Learning and Succeeding with Dyslexia Disorder

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SECTION 1: The Problem

In the United States, 15 – 20% of the population has a language based learning disability. Dyslexia is the most common language based disability (The National Institute of Child Health and Human Development [NICHD], 2008). Dyslexia includes several possible learning difficulties in number work, short-term memory, sequencing, auditory and /or visual perception and motor skills (Augur, 1993). Classrooms have a mixed population of students with different learning needs. Therefore, in a class of thirty students, one can expect up to six students with dyslexia traits. Beyond the classroom, the dyslexic student faces learning challenges at home.

The most familiar form of dyslexia affects phonological awareness, which is recognized when a child does not seem able to learn to read. Many people, teachers included, judge a student who is unable to learn to read as unintelligent. This incorrect assumption negatively affects the self esteem of the student, which in turn results in the student trying to avoid the painful classroom. The dyslexic child often avoids participating in classroom learning, to the extent of inventing illnesses to avoid school attendance entirely.

Teachers need to be trained to recognize the symptoms of the dyslexic student. Early intervention is key to maintaining a positive student self image, helping the student to learn how to succeed, and enabling their peers to accept the dyslexic child’s challenges. Every student has unique abilities and challenges. It is necessary to build on a student’s strengths to enable each student to realize those strengths, allowing the educational experience to be one of positive growth.
Introduction

Dyslexia is a specific learning disability that is neurological in origin. It affects the psychological processes related to understanding or the use of spoken or written language. Dyslexia may affect the ability to think, listen, read, speak, write, spell and perform mathematical computations. Dyslexia may also affect reading comprehension and reduce reading experience, which affects reading vocabulary acquisition. (Kirby, Silvestri, Allingham, Parrila, & La Fave, 2008). This definition was adopted by the International Dyslexia Association as well as The National Institute of Child Health and Human Development. Dyslexia can be neurobiological and genetic; it affects males and females equally, as well as people from all ethnic and socio-economic backgrounds (Northern California Branch of The International Dyslexia Association [NCBIDA], 2008). It is a life long disability which, with hard work, can be coped with, but not cured.

Statement of the Problem

To be a successful student, reading is essential. Students with dyslexia present instructors with many challenges. Dyslexic students need additional instructor’s time, tutoring, and help from those at home, to eventually succeed in acquiring the skill. The additional demand for teacher attention disrupts the flow of the teaching effort, taking attention from the remaining students. This attention, unwanted criticism, teasing and bullying from the other students, causes the dyslexic child to feel belittled and inadequate to the challenge of learning. Dyslexic students suffer from low self esteem, which leads to depression and avoidance of the painful and embarrassing process of learning.
Purpose of the Literature Review

The purpose of this literature review is to conduct an in-depth examination of dyslexia. It will provide descriptions of its defining characteristics and suggest strategies to both teachers and parents to guide the dyslexic student to understand their learning needs.

Teachers are central to the discovery of dyslexia in the student, guiding the dyslexic child and their parents toward diagnosis, and then, testing by the school psychologist. This diagnosis is necessary to procure professional intervention, which should include additional help from a resource specialist. Through this process the student will discover the method he/she needs to use to best learn, tools to aid in this process, and confidence to succeed in being a life long learner.

Importance of the Literature Review

With so many people exhibiting dyslexic traits, it is vital for parents, educators, and the dyslexic themselves to understand this disorder. Parents are usually the first to suspect their child is encountering learning challenges. Dependent on the individuals’ particular diagnosis, the dyslexics’ education will require specialized intensive training. It is important for the dyslexic to understand the full ramifications of this disorder and if what they are experiencing is in the norm for the disorder. The student needs to learn ways to cope with dyslexia, realize their strengths, and understand they are not dumb.

Scope of the Literature Review

Dyslexia continues to be a subject of intensive research. With the new and increasing use of the magnetic resonance imaging (MRI), the brain of the dyslexic is better understood. This literature review encompasses over fifty references which
include several texts, scholarly journals, web pages, data bases, and even children’s books. These references’ information was organized into several topics which describe dyslexia, offer strategies for coping, and gives hope and direction for parents, teachers, and dyslexics.

SECTION II: Literature Review

Introduction

The first documented description of the disorder now call dyslexia, was in November 1896, in Sussex, England. Dr. W. Pringle Morgan wrote, in the British Medical Journal, that the patient was “quick at games, and in no way inferior to others of his age. His great difficulty has been – and is now – his inability to learn to read” (Shaywitz, 1996, p. 98). At the time of Dr. Morgan’s writing, people who could not learn to read were labeled lacking of intelligence. Early researchers blamed dyslexia on some form of brain or nerve damage or a congenital malfunction. Dr. Samuel Torrey Orton, redefined dyslexia as “cross lateralization of the brain” (Davis, 1994, p. 7). This definition explained that the left side of the brain was doing the work of the right and the right side of the brain was doing the work of the left. The theory was based on his observation of dyslexic subjects. Now, MRI technology enables researchers to actually make comparisons of a dyslexic’s brain to a non-dyslexic’s brain. The study of dyslexia is constantly evolving as new discoveries are made. As researchers and scientists learn more, strategies are evolving in the treatment and education of dyslexia.

In the United States 15 – 20% of the population has some form of dyslexia. Although dyslexia is a world wide disability, it is more of a problem in English speaking educational systems. The English language is the most complex of all languages, with
inconsistent grammar and phonetic rules. One out of every six English words is phonetically irregular. (Davis, 1994) In opaque orthographies such as written English, word identification problems in phonological skills are more prevalent in dyslexics learning to read than they are in dyslexics learning to read in more transparent orthographies such as German or Italian (Vellution, Fletcher, Snowling, & Scanlon, 2003).

A correlational interview study based on interviews of post secondary students with dyslexia and students without dyslexia found dyslexic students demonstrated poorer reading skills than the non dyslexic students. The differences were greatest for word reading and reading recall. The dyslexic students reported more reliance of the use of study aids and time management. The researcher attributed the use of these aids on the students’ reading difficulties and poor reading recall (Kirby et. al., 2008).

Dyslexia is not curable; however, dyslexics can learn methods to enable them to be successful in educational pursuits. Many famous people, from all walks of life, have dyslexia. A few everyone has heard of are Hans Christian Andersen (writer), Harry Belafonte (singer), Alexander Graham Bell (inventor), George Burns (comedian), Winston Churchill (politician), Leonardo da Vinci (artist and inventor), Walt Disney (artist), Albert Einstein (physicist), Henry Ford (inventor), Jay Leno (comedian) and Charles Schwab (investor), to name just a few (Davis, 1994).

Dyslexia Umbrella

Dyslexia has many faces; dyslexia is the general term used to describe the disorder which can affect many areas of learning. All dyslexics are different in the areas impacted by their disorder. The most prevalent abilities affected are: reading,
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mathematics, spelling, writing, speech and coordination. Dyslexia is an umbrella term which includes the disorders dyslexia, dysgraphia, dyscalculia and dyspraxia.

