a) analogy, (b) morphemic analysis, (c) context clues, and (d) phonics.
3. **Maze and cloze work.** Students practice identifying words within sentences based on context clues. These can also be used as pre- or post-reading activities or to reinforce word work. (see chapter 11).
4. **Comprehension**. Direct, explicit, and systematic instruction and practice related to the cognitive processes used in comprehension as well as study skills strategies.
5. **Reading practice.** Students are able to read and respond to authentic texts that they have chosen. This could also include teacher read-alouds (Braunger & Lewis, 2006), and scaffolded oral reading (Johnson, 2016). This reading
6. **Fluency work.** Repeated reading and other activities used to develop fluency.
7. **Writing.** This could include LEA, simple one or two-sentence writing activities, as well as the types of process writing instruction and activities used in writing workshop.

Classroom Supports for Students with Dyslexia

The resources and supports below should be available in the classroom for students who show characteristics of dyslexia. Many of these are appropriate for all learners in a classroom.

1. Emotional support. Reading things takes up much of daily instruction in most classrooms. Reducing the stigma will enhance learning. The first thing I say when working with struggling readers of any age is, "*Lots of people have reading problems. It's no big deal. We can help.*" Also, check-ins are helpful such as. *"How's it going? What can I do to help?"* Of course, emotional supports and check-ins are appropriate for all students.

2. Audio books. Students with dyslexia need to be exposed to the same vocabulary, concepts, systems of thinking, and language structures as their peers so that they do not to fall behind. There are audio versions of any textbook used in a K-12 public school setting. These should be made available. As well, during free voluntary reading (reading practice) make audio recorded narrative texts available to students.

3. Speech-to-text programs. Most computers come with speech-to-text programs that enable students to have their oral text converted directly into written text. Encourage students to use this for classroom assignments including writing assignments. These programs also read written text back to students as well. Both should be used interchangeably.

4. Smaller parts. Students with dyslexia can become overwhelmed with too much reading instruction (or other instruction). Instruction should be broken into smaller, manageable parts. This does not mean that you need to reduce the overall time, instead instruction should be brief and briskly paced, followed by strategies that get students actively involved. The strategy

could be as simple as, "*turn to a neighbor and share an important idea.*" The point is, the brain learns best when instruction is provided in small bits, followed by a chance to do something meaningful with the new instructional input. The human brain does not learn well when presented with large blobs of instruction followed by meaningless practice.

5. Pause and process time. Insert pause and process (P&P) time into instruction (Johnson, 2016)**.** Instead of extended exposure to a single instructional element, use brief bits of instruction or instructional activities with small bits of P&P time. This enables students to think about and fully process the instructional input. Inserting these small breaks into the learning sessions enables students to engage all parts of the brain and to integrate new information with knowledge already stored in long term memory. This is why in a meaning-based intervention, it is recommended that each individual activity be between two to eight minutes in duration with 15 to 60 second breaks between each. The P&P break could be something as simple as, *"How do you think you did on that one?"* Or, *"Did you notice how you stopped to see if that sentence made sense?"* Or, *"Alright, what do you think we'll do next?"* Anything to pause, create break, and make a personal interaction with the individual student or students will work here.

6. Simplify homework assignments. Students with dyslexia often learn more if their homework assignments are lessened. Keep in mind the purpose of homework: When used effectively, homework reinforces learning and provides opportunities to extend and practice what is learned in class. As such, students should be able to complete homework assignments with high rates of success (Alleman, Brophy, Knighton, Ley, Botwinski, & Middlestead, 2010). While some homework is helpful, too much homework can reduce learning. In other words, a little homework is good, but that does not mean that more homework is better. And homework should not be used, as is commonly the case, as a measuring and sorting device.

As well, the developmental level of children should be considered when assigning homework. Children need to be children. They need to be outside playing with friends. Any homework before middle school should be minimal. In the same way, adolescents need to be socializing with friends and discovering who they are and want to be. Thus, when assigning homework at these levels, time should be allotted in every class period to complete some or all of it (Johnson, 2019). This enables the teacher to provide feedback and guidance. The academic development of our students should not take place at the expense of their emotional, personal, and social development.

7. Guided notes or outlines for lectures and reading assignments. Guided notes is a strategy in which the teacher gives a student or students a content outline before a class lecture or textbook reading assignment. The notes include the basic structure of the information to be learned with some or most of the information filled in. This acts as a scaffold. Students must then fill in the blanks as they listen or read.

8. Assistive technology. Assistive technology can be something as simple as audio recorders for class lectures and spell check devices for writing. There are also reading pens in which you move the pen over the words on the page and the text appears on the computer screen.

This is good as a note-taking device however, the text can also be read back by the computer. There are also reading pens that can read the text aloud.   These currently are fairly expensive.

