Differentiating for Struggling Readers and Writers: Improving Motivation and Metacognition through Multisensory Methods & Explicit Strategy Instruction

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Abstract

This paper examines the issue of struggling readers and writers, and offers suggestions to help teachers increase struggling students' motivation and metacognition. Suggestions include multisensory methods that make use of the visual, auditory and kinesthetic learning pathways, as well as explicit strategy instruction to improve students' ability to self-regulate and apply learning strategies.

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According to the U.S. Department of Education's 2009 Digest of Education Statistics, there were 2.6 million students, or 5.2 percent of all students nationally, classified with a 'specific learning disability' in 2008 (Samuels, 2010). This category includes disorders in the areas of listening, speaking, reading, writing and mathematics (U.S. Office of Education, 1977, as cited in Lyon, Shaywitz and Shaywitz, 2003). The Department of Education's statistics indicate that of this population of learning disabled students, at least 80 percent have reading disabilities, also referred to as dyslexia, which is "an often-misunderstood, confusing term for reading problems" (Hudson, High and Al Otaiba, 2007, p. 506).

Why do some students struggle with learning how to read and write? Hallahan, Kauffman and Pullen (2010) describe two possible causes for learning difficulties: lack of motivation and problems with metacognition. They explain that unmotivated, passive learners often have an external locus of control and may exhibit learned helplessness, tending to give up due to their belief that they will inevitably experience failure. Metacognition refers to "one's understanding of the strategies available for learning a task and the regulatory mechanisms needed to complete the task" (Hallahan, et al., 2010, p. 200).

The standard practice in schools for identifying students with learning disabilities has been the 'achievement-discrepancy' model, which compares achievement and IQ test scores to determine students in need of intervention. Because students typically had to

complete the primary grades to acquire enough skills to take achievement tests, this approach has become known as the 'wait to fail' model (Hallahan, et al., 2010).

More recently, the Response to Intervention (RTI) model of identifying struggling learners has been utilized. RTI is a school-wide, tiered approach to providing instruction and identifying students who struggle with particular skills. Tier I involves high-quality, evidence-based core instruction and screening which identifies students at risk for failure. Tier II provides early intervention in the form of supplemental instruction for the at-risk students. In Tier III, students who continue to struggle receive more intensive intervention, often provided by special education teachers (Tompkins 2010; Hallahan, et al., 2010).

It is critical to identify students at risk for reading failure early versus waiting for them to fail in the intermediate grades or later. In fact, "students who are not at least moderately fluent in reading by third grade are unlikely to graduate from high school" (Slavin, Karweit, Wasik, Madden & Dolan, 1994, as cited by Herron, 2008, p. 77). Documenting an individual's instructional history is critical to understanding the nature of the observed reading difficulty ... If reading instruction is not informed by an understanding of the gaps in foundational skills and adjusted to teach the missing skills, reading failure typically occurs. On the other hand, a number of recent studies have shown that many children identified as at risk for reading failure in kindergarten and first grade, provided with effective instruction, developed proficient early reading skills. Indeed, Torgeson (2000) reported that effective early interventions have the capability of reducing the expected incidence of reading failure from 18 percent of the school age population to 1.4 to 5.4 percent (Lyon, et.al., 2003, p. 8).

Although less than 5% of students have actual documented reading disabilities, as Lyon, et al., (2003) state, 18% of school children are at risk for reading failure. Differentiation of instruction is one of the important ways teachers can address the diverse needs of all the learners in their classrooms. As Mark Draper, Director of Special Education for Green Hills Area Education Agency in Council Bluffs, IA, stated in a September, 2010 presentation to education students, teachers can't operate under the 'I taught it, why didn't they get it?' mentality. They have to look at additional ways to deliver instruction so their students <u>do</u> get it. Marcia K. Henry (1998) conveyed this same concept in an article about Dr. Samuel Orton, an early twentieth century scientist, physician, and educator who studied dyslexia: "His recurring theme was that the problem is not with the children: all are teachable with appropriate instruction" (p. 7). Another reading researcher put it this way: Most children with reading disability "reflect an instructional dysfunction rather than a constitutional shortcoming of the child" (Calfee 1983, p. 26, as cited in Henry, 1998, p. 16).

Tompkins (2010) explains that teachers can differentiate by modifying content, process or product. This paper is focused on research-based modifications to the instructional *process* which address struggling readers' and writers' different learning styles and target improving their metacognition through teaching of explicit strategies. A number of approaches to multisensory instruction and instructional strategies are reviewed.