Dyslexia is a reading disability that has several names. It is called developmental reading disorder (DRD), specific reading disability, or specific language disability. This reading disability is the result of the incapability to process graphic symbols (Developmental reading disorder, 2009). Dyslexics do not readily discover the alphabetic code; which causes him/her to exhibit significant challenges learning to decode and spell. These challenges generally result from deficiencies in the phonological component of language, this is often unexpected in correlation to other cognitive abilities and makes effective classroom teaching difficult (Henry, 2003).

Dysgraphia is primarily difficulty with handwriting (Davis, 1994). The students’ handwriting is extremely poor and they experience sequencing problems, resulting in “reversing letters and numbers, writing words backwards, writing letters out of order and very sloppy handwriting” (West Virginia University, 2009, p. 1). These students demonstrated very poor writing skills, random punctuation, spelling errors, unfinished words or letters, and omitted words. They may also be inconsistent, mixing print and cursive, upper and lower case, or irregular slant, sizes and shape of letters. Teachers need to be aware of this disorder; it may seem as if the student is being lazy rather than suffering from a writing disability.

Dyscalculia is a specific deficit in the attainment of mathematical skills (Lander, 2009). These children especially have difficulty learning number facts. This includes the difficulty with the concepts of place value, quantity, number lines, positive and negative value, carrying and barrowing. These students also have difficulty with word problems
and sequencing information. Dyscalculia affects the ability to understand fractions, make change with money and recognize mathematical patterns, when the need to add, subtract, multiply and divide is present. This disability encompasses difficulty understanding concepts involving telling time, and understanding the relationship of days, weeks, months, years, and seasons. The major problem these students exhibit is an inability to keep numbers lined up when doing mathematical equations (Learning Disabilities Association of America, 2009).

When organization of movement is impaired or immature, it is called dyspraxia. This immaturity of brain processing information results in messages not being properly or fully transmitted (Dyspraxia Foundation, 2009). The student will have poor balance, may seem clumsy, and stumble frequently. The student might demonstrate problems with coordination of both sides of the body and poor hand-eye coordination. These children may be sensitive to touch or irritated by scratchy, rough, or tight clothing. The dyspraxic student can also be irritated or distracted by constant noise such as the ticking of a clock or a disturbing neighbor, tapping a pencil. Also noticeable, will be a difficulty with fine motor tasks such as using scissors, pasting or coloring neatly. Dyspraxia was formerly known as clumsy child syndrome (Learning Disabilities Association of America, 2009).

Possible Causes of Dyslexia

There are three major theories which attempt to explain the causes of dyslexia. Dyslexia affects a significant portion of the educational system. It has not been determined if there is only one cause, or what is seen as dyslexia, may have multiple causes. The three most prevalent theories currently are: first, the magnocellular deficit; second, the cerebellar deficit; lastly, the phonological deficit theory.
The first theory concerns magnocellular cells, which are cells in the brain primarily concerned with visual perception. Specifically, these cells are responsible for resolving motion and coarse outlines. These cells code movement and edges, as opposed to fine detail and operate at great speed at the expense of detail (Magnocellular part, 2009). John Stein, who did research into the role of magnocellular neurones in the development of dyslexia, appeared to imply the problem was in the area of visual processing. The studies indicated that in excess of 20% of differences in orthographic reading ability might be due to visual magnocellular sensitivity (Stein, 2007).

The second theory is the cerebellar deficit. In 1994, Nicolson and Fawcett suggested the cerebellar deficit hypothesis, which started a widening of the approach to dyslexia research diagnosis and support. This study revealed severe deficits in balance, motor skill, phonological skill and rapid processing in dyslexic groups, as compared to a control group (Nicolson & Fawcett, 1994). The cerebellum controls coordination of voluntary movements, the speed trajectory, and stopping of movements and also for maintaining balance and posture (Taber, 2001). Positron Emission Tomography (PET) brain scans suggested the cerebellum is a central brain structure for the attaining and use of span of cognitive skills which include language dexterity, skill automatisation and balance (Nicolson, 2002).

Dyslexia, as well as other neurodevelopmental disorders, for instance dyspraxia and attention deficit disorder, can be present simultaneously. In an observational experimental study in 2004, thirty-five diagnosed dyslexic children were given psychometric and literacy tasks including matrices, similarities, digit span, reading and spelling. These tasks sampled non-verbal and verbal cognitive ability and verbal short-
term memory, as well as literacy skills. Additionally, the subjects were given balancing
tasks of standing on one foot with eyes open and then closed. The observers measured
wobble by using a motion tracking system. Dyslexic children were found to have
significantly worse wobble when their eyes were open, and dropped their foot to the
ground sooner than the control group (Stoodley, Fawcett, Niclosn & Stein, 2004).
Although, this is a compelling study, the cerebellar deficit hypothesis is considered by
many researchers of dyslexia as controversial.

Lastly, the phonological deficit theory was the main causal theory in the last two
decades. Phonological processing is the ability to identify, manipulate and remember
strings of speech sounds. This ability accounts for a significant difference between good
readers and poor readers. It also accounts for the differences between beginning readers,
who will learn to read easily, and those who will struggle (Moats, 2000). Phonological
processing deficit includes speech perception, speech production, verbal short-term
memory, visual-verbal paired-associate learning, and phonological awareness (Snowling,
2000). Phonological awareness, which is sensitivity for sound units in verbal language, is
the most commonly occurring of these deficits. Children need a thorough awareness of
phonemes in order to comprehend the alphabetic principle and to make the connection
between graphemes in written words and the phonemes in spoken words. Numerous
bodies of research propose a relationship between learning to read and phonological
awareness (Messbauer & De Jong, 2006).

In a quasi experimental study, conducted in Amsterdam, forty-four dyslexic readers
and forty-six non-dyslexic readers were individually matched on vocabulary, non-verbal
intelligence and age. First, reading ability was assessed with the Een-Minuut-Test (One
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*Minute-Test*, a standardized Dutch test of single words, both real words and nonsense word reading. The second test measured receptive vocabulary. In this test the readers matched a picture to a word. The format of the test was sixty items, each consisting of one word and four pictures. The last test measured non-verbal intelligence by completing the *RAVEN Standard Progressive Matrices*. The dyslexic participants scored lower on all of the phonological tests given. Another finding of this study was that the visual-verbal paired associate learning (PAL) performance of the non-dyslexic readers was better than that of the dyslexic readers (Messbauer & De Jong, 2006).

A phoneme is the smallest meaningful segment of language; it is the basic element of the linguistic system. There are forty-four phonemes which, when combined differently, produce every word in the English language. Words must be broken down into their phonetic units by the phonological module of the brain before words can be identified, understood or remembered. Reading and speaking are both based on phonemes. However, speaking is natural and reading is an invention, which must be learned at a conscious level. To read, one must transform alphabetic script, graphemes, into their corresponding phonemes.

Dyslexic children frequently have normal language and vocabulary skills. “…When a child is dyslexic, a deficit within the language system at the level of the phonological module impairs his/her ability to segment the written word into its underlying phonological components” (Shaywitz, 1996, p. 100). This results in problems with verbal short-term memory, and this has been suggested to be a basic causal factor.

