

Teaching Dyslexic Students

Kevin L. Huitt

December 1999

Abstract

Dyslexia is a problem facing many students in today's educational system. Unfortunately, it appears that there are no known medical alternatives to alleviating the cognitive processing challenges presented with dyslexia. Therefore, educators are required to make instructional adjustments if dyslexic students are to be successful in an academic environment. One of the primary adjustments that must be made is in the way dyslexic students are taught to read and write. A variety of successful solutions have been developed to address this dilemma. This paper provides an overview of the problems faced by dyslexic students and how teachers can modify their instruction to accommodate these difficulties.

Teaching Dyslexic Students

Trying to meet the individual needs of all students is a difficult task, as any educator today knows. That task is made even more difficult when the student has a diagnosed learning difficulty such as dyslexia. The purpose of this paper is to provide a brief review of the literature relating to dyslexia and how classroom teachers can assist students with this learning disability.

Defining Dyslexia and Identifying Its Causes

“Dyslexia is a language learning disorder that results in deficits in reading, spelling, and, Balise, Black, Nussbaum, Oakland Stanford, 1998, p. 140). A popular misconception is that children who are dyslexic see things backwards. In reality, their problems are founded in the connection between seeing words and producing or remembering the sounds they make (Balise et al.). Dyslexic children have a hard time learning to read through conventional methods. These children do not possess the ability to focus on the different parts of a word and produce the sounds, either in their head or aloud, which make the word. Because of this inability, dyslexic children, if taught through conventional methods, are forced to memorize every new word that they come across and hope that they remember in future reading activities how to pronounce it.

The key question that still baffles the scientific community is “what causes dyslexia?” Doctors now know that dyslexia is not a disease with a cure that will be discovered in the near future. It is a condition that demands teachers use specific teaching methods to get around the perceptual and processing problems that produce dyslexia. Researchers have recently focused on the brain and its abnormalities as a way of discovering more about this condition. Through brain imaging techniques, as well as experiments on mice and rats, they discovered that there is a difference in some of the lobes of the brain that may inhibit the reading process (Castles, 1997).

There is also evidence that slow development of the inferior temporal cortical areas may lead to difficulties in forming memory representation of objects (Castles). Because words are objects to the brain, this is a link to what may be wrong in people who suffer from dyslexia.

Genetic evidence is another area that researchers have chosen to focus on in the last several years. There is evidence that dyslexia has a significant genetic component. This component, however, is the same one that produces a normal variation in reading, so there can be no definite conclusion made about the influence of the genes (Castles, 1997). At the moment, there is nothing that can medically be done with this biological and genetic information.

In regards to the brain's processing of visual and auditory information, it has been determined that students with dyslexia cannot take the components of words and put them together into sentences. This inability makes it harder for comprehension of sentences or longer passages. Most dyslexic high school students can follow along with someone else reading a passage, but they cannot come up with the meaning of the passages on their own. There is strong evidence that the eye movements of dyslexic readers are different from those of normal readers, making it harder to stay on task when reading material (Castles, 1997). However, this is likely to be a result rather than the cause of aberrant reading. Studies have also shown that dyslexics have a deficit in rapid neuronal functioning. Because of this deficit they cannot keep up with the information that is flowing from their eyes to the brain and words and sentences quickly get mixed up in the brain, making no sense whatsoever. This is also called low spatial frequency visual information, which is due to an abnormality in the brain functions required for successful reading (Castles).

One constant throughout this research is the discovery of phonological deficits in students with reading disabilities. Phonological processing is the use of sounds of language (Siegal &

Vandervelden, 1997). It had been theorized that the deficits in the phonological processing are what cause the students to become deficient in the areas of reading. When students begin learning to read, or even speak, it is required that they be able to hear all the sounds that are present within a word and store them away in memory for later use. As a student becomes more proficient in the areas of reading, the skills they learned early on from listening and repeating become an unconscious ability, one that can be called upon at any time without much thought. Because of their phonological difficulties, dyslexic students are not able to store the initial information and recall it when necessary. Instead, the words get quickly jumbled and look like nothing more than a mass of letters that have no value whatsoever to the dyslexic reader.

Identifying the Dyslexic Student

As described earlier, one aspect of dyslexia is that there are deficiencies in the phonological, or sounding out, property of the child's brain. Therefore, identifying dyslexic students most often occurs during the process of a child learning to read, usually in the early stages of their schooling (between the ages of 6-8). All children struggle at times with the process of learning how to read. There are going to be some children who do not catch on to reading and writing techniques right away, but who should not be described as dyslexic. Dyslexia, as with other learning disabilities, is something that is constant and follows the student for a long period of time, usually longer than six months. The disability is recognizable by looking into the nature of the reading problems, rather than the fact that they exist. Therefore, it is vital that educators become aware of why a child is struggling with reading. Dyslexic students do not have the ability to learn how to read like a normal child, where constant repetition is the key to learning the structure of words and sentences. When looking at the text of a book or some other document,

they are unable to sound out the words that they do not know. But how do we, as educators, recognize these children within the classroom environment?