The visual, auditory, kinesthetic (and some researchers add tactile) learning styles provide multiple pathways for learning. Multisensory instruction capitalizes on the different learning styles by utilizing all the pathways students have for acquiring knowledge and skills. This approach was pioneered in the early twentieth century at the New York Neurological Institute by Dr. Samuel Orton and his partner, Anna Gillingham (Henry, 1998). Henry (1998) describes how Gillingham and her colleague Bessie Stillman designed instruction in keeping with Orton's neurological theories, which are "... based upon the constant use of associations of all of the following: how a letter or word looks, how it sounds and how the speech organs or the hand in writing feels when producing it" (Gillingham and Stillman 1956, p. 17, as cited in Henry, 1998, p. 3). Gillingham and Stillman's teaching manuals "direct the teacher to assist children in making numerous visual, auditory, and kinesthetic-tactile linkages as portrayed by their 'language triangle.' For example, a child first sees a letter, then traces it, and says the letter name and/or sound. Or, the sound is made by the teacher and the name is given by the pupil" (Henry, 1998, p. 10).

Many educational researchers have adapted the Orton-Gillingham multisensory teaching method and created their own reading programs. Henry (1998) refers educators to a collection of studies by McIntyre and Pickering (1996), which documents "results of ... Orton-Gillingham instructional techniques and its offspring, including Alphabetic Phonics, Herman, Project Read, Slingerland, Spalding, Wilson, and others" (p. 13).

The author of this paper was introduced to multisensory instruction based on Orton-Gillingham at Dr. Joan Stoner's presentation at the Plum Creek Literacy Festival at Concordia University in Seward, NE on October 9, 2010. Dr. Stoner is president of the Nebraska International Dyslexia Association and an Assistant Professor at the University of Nebraska-Lincoln. She described how she helps students utilize the three learning pathways of the 'language triangle' - visual, auditory and kinesthetic. She polled the audience to see who had an easy time and who had a hard time learning to spell, indicating that those who have a hard time lack what she termed 'visual memory.' This echo's spelling researcher J. Richard Gentry's (2004) description of his own inability to 'see words in his mind' in *The Science of Spelling*.

The author of this paper was particularly struck by Dr. Stoner's description of the multisensory technique she uses: struggling students look at a note card with the correct spelling of a word and spell it out loud, while at the same time using their index finger or first two fingers of their dominant hand to write the word on the table, or better yet, in a shallow tray of sand, underlining it as they pronounce the word. This is repeated five times for each word they are learning or struggling with. Dr. Stoner stated that there are more nerves in the finger tips than anywhere else in the body except around the mouth, and that this would cause the message about the correct spelling of the practiced words to travel from the fingers, up the arm and right into the brain. The author immediately thought of her 16-year old son, who is an avid reader but not a natural speller. She asked Dr. Stoner if this multisensory technique was effective just for beginning readers, or if it might work for older people, and Dr. Stoner responded that she has had great success

using her approach to tutor struggling adult readers and spellers, as well as children. Barbara P. Guyer and David Sabatino (1989) also reported reading improvements achieved through an Orton-Gillingham based approach with learned disabled college students who were struggling readers.

At Dr. Stoner's session at Plum Creek, the author of this paper met Julie Craw, a 29-year veteran of first grade teaching in the Lincoln, NE public schools. In response to Dr. Stoner's discussion of multisensory teaching methods, Mrs. Craw offered that she had developed numerous songs, movements and finger plays to help her students learn and remember rules and strategies for reading, writing and math and used them with great success. She stated that when students come back to visit her years later, they remark that they are still singing her songs or using her movements to help themselves remember the rules and strategies she taught them. Marlyn Press (2006) corroborates Mrs. Craw's use of music as a memory tool in the classroom, advocating that songs be used "to help children learn, practice and internalize concepts, ... [and] list the sequence in which a particular activity is to be done" (pp. 307-308).

After Dr. Stoner's session at Plum Creek, the author of this paper approached Mrs. Craw to discuss her teaching style and arranged to visit her classroom to get a firsthand look at how she implemented it with her students. The author was able to observe her in action and video tape her using several of her creative techniques with her class on Thursday, October 21, 2010.

Mrs. Craw's innovative teaching style incorporates a variety of approaches, including multisensory instruction and musical mnemonics. She received her education degree from the University of Nebraska-Lincoln. After a couple of years in the classroom, she was very frustrated with the lack of progress by her struggling students. In 1971, her principal sent her and some colleagues to be trained at the Exemplary Center of Reading Instruction (ECRI) in Salt Lake City. The ECRI website describes their approach to language arts as a highly structured, demonstration-prompt-practice format, students learn not only “what” to do, but also “how” to do it. By using instructional directives, easily remembered classroom routines, and systematic record-keeping procedures, teachers who practice ECRI principles can greatly reduce the amount of time it takes students to learn specific skills. Furthermore, the use of small-group unison responding formats and highly structured practice time routines provides sufficient opportunities for all students to complete their mastery tests.