An experimental study, conducted in 2004, compared the memory recall of dyslexic and non dyslexic students. This study tested one hundred twenty-six children.
Of these children, forty-two were dyslexic, and forty-one were chronologically age matched controls. Thirty-eight were a reading-level matched control group who were compared to the dyslexic children. The children received several psychometric tests and phonological short-term memory tasks. The reason for the test was to compare recall of words and non-words. The determining factor of the level of success seemed to be the phonological, rather than the vocabulary development of the subjects. The dyslexic children showed significantly poorer levels of overall recall (Thomson, Richardson & Goswami, 2004).

The phonological deficit theory is a central explanation for dyslexic children needing more tutoring. For instance, in a quasi-experiment in 1995, two groups of dyslexic children were given twenty-five hours of training. One group worked on computer programs where they manipulated letter symbols, explored spelling patterns and print sound relations, matched printed pseudowords to ones pronounced by the computer, and spent eight hours reading stories on the computer. The second group received instruction emphasizing comprehension strategies. The group who received the explicit training in phonological skills made three times more improvement in phoneme awareness and twice the improvement in pseudoword decoding (Olson, Wise, Ring & Johnson, 1997). However, some practitioners are not convinced that this is the only explanation for the variety of differences encountered when they worked with dyslexic students.

The extensive research on the role of phonological processes in reading difficulties and intervention has resulted in reading improvement in many children. However, problems in phonological processing do not account for reading difficulties for
all children. Reading development is complex for all children, and a single deficit solution will not consider the needs of all dyslexics or poor readers. The findings of the cognitive neurosciences suggest that a heterogeneous approach will help a wider range of children (Katzir, 2008).

**Double Deficits**

The symptoms of dyslexia vary between dyslexics; a common combination of symptoms is slow naming speed accompanied by slow reading speed. Another combination is slow phonological processing speed and naming speed. Finally, general processing speed is involved in the speed to name visual items. Naming speed refers to the naming of a restricted set of well known visual items, which are used to test normal readers and poor readers. When asked to quickly name visual items, the dyslexics were slower than the non dyslexics. Some researchers hypothesized that dyslexia and slow naming were two separate disabilities thus the term, double deficit.

In the Netherlands, in a quasi experimental study, 162 dyslexic children were tested at specialized dyslexia institutes. There was a wide range of ages in this study from grades first through sixth. For all but one of the tests, Dutch national norms were used to compare results. The researchers investigated four main assumptions: first, the unique contribution of naming speed skills to literacy performance; second, that naming speed and phonological awareness deficits are independent and thus relatively unrelated; The third assumption of this hypothesis predicted the existence of dyslexics with naming speed deficits, but no phonological deficits; and fourth, dyslexics with double deficit should be more impaired in reading and spelling than dyslexics with a single deficit (Vaessen, Gerretsen, & Blomert, 2009). There were six tests used for this study.
including: speed and accuracy of reading, speed and accuracy of pseudoword, accuracy of spelling, speed and accuracy of phonological awareness, naming speed, and general intelligence. For all of these tests the general findings were: naming speed and processing speed show an interlaced relation that is likely reflective of a common factor, for which general speed is not an explanation (Vaessen, et al, 2009). Both, speeded naming tasks and speeded reading tasks, require fast matching of visual and orthographic units to phonological codes. The researchers concluded, that phonological processing speed and naming deficits may reflect two sides of the same coin: the methods involved in creating integrated written and spoken speech associations (Vaessen, et al, 2009).

New Diagnostic Research

Identification of dyslexia in a child is a difficult process; recent MRI scans show noticeable structural brain differences between people with and without reading disabilities (RD). People with dyslexia have less gray matter, which is mostly nerve cells, in the left parietotemporal area than non-dyslexic people have. It has been found many dyslexics also have less white matter, which is primarily responsible for information transfer in the brain. This is relevant since increased white matter seems to be connected to reading ability. These findings are new and need to be studied further (Hudson, High, & Otaiba, 2007).

Two quasi experimental studies involved children whose brains were scanned before and after a nine month intensive training. These studies showed interesting results. The intensive direct instruction seemed to result in increased activity in the parts of the brain important for reading and language. After the specialized instruction, the RD students’ brains changed to be very similar to the non RD students’ brains. While very
interesting, much further study is needed before definite conclusions can be drawn (Hudson, et al., 2007). In another MRI study, it was found that, “the detection of congruency between letters and speech sounds is predicted by the activation for isolated speech sounds” (Vaessen, et al, 2009, p. 19).

A quasi experimental study, sponsored by The Neuroscience Center Zurich and the Swiss National Science Foundation, endeavored to determine if children with dyslexia lacked multiple specializations along the visual word-form (VWF) system. Eighteen dyslexic children and twenty-four control children were matched according to age, which ranged from 9.7 to 12.5 years. The researchers studied functional magnetic resonance imaging (fMRI) results collected while the children decided if visual stimuli which consisted of real words, pseudo homophones, pseudo words and false-fonts, sounded like an actual word. The researchers suggest, based on the findings of the study, “that the impairment of the VWF-system mainly appears to involve deficient tuning, i.e., for a certain stimulus type relative to other stimulus types” (Van der Mark, et al., 2009, p. 15). Examples of stimulus types are: letter strings versus false-font items, and familiar versus unfamiliar word forms. The information gained in this study was considered in conjunction with the results of Kronbichler’s 2008 work. The scientists found the left inferior occipitotemporal cortex to have reduced gray matter density in dyslexics. This dysfunction could affect “both local specialization for processing print stimuli and the development of a more abstract representation of whole-word units, and interfere with several stages in reading acquisition” (Van der Mark, et al., 2009, p. 15).

Parents’ Discovery
Frequently, parents are the first to recognize their child has learning challenges (Griffiths, Norwich, & Bruden, 2004). In a descriptive interview study, Riddick, the British school’s field worker, found that out of 22 families interviewed, 15 times the child’s mother first suggested that her child had dyslexia (Griffiths et al., 2004). These mothers noticed their child read slowly and painfully, and experienced decoding errors, particularly with the order of letters. The children did not recognize sight words or have pattern recognition. The child may have skipped lines, or words, when reading. The student may have exhibited low self-esteem, stemming from their reading deficiencies, and have had a fear of being retained a grade (Halpert, 2009). The child may have had trouble with spelling, handwriting, memory of known words and math computations. Children with dyslexia decode real words better than nonsense words. These children also substitute one small sight word for another (Learning Disabilities Association of America, 2009). Parents need to take these concerns to their child’s teacher and school to make sure the child’s needs are met.

Assessing Students in the Classroom for Dyslexia

School districts have established written procedures, which educators follow to recommend and assess. The teacher would use these procedures when the teacher observes the student continuously struggling in reading, comprehension, spelling, and/or writing. The goal of the assessment procedures is to evaluate students’ performance and to set realistic goals for each individual student to achieve. Educators use information available from many sources including teachers and parents. Following are some of the sources the school system uses in their evaluation.