The key to discovering whether or not a child could have a learning disability is to sit down with the child one-on-one. Follow along with his/her reading patterns. When he/she comes to a word that is not immediately read, do not give the answer. Ask the student to sound it out (you will have needed to have already gone over the sounds that the different letters make in the different situations). Most children, with a modest amount of prompting, will be able to sound out the word. His/her distinct rhythms will be recognizable. A dyslexic child, however, will be unable to sound out the words. He/she will only be able to see the word as a whole and will not be able to even split it up into the sections that will allow for the rhyming technique to be used.

Dyslexic students are also typified by a difficulty in sequencing. Math is very difficult for them especially in the disciplines like geometry and algebra that are spatial in nature. Dyslexic students, when writing about an event, will tend to skip around when describing events that have taken place (e.g. "I went and brushed my teeth. I got out of bed.") Chronological order is a problem that cannot be easily solved just by pointing out the problem. It is something that the student must be constantly reminded of. Not all dyslexic students suffer from sequencing problems, the inability to provide written information, or severe phonological problems. It depends on the level of dyslexia that each student exhibits.

Children with dyslexia are often described as having many talents outside of their schoolwork. Educators can utilize these abilities to discover if their students could possibly be suffering from dyslexia. In my experiences, dyslexic students are very bright students who can understand complex problems and tasks when they are presented to them aurally. Ask them to take that knowledge and apply it to paper and all of a sudden a teacher will feel like he or she is

talking to a totally different child, one that does not seem to have the same capacity for talking about complex problems. It is very difficult for the dyslexic student to write down his/her ideas. Because the processing sequence in the brain does not work properly, the student cannot write down the things that he/she is thinking or speaking about. Even when the thoughts are written down, the handwriting and spelling are atrocious.

Working With Dyslexic Students

Identifying dyslexic students is important, but what exactly can educators do about it? The first course of action is to start in the early grades with testing and recognition of the disability. Nothing is better than discovering the problem early and doing everything possible before the child begins to continue through school several steps behind all the other children.

The majority of the new research focuses on the use of phonological techniques in helping the child to learn how to read. For example, Siegal and Vanderwelden (1997) put children through a series of exercises over the course of 12 weeks that were designed to facilitate the gradual expanding use of letter-phoneme relationships in early reading and spelling. The researchers decided to approach the subject through the use of modalities. The children were asked to listen to a word and then pick out the same word from a visual list of three similar words. The researchers were looking for gaps in the phonological skills of the children and what should be attacked in the future tests. "Printed word sets were ordered to assess phonological recoding from partial to complete with eight trials at four levels: for example, (mask) dress boat (Level 1: initial-consonant difference); meat (mask) mould (Level 2: last consonant difference); milk monk (ask) (Level 3: noninitial-final consonant difference); big (bug) bag (Level 4: vowel difference only)" (Siegal & Vanderwelden, p. 66). From this point, the students are required to go through several more tests of phoneme skills to test their strengths and weaknesses.

After the initial tests, the children were split into groups. The three lowest scoring children received predominantly one-on-one instruction for approximately 30 minutes a week. The next lowest scoring children received instruction in pairs for approximately 45 minutes per week. The four highest scoring children received small group instruction once weekly for thirty minutes. Pretesting also determined what methods of instruction would be used on the children. The lowest scoring group started with learning how to say and spell one to two words at a time. They were assisted in the activity by using large plastic letters with the instructor using hand signals. The lower scoring children, as they began to expand their vocabulary, moved on to guided facilitated spelling one word at a time, and then more as they began to master the concepts.

As the tasks became easier for the learners, they moved on to unaided spelling of four to six thematically related words of interest. This is the portion of the lesson where the highest members of the class started. With this exercise, the students would compare their spelling with the correct spelling and then be guided in several methods of spelling. After several lessons of independent spelling, the children were moved on to using consonant diagrams. These diagrams took each word and grouped the letters into the sounds that they make (rather than separating the individual letters). It is at this point that students begin to progress into the actual reading stages of the study.

The final stage of the study was to separate the highest scorers on the initial test and have them do exercises using rime analogy. This is the concept of deleting initial consonants so that the children can hear the rhyming sounds in each word. "For example, after deletion of the /b/ in /but/, children were directed to find the printed match in the set -ot, ut, at. Children were then asked to read and spell words with similar rimes" (Siegal & Vanderwelden, 1997, p. 70). The children, through the use of phonological skills, were effectively shown how to actually decipher

the phonemes from words that, as dyslexic children, they were largely unable to hear on their own.

