

## WHAT EVERY TEACHER SHOULD KNOW ABOUT DYSLEXIA

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By conservative estimates, some ten per cent of students have difficulty with the acquisition of written language skills. This difficulty ranges from minor problems with spelling and composition to the major ones found in the almost word blind student. That student is so handicapped by his disability that without special instructional methods he will never be able to decode and encode the English language.

The existence of this disability has been recognized and documented with increasing frequency during the past decade, but the problem was originally identified as early as the 1890's when it was referred to as Congenital Word Blindness. The term Developmental Dyslexia is now used by the medical profession to describe the handicap. The term Dyslexia--difficulty with words--comes from the Greek roots dys and lex, and has been used by pioneers in the field as early as the latter part of the last century.

In 1968 the Research Group on Developmental Dyslexia of the World Federation of Neurology, which comprises an international body of experts--neurological, paediatric, psychological, pedagogic--met and drew up two definitions which they recommended for general acceptance. These were as follows:

**Specific Developmental Dyslexia:** A disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and socio-cultural opportunity. It is dependent upon fundamental cognitive disabilities which are frequently of constitutional origin.

**Dyslexia:** A disorder in children who, despite conventional classroom experience, fail to attain the language skills of reading, writing and spelling commensurate with their intellectual abilities.

To describe this reading disability most educators prefer to use the term Specific Language Disability (SLD) or developmental reading disability. However, a number of other terms have been used, such as perceptual motor handicaps, minimal brain dysfunction or damage, visual perceptual problems, to name the most common ones. This has led to a semantic confusion which has been unfortunate, since the primary victim has been the child. Some students have in their records so many "labels" that their teachers have given up in despair.

Many people have incorrectly assumed that Dyslexia is a type of brain damage. Research indicates that there is no connection between Developmental Dyslexia and brain damage. It has, however, been documented that most cases are familial and hereditary, and approximately four out of every five dyslexic individuals are male.

The one consistent symptom found in all dyslexic students is an insecure visual imagery for words or insecure memory for sequences of written symbols. Reading requires the recognition of symbols in sequence, and the synthesizing of those sequences into meaningful units. Spelling requires the recall of a series of symbols in sequence so as to re-produce them accurately. Decoding and encoding processes naturally deal with the same code system and therefore should be considered as part of the same language continuum. Recognition is an easier process than recall because in reading the necessary cues are present. Recall is the most difficult, for one has to depend completely on one's visual memory or mental image of a word or knowledge of the structure of the language. Thus, spelling is the most sensitive measure of a student's ability to deal with written symbols. If a reading problem exists, then a spelling problem invariably accompanies it. Sometimes the student with a mild Dyslexia can read fluently, or at least adequately, and his only presenting symptom is difficulty with spelling. A teacher wanting to identify the student with an underlying language disability will thus look to the spelling as the best indicator of the problem.

Everyone recognizes the students with serious problems, but often students with less severe problems are overlooked. Those with a mild problem often seem to be careless or sloppy spellers, or uninterested in their work. Only if the teacher is aware of the symptoms of Dyslexia will he or she know that the errors are unintentional and that the student is usually unable to recognize, let alone correct, his misspellings--may even be unable to approximate the spelling of a word closely enough to look it up in a dictionary. As one student said, "They keep telling me to look it up in the dictionary. You have to be able to spell a word to find it!" Another confusing aspect for the teacher is that a student may do well on a weekly spelling test for which he has had time to study, but may misspell the same words the next day or week. The reason for this, of course, is that a student with average or better intelligence may be able to memorize by rote a limited number of words and retain them for a short period of time.

The typical errors found in the reading and spelling of dyslexic students are reversals of letters or sequences of letters, confusions of similar words, and omissions, substitutions and repetitions of words.

Typical reading errors of dyslexic secondary school students might include such confusions as misreading disnifying for defying, event for evident, contract for contrast, floored for florid, habitly for habitually, fanatism for fanaticism, etc.