- Vision screening
• Hearing screening
• Teacher reports of classroom concerns
• Basal reading series assessment
• Accommodations and modifications provided by classroom teachers
• Academic progress reports (report cards)
• Samples of school work
• Parent conferences
• Testing for English proficiency
• Speech and language screening through a referral process
• The K-2 reading instrument
• State standardized test results

With all of the information compiled, the educator can then recommend assessment for dyslexia. This recommendation will be indicated if the student demonstrates poor academic performance in one or more of the following areas: reading, comprehension, writing, and or spelling that is significantly below grade level standard (Texas Education Agency, 2001).

Kindergarten Intervention

Early intervention, in addition to being more cost effective, allows the student to achieve the expected proficiency at a younger age. Early intervention is difficult with dyslexics. Children with dyslexia can not be identified until they are far below grade level standards for language arts. The ability to read takes several years, delaying the ability to recognize the needs of the dyslexic child. Developing an awareness of the early signs of eventual reading disability would, potentially, allow earlier intervention.
In a quasi scientific experiment, conducted in Hong Kong, researchers sought to identify cognitive markers to identify kindergarten children who were at risk for dyslexia. One group of children was identified through language delay, the second group had family history of dyslexia and the final group was children not at risk. Several areas were considered for possible indicators for dyslexia in pre-readers. One was sensitivity to lexical tones; if a word is not correctly heard, then the child is not likely to recognize the word in print. Another area considered was syllable deletion. The ability to manipulate syllables in language could be an important skill in reading and writing. An important part of phonological processing is rapid automatized naming (RAN). Across several languages, RAN distinguishes dyslexic children from successful readers. RAN captures the speed that children orally identify common symbols or objects shown several times. The study found children at familial risk for dyslexia showed difficulties in morphological awareness and tone detection. Where as, the children in the language delayed group exhibited difficulties in all tests and scored measurably lower on word reading than did the familial risk group (McBride-Chang, Lam, Doo, Simpson, Wong, Chow, 2008).

Recommendations for Teachers and Parents

Several strategies are suggested for use with a dyslexic student. Some of these suggestions are:

- Have low noise area for activities requiring concentration.
- Use books on tape which enables the student to follow and to hear the words.
- Use books with large font and double spaced lines.
- Provide a copy of lecture notes for easy referral.
- Don’t count spelling errors on non-spelling tests.
- Allow alternative forms for book reports.
- Allow the use of a computer for in class essays or allow for the student to complete the essay at home.
- Use multiple intelligence teaching methods.
- Teach students to use logic instead of memorization.
- Present material in manageable units (Exley, 2003).
- Teach children to learn sequences in chunks of two or three rather than individually (De Kleine & Verwey, 2009). (singly 1-2-4-6-9-5, chunk of two 12-46-95, chunk of three 124-695)
- In preschool and kindergarten, have students create alphabet and numbers using clay.
- Use graphic organizers to help students organize thoughts before they start writing.

Teaching recommendations suggested by the earlier mentioned neurological research include several additional points. First, the student’s ability to process language needs to be analyzed, with notation made of specific weaknesses, to allow individualized instruction for the student. Next, complete early monitoring to measure the student’s understanding of phonic sounds associated with letters and automaticity in reading. Finally, instruction in phonemic awareness and phonics needs to be explicit and systematic (Hudson et al., 2007). Conversely, other researchers suggest teaching methods that work well for the majority of young students may be counterproductive for
dyslexic students. Based on MRI research results, the use of intensive systemic instruction of phonemic awareness and phonics decoding strategies might diminish a dyslexic’s ability to read. Teaching phonemic awareness and phonics decoding increase frustration and intensify disorientation in dyslexics (Marshall, 2003).

Every person learns in a different way; dyslexics are no exception. These ways of learning are called intelligences; there are eight basic intelligences and each individual may learn in more than one of these intelligences. The eight intelligences and the core capacity of each are as follows:

- **Linguistic** – Sensitivity to the sounds, structures, meanings and functions of words and language.
- **Logical-mathematical** – Sensitivity to and capacity to understand, logical or numerical patterns; the ability to manage long sequences of reasoning.
- **Spatial** – Capacity to perceive visually-spatially with accuracy and to be able to change the initial perception with additional ideas.
- **Bodily-Kinesthetic** – Ability to control the body’s movements and to dexterously handle objects.
- **Musical** – Ability to produce and enjoy rhythm, pitch and timbre; appreciation of various forms of musical expression.
- **Interpersonal** – Capacity to discern and respond correctly to the moods, temperaments, motivations and wants of other persons.
- **Intrapersonal** – Knowledge of one’s own emotional life and the ability to identify one’s feelings. Knowledge of own strengths and non-strengths.
• Naturalist – Ability to distinguish between members of a species; recognize the interactions of various species in a common ecosystem (Armstrong, 2000).

Dyslexics, generally, are not primarily a linguistic intelligence; however, if he/she is unable to comprehend the study of language, then pair it with one of their primary intelligences, so it is possible for them to be successful. Every person learns better using one of their intelligences; it is the teacher’s and parent’s responsibility to find the intelligence that best fits his/her child or student. For instance, combine spelling with bodily-kinesthetic activity and/or music, or allow students to read outside to use his/her naturalist intelligence.

Instruction should be taught to all of the senses of the students. Multi-sensory teaching includes using the senses of touch, sight and hearing. An example of multi-sensory teaching is having children form letters in sand or on a bumpy carpet, molding the letters with clay and singing the sounds of the letters. Using this approach would alleviate anxiety for students, unable to succeed with the current teaching methods. Multi-sensory teaching helps the dyslexics’ brain absorb the lesson being presented in tactile and kinetic ways, when the student has difficulty with his/her visual and auditory memory, as most dyslexics do (Herold, 2003).

There are several websites which offer colorful, animated programs, geared for preschool and primary grade children. This is a non-intimidating, positive resource that can help the dyslexics learn his/her alphabet and numbers, punctuation, reading, math facts, and overviews of virtually any subject encountered in elementary grades. One website is Primary Games where learning is made fun. This is a free site; however there are sponsoring advertisements which can be distracting to the learner (Primary Games,
Another computer learning source used for the classroom is Internet 4 Classrooms. This free website is a great way for teachers to bring technology into the classroom and use the internet effectively as a teaching aid. Each selection provides a concise description of content. This site is constructive for the visual and easily distracted learner, often the dyslexic student. There is a link for educators and parents to use for focus on exceptional children. Teachers can use this website for whole class instruction for any grade level standard, tutoring a small group, or for individual student use. Parents can also use this site to better assist their child’s learning (Internet4Classrooms, 2009).

Another way to bring technology into the classroom is a scan and read system. This technology is a reading, study skill and writing program available to meet the needs of struggling learners. These systems enable educators to provide differentiated instruction without having to differentiate the curriculum. At home, this type of system allows the parent to scan in any written material, which the scan and read system reads aloud. This takes the parent out of the at-home teacher role, and allows the child to be more self-sufficient.