After incorporating methods learned at ECRI, Mrs. Craw said she began to see growth in her struggling students. She also took classes on Orton-Gillingham-based instruction in Lincoln and incorporated multisensory techniques and kinesthetic/tactile learning materials into her classroom.

The ECRI approach in combination with multisensory instruction is evident in how Mrs. Craw teaches and reviews words with her students. She uses flashcards and has the students read them in unison when she points to the card, stopping to have students practice words they have difficulty with by writing them on their hands, which she calls

their 'magic slates,' as they spell the word out loud then pronounce it together. Mrs. Craw also uses a 'read-spell-read' in unison routine for word and sentence dictation. In small group sessions, Mrs. Craw augments the ECRI-based word practice with the Orton-Gillingham based technique of having students write words on trays of sand as they look at the word flashcard and spell the word out loud.

Mrs. Craw began developing mnemonics, many of them musical, to help herself and her students remember important information, rules and strategies. Every time she noticed students struggling over a particular concept, she would create another mnemonic, which is defined as "a word, sentence, or picture device or technique for improving or strengthening memory" (Lombardi & Butera, 1998, as cited in Wolgemuth, Cobb & Alwell, 2008, p. 1).

Paulette Goll (2004) provides an enlightening overview of the value of mnemonics and how they aid memory in her article, *Mnemonic Strategies: Creating schemata for learning enhancement.* She explains that memories must be encoded to be stored in long-term memory, and that this may happen by "rote or repetition for an immediate purpose ... [or by] elaborate encoding which relates new information to that already in long term memory" (p. 307). To further promote the encoding process, Goll cites R. L. Cohen, who "reports that virtually any form of motor enactment during learning enhances that learning" (p. 309). By employing at least two and usually three learning pathways in each of her mnemonics and reinforcing them through repetition with her class, Mrs. Craw enhances her students' memory encoding process and increases their chances of successfully retaining and retrieving the information and strategies they need to become successful readers and writers. As Mastropieri, Sweda and Scruggs (2000) explain, "mnemonic ... strategies enhance student learning and memory by explicitly connecting new information with prior knowledge by means of visual and acoustic cues. ... [They] can be very versatile and lend themselves to many different uses" (p. 69).

A simple strategy Mrs. Craw uses to help students distinguish between the letters 'b' and 'd' is to have them 'make a bed' with their hands. The left hand makes the letter b and the right hand makes the letter d. Any time there is an issue with reversal, Mrs. Craw prompts students to 'make your bed.' She also has a musical mnemonic by this title.

An example of a helpful mnemonic for struggling writers is "*PLEASE*, which stands for Pick a topic, List your ideas about the topic, Evaluate your list, Activate the paragraph with a topic sentence, Supply the supporting details, End with a concluding sentence" (Milford & Harrison, 2010, p. 327). Another mnemonic strategy that may be useful for intermediate students writing persuasive essays is "*TREE*, which prompts writers to "Tell what you believe (topic sentence), give three or more Reasons (Why do I believe this?), End it (Wrap it up right), and Examine (Do I have all my parts?)" (Graham & Harris, 2005, p. 27).

Teaching students the key syllable division rules is another strategy that teachers can use to help struggling readers and writers (Guyer & Sabatino, 1989). Based on their successful multisensory work with college students with learning disabilities, Guyer and

Sabatino (1989) explain, "A few rules will allow students to learn thousands of words" (p. 431). They recommend using a mnemonic for remembering the six most important rules of syllable division: "*CLOVER* - C Closed syllable (cat), L Consonant -le (table), O Open [syllable] (go), V Vowel [pair] (pair), E Silent e (cake), R R [controlled] vowel (car)" (p. 431). This mnemonic would also be extremely useful for new teachers working on mastering the literacy content they need to help their students learn to read and write!

Rosenthal and Ehri (2008) even describe orthography itself as providing a mnemonic value for learning vocabulary. The authors found that children "learned and remembered the pronunciations and meanings of new vocabulary words better when ... exposed to written forms of the words ... than when they only heard and repeated words" (p. 186).

Jeannine Herron (2008) quotes a 2002 study by Ehri, which shed[s] light on how readers can look at thousands of words and instantly recognize their meaning. According to Ehri, the sight of a word triggers its pronunciation, and it is this pronunciation that has been stored in memory for convenient access along with the meaning of the word. Our lips may not be moving when we read, but our brains are 'talking.' ... Trying to recognize thousands of words from their visual appearance alone (pattern recognition) is almost impossible. Speech memory is the key (p. 78).

Herron (2008) makes a compelling case that children should be taught phonemic awareness systematically through constructing words, or encoding, first, followed by reading the words they have written (decoding).