Other researchers have developed similar programs to help dyslexic students. For example, Abbott, Abbott, Berninger, and Reed (1997) provided a year long reading/writing tutorial designed for students between the first and second grade; Breznitz (1997) developed a method designed to encourage an increased reading role in order to produce a better memory for text in the primary grades. Both of these techniques use the phonological methods described in the Siegal and Vanderwelden (1997) method. All of these studies are designed for early intervention and are meant to stop the major problems of dyslexia before they begin rearing their ugly heads.

Applications in the High School Classroom

While everyone recognizes it is best to identify dyslexic students in the elementary grades and apply corrective procedures, some children fall through the cracks and make it to the high school level without the skills necessary to succeed in an academic environment. In the high school age group, some of the same methods are being used, but in a format appropriate for this age student. A fine example of a dyslexia training program is provided by Oakland, Black, Stanford, Nussbaum, and Balise (as cited in Balise et al., 1998). The basis of this program was to provide students instruction that improve three qualities of reading: a highly structured phonetic-instruction training program with heavy emphasis on the alphabetic system, drill and repetition to compensate for short-term verbal memory deficits, and multisensory methods to promote nonlanguage mental representations.

“The DTP core curriculum provides a cumulative series of 350 one-hour lessons starting with the very basic abilities (e.g., letter recognition) and extending sequentially to sophisticated levels of linguistic knowledge (e.g., syllabifying and coding polysyllabic words)” (Balise et al.,

Balise et al., 146). Also prevalent in the program is the use of computer assisted reading software, with or without synthesized speech and speech feedback, that presents lessons on isolated skills for drills and practice. The DTP uses as many methods as possible to continue the progress of each student and maintain whatever gains that have been made. It requires much more independent practice than any system that could be utilized in primary education classroom.

Unfortunately, because there is not a large amount of research focused on the dyslexic child in the high school classroom, teachers are required to take bits and pieces from the research, even that dealing with the primary grades, and apply it where feasible. In my classroom, reading and

writing go hand-in-hand. I believe that it is necessary to put the two components together so that students will be familiar with the way that words act together, how they sound when they are put into a sentence, and how the spellings of the words act and react to each other.

When a dyslexic student first comes to the school in which I teach, he/she is assigned to a teacher on a one-on-one basis. This is done to help augment any of the skills that they have as well as evaluating what will be the least restrictive environment for the student. This, in turn, will help provide the best learning environment for the student. For example, it is necessary for any student in the high school classroom to having a working knowledge of the rules and constraints of grammar. Most students do not like to learn all the grammar rules because they are still struggling at reading or even getting the general idea of the literature to which they are being introduced. As an English teacher, however, I believe it is one of my responsibilities to make sure they are familiar with the rules so that can recognize one aspect of what they are doing wrong in their writing and why. The students need to be able to succeed with their writing so that they can be successful in college and on the job, the majority of which require written tasks in our technological age. Grammar is a yearlong process that needs to be done in small intervals so that the students do not get overwhelmed by the amount of information that they are being asked to process.

The term dyslexia deals directly with difficulty in the areas of reading. What does writing and grammar have to do with these functions? Writing allows all modalities to be involved in the process of learning how to read. First and foremost, students are more likely to be able to read the things that they have written. Even if words are spelled incorrectly or sentences are misplaced, the student will be able to sit down and tell the teacher all the things that they were trying to say in the paper. This allows the revision process to be interactive and still allow the students to get

the right answers. Unfortunately, they will not always have someone there to teach them everything that they need to know about reading and writing; therefore, a plan needs to be put into effect. This is a plan that can be adapted for students in a larger classroom and something that I believe non-disabled students would benefit from as well.

I believe that all students should memorize the Latin root words. There are roughly forty of them, so it should not be that difficult a task. Almost every word in the English language that a student will read, write, hear, or speak, and possibly have a hard time with, whether it is in school work or on an assessment such as the SAT, has its basis in a root word. This is an important function to be taught to dyslexic students. Because of their phonological deficits, dyslexic students will greatly benefit from learning the root words. Even if they cannot pronounce them correctly, the students will be able to translate the word and provide it with meaning (an important task in reading). An additional benefit has to do with vocabulary development. I do not like to have students memorize vocabulary words all year long because they will learn them only for the test and then promptly forget them. If they are drilled on the Latin root words, they will always be able to look at words and decipher their meaning.

After the students memorize the Latin root words (this project should be over the course of several weeks), it should become a common practice to learn 5 to 10 new vocabulary words every week. The words should come from a source that provides SAT vocabulary words. This practice will allow the students to expand their vocabulary at a slower pace. The relatively few words will also not overwhelm them with the amount of knowledge the teacher is expecting them to learn. The words should be considered in a variety of activities, including seeing them in writing and using them in their own writing. They will also be used later on as a requirement for in-class writing.