Dyslexia Friendly Reading

Reading is an essential skill for every aspect of life; equally valuable for education, employment and pleasure. The only way to learn to be a strong reader is to read regularly. For a dyslexic, this is a great challenge he/she must learn to cope with to manage his/her life. Books are the means of extending knowledge and the primary source of new vocabulary. Reading can be a foundation for expanding knowledge, areas of interest and unlocking imagination.
There are several ways to help the struggling reader. It is important to read aloud to children; this will improve the ability to listen, vocabulary, and expands interest in books. It is also valuable to take turns reading; this can be encouraged by following along with a finger or bookmarker. Take breaks to examine pictures and discuss the story. When the shared reading is complete, ask the child to retell the story in his/her own words. Another strategy to help the reluctant reader is supported reading, which is when the child is the reader and the adult encourages the reader. Some ways to support the hesitant reader are: to look at the pictures together, and to allow the reader time to decipher a word, but supplying the word, before the reader becomes frustrated. When a child is happy to read silently, reading becomes fun and a source of pride and enjoyment.

When choosing reading material for a dyslexic reader, there are several guidelines to look for:

- Make sure the story is of interest to the reader and is age appropriate.
- Short sentences and paragraphs help maintain interest and promote comprehension.
- Wide margins, wide spacing between lines and unjustified right margins make it easier to distinguish what has been read and what remains to be read. Dyslexics often reread lines of text thus creating confusion.
- Books with illustrations or heading help to break the text into manageable chunks.
- Text needs to be in a clear font, large enough to see clearly; yet not so large to be insulting to the age level of the reader.
- Books that are well structured and easy to follow improve comprehension.
All of the above points are important; however, individual interests should guide reading selections (Waterstone, 2008). If the book is assigned and is of no interest to the reader, expect the struggling reader to be unwilling and unable to concentrate. Furthermore, audio books, with an accompanying text, are an excellent occasional alternative to reading with another. These audio versions are dramatic, give depth to the characters and excitement to the story. Similarly, the computer offers a variety of methods to foster, in an enjoyable and positive manner, the reading capabilities of problem readers. A good place to start is the Starfall website. This site offers material from basic alphabet with entertaining imagery, through the first few years of reading skills. It is a free source, and an excellent home tutor (Starfall, 2009).

The reading website mentioned above is geared for the primary elementary student. Scan/read systems are another avenue for the student needing assistance reading the class text book, assigned novels, complex research or any other printed material. These systems allow the struggling reader to scan what he/she needs to read. The computer then audibly reads the scanned material; thus helping increase student comprehension (Dell, 2002).

Scan/read systems combine the use of a scanner, optical character recognition software and speech output to read aloud printed text with a visually enhanced display. The Kurzweil 3000 includes all of the above, as well as colorful icons, easy screen navigation and a talking dictionary. Additionally, there is a study skill tool bar which assists users in taking notes by outlining the text. There are even yellow sticky notes which the student user can use as prompts or reminders. The system has variable reading
speeds to match the comfort level of the reader and the complexity of the material (Kurzweil, 2009).

Helpful Tips for Improving Writing

Writing is an extremely difficult task for a dyslexic student; he/she needs to remember how to spell words, what punctuation to use, proper grammar rules and remembering what he/she is trying to write. Any distraction when a dyslexic is writing can cause his/her brain to go blank. This causes tremendous frustration and the dyslexic may even give up entirely on the writing task. When writing, it is best to do a quick draft first; meaning do not worry about spelling, punctuation or grammar; concentrating on those technicalities of writing causes the brain to get confused, thus loosing the train of thought.

In an action research case study, conducted in the Northeastern United States, three seventh grade learning disabled students were chosen. All three students were struggling with several issues. The difficulties the students were encountering were: planning, generating ideas, revising, keeping on task and transcribing thoughts onto paper. To help these students add detail and flair to the stories the researchers first taught a specific story writing strategy called, “Who When Where What 2 How 2” (Patel & Laud, 2009). This writing strategy helped the students develop a written story by answering the following questions:

- Who are the main characters?
- When does the story take place?
- Where does the story take place?
- What does the main character want to accomplish?
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- What happens when he/she tries to accomplish it?
- How does the story end?
- How does the main character feel?

By using the above technique, the researchers found the students’ writing became more complete, longer, and more like that of their peers. However, the stories lacked imagination. To help the three students add excitement to his/her story the researchers taught the student to visualize stories as he/she read them and then verbalize the visualizations. The students were then instructed to add an additional strategy to enhance the first strategy taught, called POW. POW stands for pick the topic, organize the notes, write and say more. In the write and say more portion the visualization and verbalizing techniques were used to better develop description and action in the writing. The resulting stories were more creative than the initial stories written by the students. The final stories contained a more intricate plot, better developed characters and increased detail. The researchers felt the students’ use of the three strategies taught would become less awkward to use in the future, with practice (Patel & Laud, 2009).

There are several solutions dyslexics can adopt which will help in the writing process. When preparing writing reports, divide the subject into manageable sections. Choose a writing style appropriate for the type of paper being produced. Use the correct format for the writing project, for example a letter, a memo or a report. Create a personal dictionary which includes problem words. Problem words may be those with irregular spellings, easily confused words such as, effect/affect, then/than or where/were. The dictionary could also include frequently used, confusing words that are specific to
employment. When filling out forms carefully read instructions and complete the form line by line (Moody, 2006).

Similar to the writing strategies described in the case study, some teachers have the students use POWER to produce writing of publishing quality. This strategy includes

- **P**-pre-write: not time to worry about grammar, punctuation or spelling.
- **O**-organize: use a graphic organizer appropriate to genre style.
- **W**-write: write paper using information from pre-write and organizer.
- **E**-edit: re-read for grammar, punctuation and spelling errors.
- **R**-rewrite: write the paper again until there are no errors.

During the edit phase of power, have a peer proof read for content and mistakes. If allowed, it is always best to complete the final draft on a computer.

**Dyslexia Friendly Schools**

In the United Kingdom, there are dyslexia friendly schools which have existed for over two decades. In dyslexia friendly schools, there are systems in place which enable students to discover how they learn best. They have access to a specialist, who helps them in both pull-out programs and in the classroom. These schools require active parental participation with the school and with a dyslexic support group (Griffiths et al., 2004). This system is designed to train the dyslexic student in ways to succeed in the educational environment and, simultaneously, provide parents with tools and support to aid their child’s efforts.

**The Gift of Dyslexia (Davis)**

Ron Davis has a unique outlook on dyslexia, and he has successfully taught his method in a week long, live-in course, to both adult and child dyslexics. Ron Davis
founded the Davis Method in 1982. He was a severe dyslexic with a genius-level IQ, was a metallurgical engineer, and ran three companies before he retired. After retiring, he opened the Ron Davis Reading Research Council in California (Stainsby, 2001).