Samples of misspellings would be afaid for afraid, vistor for visitor, compition for competition, oner for honor, promis for promise, reck for wreck, and pubcation for publication (omissions of letters or syllables); afriad for afraid, secerary for secretary, comfrot for comfort, elcet for elect, abaord for aboard, retier for retire, and rolay for royal (transpositions of letter sequences); districk for district, restrane for restrain, professer for professor, occupents for occupants, triful for trifle, aquantence for acquaintance, politition for politician, their for there, and too for to (substitutions).

All of these types of errors in both reading and spelling serve to demonstrate the inadequacy of the students' recognition and recall of words. In composition work these students exhibit difficulties with punctuation and syntax. Learning grammar and the parts of speech are also unusually difficult. Their written vocabulary tends to be very immature in comparison to the level of their spoken vocabulary.

Obviously, these students do not appear de novo with their Dyslexia at the doors of Junior or Senior High School English classrooms. They bring with them the usual histories of failures and frustrations, plus the labels that accompany them in their school records -- "lazy," "unmotivated," "uninterested," "immature," "not working up to capacity," "day dreamer," "inattentive," "careless," etc. In the lower grades their patterns of errors would have run to certain types: substitutions, reversals, transpositions, and confusions of letters or sequences of letters. Errors would have included such confusions as misreading or misspelling saw for was, on for no, left for felt, from for form. Also, in earlier grades the actual letters may be reversed or inverted. For example, b as d, p as q, M as W, n as u, o, z, or s. It was surely this type of student who inspired the old adage, "Mind your p's and q's"!!

Except for those who are blind, deaf or paralyzed, everyone has three pathways with which to learn academic skills -- auditory, visual, and kinesthetic-tactile. If one were blind, he would learn through the auditory and kinesthetic pathways. If one were deaf, he would learn through the visual and kinesthetic pathways. If one were both blind and deaf, he could still learn using the remaining pathway. Witness the fact that Helen Keller graduated from college and became a person of renown. Of course, her superior intelligence, and the equally

brilliant teaching that involved special methods, were the enabling factors.

To understand this complex problem of the learning of written language skills, it is helpful to keep in mind the concept of a continuum for each of these three pathways as expressed in a normal distribution curve. With respect to visual imagery, the continuum ranges from those with photographic memory (medically termed Eidetic imagery) at one end of the curve, to those at the other end who might rightfully be considered word blind.

With respect to auditory processing (imagery, memory, perception), the continuum ranges from those at the upper end who might be considered to have "tape recorder" minds, to those at the lower end who have great difficulty with the auditory processing of words. This can range from the simpler problems of difficulty in distinguishing between similar short vowel or consonant sounds, through difficulty in following directions, mispronunciation or garbling of words, to the extreme of those who can be considered as word deaf. The latter can, in some instances, be confused with those who are actually deaf.

The continuum for kinesthetic endowment would range from those who have superior coordination to those who are clumsy or grossly uncoordinated (medically termed apraxic).

Except for the limitations imposed by severe retardation, there is no direct relationship between intelligence and an individual's endowment in any of the three learning intake pathways. An individual may be unable to read and spell and yet be extremely intelligent and well coordinated. On the other hand, a superior athlete who can read and spell may still not have the intelligence to successfully compete academically.

The dyslexic student is among the ten per cent found at the lower end of the curve of distribution with respect to his visual imagery or processing. He falls within that range since he cannot recognize, recall or reproduce words adequately. If he also falls within the lower range of the auditory processing curve, his difficulties will be compounded. Those with deficits in both the visual and the auditory areas constitute the group which exhibits the most severe problems. Those with poor kinesthetic ability are not handicapped academically if their visual and auditory processing are unimpaired.

If the nature of the underlying causes of Dyslexia is accepted and understood, then the teaching techniques become obvious. It would logically follow that all pathways of learning (auditory, visual, kinesthetic-tactile) must be involved in the program of training. Experience has shown that the coordinated use of the three pathways simultaneously proves to

be most effective in developing more reliable visual recognition. The approach to teaching the mechanics of the language must be a highly-structured phonetic one. The student must be taught sound-symbol relationships from simple consonant and vowel sounds, through digraphs, diphthongs and other phonograms. He must also be taught root words and affixes. At the same time he must be taught the rules and patterns governing all of them.