In a literature class, students are expected to garner some knowledge in how literature is related and how different literary techniques (metaphors, personification, etc.) are used. In order to assist students to develop their analytical thinking skills, teachers need to choose stories or poems that are open ended or open for some type of debate. Any story that ends abruptly and has no obvious form of closure is ideal. An example of this type of text would be a story called “The

Vonnegut. In this story, a radio wave from space is discovered to make everyone that hears it euphoric to the point in which they do not know what is going on around them and are lost in a daze until the machine producing the wave is turned off. The story ends with the narrator asking the government to ban the machine and not allow it to be sold to the general public. From the story, the teacher can ask the question of whether or not the government should allow such a piece of equipment to go into production. The class, as a large group, could debate the subject and generate a list of good and bad outcomes that could happen if the machine went into production. They could then break off into smaller groups and continue the debate, while creating a general outline for a persuasive essay. This technique allows the auditory learner to get hold of the information, while at the same time teaching them that they need to write down notes for later use. The dyslexic student will benefit because they will be able to grasp the story even if they were not able to get the full idea from the initial reading. The teacher should also take the opportunity to point out the important facts of the story and what the class should have been looking for, information-wise, in their initial reading.

After the story has been explained, a debate has been sparked, and an outline has been generated, students begin to work on the rough draft of the persuasive essay. This should either be a class period assignment or a homework assignment. The teacher should tell students to focus on a few goals that need to be achieved in the paper. These are the only pieces of the writing that

should carry weight within the paper. For the sake of this assignment, I would ask the students to focus on a recommended length, three to five ideas that will be used to back up their thesis statement, the use of the three to five of the week's vocabulary words, and whether or not the paper is clear in the argument. Each direction will carry a certain amount of points that the students will be made aware of. The vocabulary words for the week should be appropriate to the task at hand.

The following week the students will begin the rewriting process. It should start with a self-review session. In this activity, the students read aloud to themselves in a voice low enough for each individual student to hear his or her paper, but the other students will not be able to discern what they are saying exactly. From this reading, each student will be asked to complete a worksheet with questions designed to spark thought about the essay. The length and information of each question may vary due to the design of the teacher's lesson, but they should all have one common goal: is the student clear in the presentation of the argument? In self-review, grammar and spelling are not as important as finding out whether or not the student was able to get his/her point across.

After the first review session, the students are directed into smaller groups (preferably from two to four students per group). Each student reads his or her individual essay aloud to the group. This will help to get around the poor spelling and handwriting that usually accompany students with dyslexia. From the reading, each listening student will generate a question designed to help the reading student add something to the paper to make it better. A sample question could read as follows: "Have you thought about adding more information to your paragraph about mind control in order to better your argument?" Students take this information and revise their original copy with notes that will be available when writing the final copy.

After the revision exercises have taken place, students write their final draft during the next class period. If computers are available, they need to be taken advantage of. One aspect of dyslexia that cannot be combated is the tendency for the student to be a horrible speller. With the technology that is available as a resource to students today, it is no longer a problem. If computers are not an option, the spelling should be overlooked in the final draft. When the students do turn in their final drafts, all pieces of paper that were used over the course of the assignment should be turned in for evaluation. The students should be graded on the production process as a whole rather than on just the final product.

Summary and Conclusions

In my experience, dyslexic students will never be able to read at what is considered the normal reading rate. We, as teachers, cannot make the expectations for them so high that they will no longer be able to reach them. Techniques for teaching dyslexic learners are perhaps some of the hardest to learn and implement. It takes time and effort. When the trial and error process fails, we cannot give up on a child or decide that there is no point for continuing. We must always be looking for new methods to get the point across. It just takes a little more time and effort to help the dyslexic student reach his or her goals. Dyslexic students are some of the brightest and creative children in the classroom today. We cannot afford to let them down by not working at our best capacity to help them succeed in an academic environment.

References

Abbott, R.D., Abbott, S.P., Berninger, V.W., & Reed, E. (1997). Year-long balanced reading/writing tutorial: A design experiment used for dynamic assessment. Learning Disability Quarterly, 20(3), 249-63.

Balise, R.R., Black, J.L., Nussbaum, N.L., Oakland, T., & Stanford, G. (1998). An evaluation of the dyslexia training program: A multisensory method for promoting reading in students with learning disabilities. Journal of Learning Disabilities, 31(2), 140-147.

Breznitz, Z. (1997). Effects of accelerated reading rate on memory for text among dyslexic readers. Journal of Educational Psychology, 89(2), 289-297.

Castles, A. (1997). The basis of developmental dyslexia: Neural, cognitive, genetic or all three? International Journal of Disability, Development, and Education, 44(4), 387-90.

Siegal, L.S., & Vandervelden, M.C. (1997). Teaching phonological processing skills in early literacy: A developmental approach. Learning Disability Quarterly, 20(1), 63-79.