Davis’ concept of dyslexia is wildly dissimilar from that of mainstream educators. He believes that dyslexia is a gift not a curse. Since dyslexics are visual, multidimensional thinkers they seem to be more intuitive, highly creative and excel at hands-on learning (Lichtman, 2001). There have been many famous people who were/are dyslexics. It is the contention of Davis that these people were able to excel in their field because of their dyslexia. Dyslexics do not think in words, they think in pictures, so it is hard for them to understand letters, numbers, symbols and written words. These different thinkers try to solve problems by viewing the whole picture in their head rather than working step by step. A dyslexic explained her way of thinking as, things can be understood two ways, verbally or visually. If a non-dyslexic hears the word ‘cup’, he/she sees a drinking container. The dyslexic sees a variety of cups, in different sizes and of different uses; it is like a fast moving frame of high speed images. The cups are all different colors and shapes and may be seen from all different angles. All this information is viewed in the time the non-dyslexic thinks of a drinking container (Lichtman, 2001).

Disorientation is familiar to everyone; when a person spins, he/she gets dizzy. “During disorientation, your brain sees things moving that really aren’t, or your body feels as if you are moving when you really aren’t. Your sense of time can slow down or speed up. Your brain alters your actual perceptions, and you experience the altered perceptions as reality” (Davis, 1994, p. 17). While disoriented, a person is not
understanding reality as others do, and he/she are unaware these perceptions are unreal. The symptoms of disorientation and dyslexia are the same. Disorientation may be the cause of many disability symptoms. Each person’s severity and scope of symptoms is different. Some of the common symptoms of visual disorientation are: shapes and sequences of letters or numbers appear changed or reversed; words or lines are skipped when reading or writing; numbers and letters seem to move, disappear or change size; punctuation marks, capital letters, letters or words are omitted, substituted or not seen while reading. Examples of hearing disorientation are speech sounds may be difficult to make, digraphs (ch, th, and sh) are said incorrectly and the person appears not to listen, or hear, what is said. There are examples of disorientation symptoms for balance and movement, time, and compulsive solutions. An example of a compulsive solution is the need to sing the alphabet song to alphabetize a list.

There are certain triggers that cause the dyslexic’s brain to become confused. Some of these triggers are words with abstract meanings, which do not represent objects or actions the dyslexic can visualize. There are more than 200 words that cannot be readily visualized, a few of these are: the, was, a, like, make, put, whether and can. Other triggers can be punctuation and letters of the alphabet.

Symbols, such as some letters of the alphabet, punctuation, speech sounds, math symbols and numbers, can be triggers that cause confusion or disorientation in dyslexics. To help the dyslexic master this difficulty, it is advised, with the guidance of a tutor, the dyslexic form the letters of the alphabet, punctuation, and any numbers or numeric symbols necessary in clay. The goal is to learn trigger words and symbols until they are
completely mastered and no longer a trigger. It is vital that the student not be experiencing any confusion or disorientation while this process is attempted.

When modeling letters using clay, the dyslexic student has a precise alphabet strip in upper case letters, on the work surface. This strip is used as an example of what the student wants his/her models of letters to look like. The student starts with the letter ‘A’, and forms each capital letter, about two inches high. As the student is working on his/her alphabet, the tutor should encourage the student’s ownership of the project. The completion of the alphabet may take several sessions, depending on the frustration threshold of the student. Once all the letters are formed and the student is satisfied with their achievement, the tutor starts with ‘A’ and has the student name the letters slowly and individually. This process is repeated until the dyslexic demonstrates no difficulty naming the letters. The goal is for the dyslexic to be able to name the letters randomly and without hesitation. Younger children may find it helpful to model figures representing each letter. This process is repeated again with lower case letters, punctuation, numbers, and mathematical symbols. Clay can again be used for trigger words; inventing figures that make sense to the dyslexic as a memorable representation of the trigger word.

At about eight years old, the visual word form area of the brain of typical readers starts to develop and activate regularly, in response to exposure to letter strings. At approximately this age, children transition from early decoding skills to automatic and significant reading abilities. This part of the brain does not seem to work for the uncorrected dyslexic readers. For dyslexic readers, research shows that this part of the brain is bypassed. The higher activity occurs in the right brain and frontal regions. This
information explains why the normal reader is able to rely on instant word recognition system. The dyslexic can not access this part of the brain, so they find themselves in a frustrating and time consuming exercise of sounding out words.

The Davis program has several exercises, for example Spell Reading and Sweep-Sweep-Spell, which are exercises for the eyes and brain (Marshall, 2005). These brain exercises are designed to train the brain to develop the instantaneous, visual word recognition system that non-dyslexics obtain naturally (Marshall, 2005). This training requires ten minutes at a time. Ten minutes is enough time to exercise and reinforce the neural pathways these trainings develop. Pathways can be observed, through MRI’s, as physical changes. These changes occur as the dyslexic learns, or as the reader completes the exercises.

Brain Training

There are several brain training techniques, which enable the dyslexic to learn strategies to improve their ability to read. These training techniques require a tutor to interact, correct and focus the student. Some brain training exercises are Spell-Reading, Sweep-Sweep-Spell, Picture-at-Punctuation, Total Physical Response (TPR) and 3D learning. Several of these techniques are described in the Ronald Davis book, *The Gift of Dyslexia*.

There are two purposes to use the training technique Spell-Reading. The first purpose is to train the student in left to right eye movement when reading. The second is to enable the student to recognize letter groups as words. A Spell-Reading session should be a maximum of ten minutes, with a ten minute break between sessions. In the beginning, understanding what the student is reading is not the focus. The key or goal is
to get the student to simply recognize the letters they are looking at. Point to the word, the student will say the letters in the word, the tutor will say the word if the student cannot, with the student repeating the word after the tutor. The student needs to be reminded not to try to go too fast, or use phonics if they have learned this word attack style. The student needs to not concentrate too hard, this can lead to frustration. If the student shows signs being overwhelmed by too many words, use a piece of paper to cover the entire page below the line being read, a second piece of paper to cover all the words to the right. This will allow the student to concentrate on the new word. If the student demonstrates disorientation or frustration, simply cover the page and allow student to take a break, if needed (Davis, 1994).

The next training technique is Sweep-Sweep-Spell. The main purpose of this exercise is to continue training eye movement from left to right and word recognition. Again, understanding what is read is not the focus yet. It is now time to give the student some control; show the student how to manipulate the paper to reveal one line of text at a time. Instruct the student to let his/her eyes sweep over the word. If the student does not know the word, have them sweep it a second time. If he/she still does not know the word have him/her spell it, the tutor will say the word, then the student will parrot the word. At any sign of disorientation or frustration cover the material and allow for a break. It is important to start the student reading texts below their reading level for confidence. Increase difficulty with each successful text completed. The goal is for the student to successfully recognize nearly every word in a book, at their appropriate grade level (Davis, 1994).
The third training technique is Picture-at-Punctuation, which is offered once the student can recognize words at grade level. The goal of this training is complete comprehension of materials read. This training teaches the student to create meaning, either pictured or felt, to the material read. In English, each thought is set off by punctuation marks. When the student sees a punctuation mark, he/she is directed to make a picture in his/her mind of what is in the sentence. Once words are read to a punctuation mark, the tutor covers the statement and asks what the meaning of the sentence was. With the student, use a simple dictionary to look up unfamiliar words (Davis, 1994).