By sounding aloud as he writes on paper or the blackboard, the student will be provided with simultaneous multisensory reinforcement. His hand will be producing the sound that his mouth is forming, his voice is saying, his ears are hearing, and his eyes are seeing. This, then, provides "the coordinated use of the three pathways simultaneously."

The sounds and language units must be practiced until they become part of his automatic response to sound-symbol relationships. Training in the blending of units must be emphasized from the very beginning. In order to impart this information to a student, a teacher must have a complete knowledge of the structure of the English language.

Because the recognition of Dyslexia has come so relatively recently to the attention of those in education, one finds students at all grade levels being identified for the first time. It is never too late to provide any student with good remedial help. The earlier the problem is recognized and the earlier the multisensory techniques are employed, the easier it is to bring language skills up to the level commensurate with the student's potential. Obviously the student with more severe problems will require a longer period of language therapy than a student with less severe problems. Those with difficulty with auditory processing will need more time, more repetition, and more intensive drillwork.

We have known Junior High and High School students with mild problems who, with proper training, have learned the necessary skills in periods ranging from three to six months. On the other hand, we have known students with tremendously severe problems who, even though identified early, have needed continuing help throughout all of their school years. Other factors in determining the length of time necessary for remediation are the frequency of the lessons (Ideally five times a week), the number of students working together, the intelligence of the child, and the quality of the training the teacher has had and his or her competency as a language therapist. To illustrate, let us review two case histories.

When George's mother brought him to the Rochester Remedial Reading Center, he was fourteen years old and in the eighth grade. George remembered having great difficulty in school

from third grade on, though "math was pretty good." He had been in remedial reading classes ever since fourth grade. Most of these classes had met five days a week for forty-five minutes with five or six students working together -- yet on nationally standardized reading and spelling tests George was only scoring at the late second or third grade level. The school psychologist found George's I.Q. scores on the WISC to range from slightly below average on the Verbal subtests to average on the performance subtests. With that level of intelligence, George might have been expected to have learned decoding and encoding skills to at least the late seventh grade level. But George's skills were three and a half to four and a half years below that expectation. Careful analysis of the tests revealed that he knew many phonic elements in isolation but had never learned to apply what he knew. He was still confusing when and what, come and go, tall and tail, apple and maple, s and ch, sh and ch, ch and ck, to name only a few. The amazing part of George's academic struggle was the fact that he had not completely given up. It was obvious that George had a Specific Language Disability (Dyslexia).

George worked with a skilled language therapist for an hour twice a week for one year. He was provided with the tools to learn to deal with language, using multisensory techniques. At the time of the retest, his skill had reached fifth to sixth grade level. Continuing his special lessons once a week until the end of tenth grade, he reached mid-eighth grade in his reading skills. He read very slowly and carefully, but he was reading! In spelling he had achieved late sixth grade level skills. Though George was not pleased about having to take special training he worked well and was cooperative. When he finally asked to "try it on his own," no one could decide who was most pleased, his parents, the tutor, or George.

George graduated from High School, completing his senior year successfully without further help. He was far from the top of his class, but he legitimately earned the right to his diploma.

Chuck's overall story is similar, but the details are different. He arrived at the Rochester Remedial Reading Center at the end of his ninth grade year, referred by a physician following a thorough medical examination. He was found to be physically normal in all respects.

Chuck's I.Q. scores on the WISC indicated that he had superior ability, testing at the 93rd percentile of the population. With that potential, he should have found reading, writing, and arithmetic very easy. This, however, was not the case. Though Chuck himself felt he had maintained the same effort throughout the school year, in the last quarter he had received an F in English, while at the same time getting a B in math. His parents

reported that he was becoming increasingly discouraged and beginning to search for ways to avoid doing school work. He was also refusing to bring work home that was not completed at school.