9. Peer mediated learning activities. Peer-mediated activities included shared reading (Johnson, 2016), cooperative learning activities, T-talks (Johnson, 2019), or any other strategy that create social interaction around books and the content to be learned.

<mark>Importance of Voluntary Reading for Students with Dyslexia</mark>

Chapter 15 mentioned research conducted by Roseline Fink (Fink, 1996; Fink, 1998). To review, she interviewed successful men and women with dyslexia to see why they were able to be so successful despite their profound "disability". She discovered that all these successful adults were all allowed to immerse themselves and read in areas of interest as children.   Here, they developed expertise, built conceptual and vocabulary knowledge and became familiar with the schemes and structures of the types of texts found in their field. This background knowledge was more important for facilitating reading accuracy and comprehension than letter clues. That is, marginal decoders used context to create meaning with print. Low-level skill mastery was not a prerequisite for higher level thinking and skill construction.

The instructional implications are clear: First, teachers must help all students, but especially students with dyslexia to discover areas of interest. This is done by presenting a wide variety of topics in classes and class discussions, using book talks in which students talk about books and topics of interest, and by having a wide variety of books and other reading material on a wide variety of topics available to students. Second, teachers must allow for daily opportunities to select and read books and other reading materials of interest to them as part of reading instruction.

FINAL WORD

I have presented my views on dyslexia and Orton-Gillingham in this chapter. They are well-referenced, based on solid, peer-reviewed research, and built upon the research-based theoretical perspective elucidated throughout this book. I have presented similar views to different people and groups, both in person and online. Sometimes through the haze of emotion this topic seems to generate, the seven important points below seem not to be clearly heard.

1. Early interventions. I want to be absolutely clear on this point: everybody believes that early interventions are incredibly important for all students who are struggling readers. This includes students with dyslexia. The question has always been, what types of interventions are most effective for struggling readers (including students with dyslexia). As described in this chapter and many places in this book, there is no single approach, no one-size-fits-all program that work best.

2. Short-term bumps. Skills-based programs such as OG often lead to short-term bumps in skills-based measures. This point has never been in question. If you teach something, you are going to get higher scores on post-test measures of that same something. The question has always been, do these short-term bumps transfer to authentic reading contexts and do they result in long term gains in valid measures of comprehension?
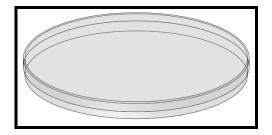
3. Exposure to print. Any exposure to print will be helpful. Additional exposure to print, even nonsensical print such as that included in skills-based programs will be of some benefit to students, especially when compared to student who have had no additional exposure to print. The question has always been, are these frequent exposures to nonsensical print of more benefit to struggling readers than frequent exposures to high quality text accompanied by direct instruction related to letters and letter patterns. In other words, is a scripted approach like OG more effective than a meaning-based approach in which an expert reading teacher is empowered to make the choices that are best for individual students?

4. Direct instruction. Everybody believes that direct instruction used as a pedagogical strategy is a necessary part of any reading intervention. The question has always been, when it is used as an approach to reading instruction, does direct instruction result in the acquisition of the higher cognitive processes necessary for advanced reading and thinking? Will direct instruction of low-level reading subskills provide struggling readers with the tools they need to create meaning with print?

5. Expert teacher. Students with dyslexia need expert reading teachers. Everyone agrees with this. The teacher is the most significant variable in determining the quality instruction students receive and the amount of learning that takes place. The question is, will we allow expert reading teachers to use their expertise and experience to meet the needs of the students with whom they work? Or will they be mandated to implement scripted programs with fidelity? Also, is an expert reading teacher one who knows how to implement a particular program or system? Or is an expert reading teacher one who understands how the brain creates meaning with print, who has read a wide range of research related to literacy learning, and who knows and is able to implement a wide range of pedagogical strategies based on the needs of the students with whom that teacher works?

6. Systematic phonics instruction. Everybody believes that systematic phonics instruction is necessary in some form. The question has always been, what system and what form? Who gets to decide what skills will be included in the system? Who gets to decide what system and form will be used to teach these skills? And who gets to decide what system will be used for demonstrating and documenting those skills? Will it be expert reading teachers with daily interaction with their students? Or will it be some entity outside the classroom who knows nothing of the students, teachers, or teaching situations?

7. Research-based reading instruction. Everybody believes that a wide body of peer-reviewed research should be used to make decisions about reading instruction and interventions. As well, everyone believes that reading teachers should only use those pedagogical strategies that are evidence-based. The question has always been, who gets to decide what counts as evidence? Who gets to make these important epistemological assumptions for all of us? Will the same simplistic view of research that is used to come to understand organisms in a petri dish be used to mandate what research methodologies can be used to understand human beings interacting in the real world? Or will a more complex understanding of research be used to navigate the multitude of variables associated human learning?

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