Another brain training technique is used by a program called 3D Learner. It is a program designed to increase reading comprehension. The training is based on how the student learns best, and then strives to improve reading skills, using their style of learning. The first step of the program is to assess the students by recording eye movements while they read. Typically, the subject is extremely tense, with eyes not always focusing on the test and breathing is interrupted by the tension. Frequently, poor readers are visual learners, dependent on the right side of his/her brain. They have difficulty using the left side of his/her brain. The 3D Learning program, like the Davis Program, has the reader form the letters of the word in clay and then creates a model of the word. For instance, if the word is ‘under’, the clay model could be a child hiding under a table. Next, he/she writes the word, draws a picture, and finally writes a sentence, using the word. Another strategy, the program uses, is to do movement and cognitive skills simultaneously. This connects the right and left sides of the brain, allowing the cognitive thought to be fully assimilated (Halpert, 2009).
Total Physical Response (TPR) is a method used to teach foreign languages to students, to teach vocabulary to dyslexics; it can be used for all students who are having difficulty learning new words. In this learning technique, the teacher starts by demonstrating commands involving the whole body, such as, “stand up”. The teacher says the command, performs the command and the students mimic the teacher’s action. The students learn to trust his/her body, since it sometimes knows what to do before the brain does. As the class improves, nouns, adverbs and prepositions are added and soon the students are performing complex commands, without the teacher leading. Eventually, the commands change to cover all vocabulary taught in a mainstream class. This technique teaches language acquisition; it does not teach memorization and application of language rules (Zink de Diaz, 2005).

Dyslexic Point of View

A common theme, throughout many interviews with dyslexics, is frustration. Ed Kaiser, a fourteen year old, refused to allow dyslexia to get the best of him. Ed described his attempts to read as, “The words don’t stay still for you and the letters jump all over the place. That then leads to hating writing, spelling, typing, yourself and whatever it is you’re doing. Once you start hating it, you never learn it. When your hatred has reached the top, you get sad, then you get depressed. You feel like you are worthless, low and have no place to go” (Carson, 2001, p. 1). He revealed being a dyslexic has caused him pain; this pain is more mental than physical. He felt his efforts to keep his dyslexia a secret were painful; in addition to pain, he felt fear that others would find out. He stated, “From my personal experience, once people find out they start bugging you” (Carson, 2001, p. 1).
Another young dyslexic, Daniel Scott, described written words were like hieroglyphs. In school, he could not write, could not read, and he was hardly able to do any work. His teachers considered him emotionally immature, because of his temperament. Eventually, he refused to do any school work, became very defiant and after a fight in the school yard, was suspended in third grade. His mother, Janice Scott said, “It was like he walked into a boxing ring daily, his self-esteem taking blow after blow” (Stainsby, 2001, p. 1). This was the nightmare he woke up to every morning. His mother further stated, “He hated school. I couldn’t wake him up. There were days he was just bereft of strength; ‘Mom, he’d say in utter defeat, ‘I wish I was dead. I wish I’d never been born’” (Stainsby, 2001, p. 1).

David Whyte grew up in New Zealand, where he was diagnosed with dyslexia, while at the University. His initial reaction to the diagnosis was “it, “took a massive weight off my shoulders. It was great moment of vindication” (Whyte, 2007, p. 1). He expressed the reason the diagnosis came so late in his life is, “There is a myth in our culture that dyslexic equals thick, or stupid. My supporting parents always knew I was not thick. So they always believed that I was intelligent, but if I was not dumb, in their view, I couldn’t be dyslexic” (Whyte, 2007, p. 1). He was especially angry with his teachers, who regularly belittled him for being stupid, that he should try harder and be more careful. “In fact, they should have known that I had a ‘disability.’ They – as the educated and senior ones – were more wrong than I was” (Whyte, 2007, p. 1).

As demonstrated in the reflections of the young dyslexics above, frustration, fear, pain and defiance are part of the emotional rollercoaster dyslexia takes a child on. Other common feelings described by dyslexics are alienation, lack of confidence and self-
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doubt. These feeling build in the early years of school, when the children are teased, humiliated, insulted by their classmates, and inexcusably, their teachers and other school staff. When the dyslexic student goes home, to what should be a safe haven, they are then teased and ridiculed by siblings. Parents, who should be a child’s defender and nurturer, become teachers at home, trying to help their child. This causes the tensions and problems, felt at school, to enter the home. The child also feels his/her parents’ anxiety and insecurities about his/her child’s intelligence (Mortimore, 2008). Today’s understanding of dyslexia is that it is not a reflection of low intelligence. Previously, however, children like David Whyte went undiagnosed, because the stigma of dyslexia was unacceptable.

Dyslexia, even under the best educational conditions, is still at trial. In a descriptive interview study, conducted at a dyslexia friendly school, male students were requested to respond to this statement, “If you were to imagine dyslexia as some kind of “thing” or picture in you mind, how would you describe it” (Burden, Burdett, 2007, p. 79)? Forty-four of fifty boys were able to respond to this question. The study reported 40% of the responses described, “dyslexia in terms of barriers that needed to be, and indeed could be surmounted” (Burden & Burdett, 2007, p.79). A 7th year student responded, “It’s a big blob of something sticky – it, like sticks to you. You can’t get rid of it really, but you can get rid of little bits”. A second metaphor described dyslexia in terms even the uninitiated can understand. The 10th year student illustrates dyslexia as a physical barrier, “Not being able to make a [rugby] tackle or something like that. When you miss a tackle, you feel disappointed in yourself. That’s how I feel about spelling and that. When I can’t get something into my head I feel disappointed. And then when
somebody tells you it you get it back.” Another metaphor, by a 10th year student was particularly descriptive.

It’s like a lock and key. If you’ve got enough persistence you can sort of find that key to unlock that door. If you deep doing it, you keep unlocking all the doors, so eventually you get to the end passage. It’s like a maze with doors that you’ve got to unlock, so you have to keep persisting.

(Burden & Burdett, 2007 p.79).

This response shows frustration, perseverance and hard work are necessary to succeed with dyslexia. Even in a dyslexia friendly environment, it is extremely difficult to break down the barriers that keep a dyslexic child from absorbing what they need to learn. A dyslexic student feels he/she is a failure and stupid when he/she tries his/her hardest to learn and is not as successful as his/her peers, who do not seem to work nearly as hard. A dyslexic child has to put forth much more effort to accomplish the tiniest goal. He/she needs the complete support of teachers and parents to understand his/her learning needs and how he/she best learns (Hudson, 2007).

The writers of this study suggest that metaphors can tap into one’s consciousness and show how the dyslexic feels. This could provide a helpful avenue for the dyslexic to reach a deeper understanding of his/her condition and psyche. By reviewing these writings, the parents, instructor, or counselor, would be able to monitor the feelings of the dyslexic and, if necessary, encourage more positive thinking and behavior. Using metaphors could possibly help minimize the severe depression that can overtake a dyslexic.
Suggested Reading for the Dyslexic’s Family

It is very difficult to feel different, as depicted in the examples of writing which describe the emotional toll of being dyslexic. To counteract, explain and illustrate the commonality of the dyslexic’s plight, stories written by and about dyslexics are invaluable. In one story, the reader will meet a young student, excited to learn to read. The story documents her struggles, feelings, and eventual ownership of her success. *It’s Called Dyslexia*, is designed for dyslexics. There are engaging pictures, clear text and suggested activities to enjoy, at the end of the story (Moor-Mallinos, 2007).