Much of the reason for Chuck's increasing discouragement could be understood after his scores on the nationally standardized reading and spelling tests were computed and the errors noted. Chuck was very pleasant and cooperative during the testing period and the results were considered a reliable measurement. He scored grade 4.9 on the Grays Oral Paragraphs. On the Wide Range Achievement Test he scored grade 7.8. On the two spelling tests, one sentence dictation and one single word dictation, Chuck scored grade 4.9 and grade 4.5, respectively. Along with the realization of the level of his skills came the amazement that he had been able to achieve as well as he had in school. He had undoubtedly been able to compensate by using his high intelligence--but at what price to his self concept?

A check of Chuck's knowledge of phonics showed that he knew the sounds for the consonants and a few of the two and three letter phonograms. He knew only one short vowel sound. Reading errors included misreading blind as blend, tack as track, is as was, exalting as relaxing, universally as univer-sable. He transposed words within phrases and confused many of the smaller words, the-a, in-is, do-can, the-its, etc. Chuck's spelling errors further documented his unusual difficulty in recalling and reproducing accurate spelling patterns; he wrote catch as chock, clothing as choling, began as begain, afraid as afriad, comfort as comfret, retire as retier, pleasure as pleashor, name as nane, church as cherch, health as heath, different as diffent, foreign as fornen, valuable as vailable, unusual as unushay.

On the silent vocabulary test, a multiple choice test, when he was not penalized for mispronunciations or word confusions, Chuck could score at tenth grade.

Chuck's visual imagery or memory for written symbols was obviously weak. It was found through testing that his auditory perception was also weak. He was unable to remember and repeat accurately six digit sequences or four-syllable nonsense words.

Chuck and his parents were extremely grateful for an insight into Chuck's learning problems, and delighted to know that there was an effective educational solution. Chuck has been working with a language therapist who uses multisensory teaching techniques (the Orton-Gillingham approach) for three months. He is enthusiastic and cooperative, even to the point of giving up some special summer plans because he did not want to miss a single tutoring session.

Chuck's story has just begun. The outcome is predictable. He has started his tenth grade year with vigor and enthusiasm. His tutor reports that he has learned a great deal about our language this summer. Given time to reason and make choices in both his reading and spelling, he can work with noticeably increased accuracy. His plans for college and architectural school are now within the promise of his future.

Most children in remedial reading classes are dyslexic. Drs. Silver and Hagin, who have contributed much to research on this problem, have this to say: "If a child is seriously retarded in reading and has normal intelligence, chances are about nine in ten that he has a Specific Language Disability." Thus, remedial reading teachers actually have been faced for years with the problem of handling and teaching dyslexic students. Conventional remedial reading programs have been a repetition of, and a slower and more intensified version of, the conventional classroom teaching procedures. The rationale for this was the hope that these procedures employed in a smaller group situation would provide the solution. Time has proved that this is not the case. We are now beginning to see that teaching procedures for these dyslexic children are changing. The very severe problems are beginning to be dealt with by the recent specialized training provided by the graduate level programs in Special Learning Disabilities. Classroom teachers are becoming increasingly aware of Dyslexia and of the essential part they must play in understanding, helping and teaching the dyslexic student. Until formal training is obtained, all classroom teachers and particularly English teachers must know that the child with a Specific Language Disability is capable of learning to function to the level of his potential, but must be taught with his particular learning needs clearly in mind.

In the past, severely dyslexic students were often placed in classes for the retarded. With increased awareness of the problem, this happens less frequently. In Minnesota the SLBP (Special Learning and Behavior Problems) branch of the State Department of Education is responsible for programs for the learning disabled and for those with behavior problems. Those in administrative positions must be extremely careful not to confuse these two groups, since the required teaching approaches differ. There are students with language disabilities who have developed behavioral problems as a result of their frustrations and failures in the academic situation. The incorrect assumption has often been made that the emotional problem is the causative factor, when in reality the obverse is almost always true. In these cases the child not only needs an intensive language therapy program, but also needs counseling help in order to resolve his personality problems. An incorrect placement can have disastrous results for the child.