Mastering the code enables a student to write any word. Even if the student does not spell a word perfectly, someone can usually read it. Successful communication makes clear to the student how words get on paper and what reading and writing is all about. ... Dealing successfully with written language as a writer or reader - the task of literacy - requires automatic skill with the alphabetic code. Practice with encoding enhances facility with decoding; they are two halves of the same learning task (p. 79).
Yolanda Post (2003) echoes Herron's position: "The most engaging way to learn word structure in its relation with speech is to construct a word in writing. “Writing lets children struggle with the function of the letter to capture speech” (p. 143). Students who struggle due to poor visual memory might learn to read through writing practice, since writing involves eye-hand coordination, motor control, as well as the visual modality. What makes writing especially attractive is that a speller controls the content of what will be said as well as its translation into words, whereas the novice reader controls neither (Cox, 1984, p. 105, as cited in Post, 2003, p. 143). A significant benefit to this approach is that "students who have difficulty discriminating symbols and sounds may be helped through emphasis on the kinesthetic involvement found in handwriting" (Guyer & Sabatino, 1989, p. 431).

In her presentation at the Plum Creek Literacy Festival, Dr. Stoner's multisensory approach to helping struggling students included teaching the six syllable types and rules of syllable division, and the "three great spelling rules: the doubling rule, the final e rule and the y rule." In Mrs. Craw's classroom, these rules are introduced and reinforced

through her unique multisensory and mnemonic memory enhancing approach. Although the author of this paper did not ask Mrs. Craw whether she starts with encoding or decoding instruction, it seems apparent that her consistent emphasis on using her students' kinesthetic learning pathway via the 'magic slate,' the trays of sand, and word and sentence dictation enable her students to access the encoding benefits described above.

For readers struggling with fluency and motivation, two multisensory methods of repeated reading, Readers Theatre and Rhythm Walks, offer reading improvement coupled with movement and fun (Peebles, 2007). "Readers Theatre is an authentic venue for rereading the same text several times while motivating the most reluctant of readers" (Tyler & Chard, 2000, as cited by Peebles, p. 578). A Rhythm Walk involves writing appropriate chunks of the selected text on large strips of card stock, which are laid around the room in sequential order; students line up and make their way through the Rhythm Walk by reading aloud (Peebles, 2007). Peebles explains that their purpose is to " draw attention to the natural breaks and phrasing of text through purposeful "steps" or movements, while the repetition through the Rhythm Walk helps build both fluency and comprehension" (p. 579).

Three additional strategies proven to increase readers' and writers' motivation and metacognitive capabilities and in addition, assist teachers in accomplishing the goal of differentiating instruction, are the Self-Regulated Strategy Development (SRSD) model (Harris & Graham, 1996, 1999, 2006), an adaptation of the *Reading Recovery* program (Horner & O'Conner, 200&), and the Peer-Assisted Learning Strategy (PALS) (Fuchs & Fuchs, 2005). These strategies are explicitly taught to students to increase their self-sufficiency in learning and applying new skills and concepts.

In their article, *Explicitly Teaching Struggling Writers: Strategies for mastering the writing process,* Graham, Harris, & MacArthur (2006) explain that the SRSD model was developed to support teachers as they instruct students on how to use educational strategies for tasks such as report writing. This type of teaching could be described as implementing a 'strategy within a strategy.' This approach is effective with diverse groups of students for two reasons: "It makes what is typically a covert process visible and more concrete, and ... students are taught to carry out processes - such as generating, framing, planning and revising text - that most young writers find challenging" (Scardamalia & Bereiter, 1986, as cited in Graham, et al., 2006, p. 294).

Horner and O'Conner (2007) cite a similar set of developmental self-regulation steps for early readers outlined by Schunk & Zimmerman (1996, 1997): "observation, emulation, self-control and self-regulation" (p. 97), and map this onto Marie Clay's *Reading Recovery* techniques of "Elkonin boxes, one-to-one matching, taking words apart, and using analogies" (p. 98) with the goal of helping children become self-regulated readers. They stress the importance of guiding children through the steps and gradually releasing control to them, which could also be described as scaffolding.

Fuchs and Fuchs (2005) developed the Peer-Assisted Learning Strategy (PALS) model in part to assist teachers in implementing differentiation in their classrooms. They cite a number of studies indicating that "children's reading competence improves when they work with each other in a cooperative and structured manner" (p. 34). In the PALS model, Fuchs and Fuchs explain that students of higher and lower ability are paired, and after instruction from the teacher, take turns acting as coach and tutor for one another. The teacher can vary the difficulty of the material or vary the students' pace as needed.

Children who struggle with reading and writing need proactive teachers who will intervene early and find ways to help them overcome their learning challenges. There are abundant evidence-based strategies teachers can employ to motivate and engage their students in successful learning experiences. Multisensory methods which utilize the visual, auditory and kinesthetic/tactile pathways and explicit metacognitive strategy instruction are two proven approaches for struggling learners which teachers should investigate and incorporate into their teaching practice. Waiting for these students to fail is not an option.

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