Since most SLD training programs have begun by concentrating on the elementary school child, the junior high and high school English teacher is often left with the task of dealing with the older students with a language problem. These students either have not been identified as dyslexic, or else have not been placed in adequate training programs. However, there is no question that even without training in the special methods, the teacher can be of help. The following can serve as suggested guidelines:

1. Read further concerning the problem. Two excellent books are Reading Disability: Developmental Dyslexia, by Lloyd Thompson, M.D.; and The Dyslexic Child (2nd edition) by Macdonald Critchley, M.D., both available from the Charles C. Thomas Publishing Company, Springfield, Illinois.
2. With the background knowledge gained from your reading, discuss the problem with the student. Be certain to reassure him that he is not "dumb" and not unique. Also, listen to him, for he is the best source of information that you have concerning what is easy for him and what is difficult. He can be very helpful in working out curriculum adjustments which will allow him to function adequately in the classroom.
3. Share your understanding of the problem with the others who are involved with the student.
4. Grade compositions on content and not on spelling and punctuation. However, point out the spelling and punctuation errors, and have the student work on correcting them for practice. Note the pattern of spelling errors. This will guide you as to which sound-symbol relationships and rules need further drillwork. Emphasize to the student the importance of expressing ideas freely on paper without allowing the spelling difficulties to interfere with the natural flow of words -- those which he would use in discussing a subject.
5. Those with a severe Dyslexia should be allowed to tape their compositions, and gradually be helped and encouraged to transfer this into writing.
6. Most reading assignments can be taped and made available to those who have difficulty in covering the material. For the majority of students, following along on the printed page as they listen to the tape is helpful. For some students, the coordination of listening and trying to follow along proves confusing. Each student must decide for himself which procedure provides maximum help.
7. If taping facilities are not available, shorter reading assignments should be considered.
8. Examinations should be given orally to those with severe disabilities. Students with less severe problems need extra time to complete their written tests.

9. Teach the structure of the English language, beginning with basic phonics if they are not in the student's repertoire. With the older student progress to affixes and roots. For the more intelligent students, knowing the meanings of these units is extremely helpful. The basic phonic units, as well as the affixes and roots, should be learned by reading them and writing them in isolation, and then practicing them in words. Though these language elements may have been previously introduced, the student with Dyslexia needs much repetition and practice in order to retain them securely.
10. Review syllable division rules one at a time, making sure that the student can accurately apply one rule before proceeding to the next.
11. Encourage the student to sound aloud, using his "tools" whenever he is having difficulty decoding or encoding the word.
12. Encourage the student to follow along with his finger as he reads the line of print. For some, a card placed directly below the line provides enough help. Some teachers have objected to this type of aid, but for the dyslexic student, who usually has difficulty keeping his place among the mass of written symbols on the printed page, this is very helpful.
13. Consider expanding your use of classroom discussion of reading assignments. This allows the student with a Specific Language Disability to learn by hearing what other students have gained from their reading. This also allows him to participate and contribute ideas without having to write them down. Some students will have difficulty organizing and expressing ideas before a group. This is particularly true of those with auditory processing problems. Small group discussions may be more effective for them.
14. Help the student to organize the material to be learned, and to anticipate the important points in assignments, by providing a study outline before he begins the work.
15. If you suspect a student has auditory processing problems in addition to difficulty with visual imagery:
  - a. give verbal directions slowly;
  - b. repeat these directions as often as necessary;
  - c. ask the student to repeat your directions to be certain he has understood what is required of him;
  - d. limit the number of directions given at one time -- for some students one or two directions are all they can handle;
  - e. write homework assignments on the board then ask the students to write them down in an assignment notebook to serve as their reminder.
16. Remember that repetition and review are essential for the dyslexic student. He needs to be presented with

new materials in small increments, with much opportunity for practice at every step along the way. One cannot predict the numbers of exposures necessary for the student to retain the information. This varies from student to student, depending upon the severity of the disability.

This poignant quote from an article written by Careth Ellingson and published in 1963 in the Saturday Review of Literature still expresses the plight of dyslexic students in most of our schools today:

"It would be difficult, if not impossible, to find any other disability affecting an estimated 6 million children in the United States today, on which so much research has been done, so many thousands of articles written and yet concerning which so very little information has reached the average teacher or pediatrician, to say nothing of parents and public. These children are as handicapped by the ignorance surrounding their problems, as they are by the problem itself."

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