Patricia Polacco, a well known children’s author, who is dyslexic, writes about her childhood. The story, *Thank You, Mr. Falker*, is a positive story about Trisha. “At first, Trisha loves school, but her difficulty learning to read makes her feel dumb, until, in the fifth grade, a new teacher helps her understand and overcome her problem” (Polacco, 1998, p. 1). This is a book highly recommended for the struggling reader and his/her family.

Parents of a Dyslexic Child

Parents often feel guilty when their child exhibits traits of dyslexia. Dyslexia is a heredity disorder and, chances are, the parent experienced many of the same challenges which their child is facing. Watching their child struggle leads to feelings of guilt and great frustration, as they try to help their child succeed. Helping their child at home, with school work, is a constant task. Unfortunately, parents are sometimes the worst people to help their child with reading or homework (Mortimore, 2008).

In a cross-sectional questionnaire based study, conducted in India in 2006-2007, one hundred fifty parents of children with specific learning disability (SpLD) participated
in this study to measure their quality of life. The World Health Organization defined quality of life as, the perception of an individual of his/her position in life, in the framework of the culture and value systems where he/she lives. This is also in relation to his/her goals, expectations, standards, and concerns (Karande & Kulkarni, 2009). This study found that parents of children with newly diagnosed SpLD list four areas, psychological, environment, social relationships and spiritual as important to their quality of life. Being a mother in this situation consistently scored the lowest in psychological and social relationship scores. This study further shows that the interviewed parents regard leisure (opportunities for recreational activities), positive feelings, energy, self-esteem, and sex as important contributors to their overall quality of life (Karande et al., 2009). However, parents of SpLD children experience elevated stress levels, find they do not have sufficient time to mentor their SpLD child, and have no time for those items most important to their quality of life. This study suggested parents of newly diagnosed SpLD children need to seek counseling to minimize the impact on their quality of life. This will insure the parents know how to best help their child and family by making sure his/her quality of life is in place.

System Failure

Generally, parents are appalled to learn the statistics that surround dyslexia. For instance 33% of students have learning styles not normally taught in regular education. Surprisingly, nearly 90% of first graders with word identification challenges will remain below the grade level standard for reading, in the fourth grade. Another shocking statistic is 55% of the children of college graduates in eighth grade are reading way below grade level (Halpert, 2009). If these dyslexic children are not caught before they fall through
the cracks, their future may be very grim. The Pentonville Prison Dyslexia Project found as much as 30% of the prison population was probably dyslexic. Many of these prisoners were illiterate and the majority of the 30% had not completed school. This alarming statistic demonstrates the damage done to the life of a child when the school system fails to teach in a manner which empowers the child to be successful (Mortimore, 2008).

Summary

Dyslexia is the most common language based disability, affecting 15-20% of the American population. Dyslexia is considered hereditary in many cases. The causes of dyslexia are currently the focus of numerous research studies. There are three prevalent theories considered as likely causes for this disorder. The three theories are: the magnocellular deficit, the cerebellar deficit, and the phonological deficit theory.

The most frequently seen form of dyslexia affects phonological awareness, which noticed as a child struggles to learn to read. Dyslexia also can affect other abilities such as, mathematics, spelling, writing, speech and coordination. School is very difficult for the dyslexic student not only is it extremely hard to learn; also students and even teachers brand the struggling student, incorrectly, as stupid. The dyslexic often has such a troublesome experience in the school setting that he/she avoids participating in the classroom, to the extent of fabricating illness to avoid the situation entirely.

The key to educational success is early intervention; this helps to maintain a positive self-image. The sooner dyslexia is diagnosed; the less damage has been done to his/her educational experience. Although there is not yet a cure for dyslexia, dyslexics can learn methods which will enable them to be successful in educational pursuits.
There are diverse methods used to teach students with dyslexia; some educators are adamant that phonics is the foundation to learning to read. One of the MRI studies did show changes in brain function when intensive phonics instruction was pursued. Conversely, others, such as Ron Davis and 3D Learner, emphasize teaching to all of the multiple intelligences. Both of these programs had several testimonies of their success. Everyone has a different learning style; the successful teaching method is the one that works for the individual student. If the dyslexic cannot receive the education he/she needs to achieve a strong educational foundation, he/she may likely be counted among the many failures of the educational system.

Section III: Conclusion

Dyslexics comprise 15 - 20% of the students in a classroom. Dyslexic students have, historically, had a difficult, or impossible, time succeeding in the American educational system. The educational system must better address the educational needs of the dyslexic students. How can the educational system be effective educators of all students? The lecture format is a prevalent means of teaching. Addressing the multiple learning styles and multi-senses concentrates on the learning requirements of the dyslexic. Use of technology in the classroom furthers the teachers’ ability to better reach the dyslexic student. Students unable to succeed in the current educational system suffer from poor self esteem, depression and isolation. Dyslexic students are different, and different is a very painful place to be in a classroom culture which values learning at the same pace, and in the same way, as every other student seem to learn.

The educational system currently uses direct instruction, in lecture form, with students taking notes to capture the information. Next, ideally, the instructor will work,
with the students, completing the guided practice for that lesson, in the form of a worksheet or questions. Unfortunately, the teacher often, believing the students understood the lecture’s content, simply hands out the worksheet for completion. The dyslexic student probably pretended to understand the presentation, to avoid bringing attention to his/her lack of ability to capture material presented in lecture form. The teacher will likely assign the worksheet, for those who did not complete it in class, as additional homework. The final component to this style of teaching is independent practice, in the form of homework. The dyslexic was unable to comprehend and remember the lecture, could not take notes, did not understand the guided practice, and has no ability to complete the independent practice at home.

The next day, to add to the students’ pressure, a pop quiz further proves he/she did not absorb the information, as it was conveyed. Then later, based on the lecture and the notes, he/she were unable to take; the dyslexic student must take a test he/she was unable to prepare for without proper notes. Unfortunately, the dyslexic child cannot learn this way. This lecture style of teaching causes extreme confusion and distress, thus adding to the dyslexics’ sense of failure and feeling that he/she is left out.

To better reach the dyslexic, the direct instruction should include the state standard; briefly explain what the students are going to learn in the new lesson. Include multi-sensory teaching style; use colored markers, introduce music when possible or project pictures related to subject matter. Be sure the lessons are presented in small units, so students can easily follow the lesson and not be overwhelmed. Recap what was just covered by asking engaging questions or give a review of the main ideas of the lesson.
The guided practice can still include a worksheet, however, kinesthetic (hands on) activities involving manipulatives, or total physical response (TPR) is preferable. This addresses the needs of the other learners, including the dyslexic. If a worksheet is used, encourage active participation by projecting the worksheet onto the whiteboard or active board. When practical, have paired students discuss the answer to the question; randomly choose a student to provide the answer. Pair sharing reduces the level of anxiety for all students. Dependent on the grade level, the teacher or student writes the answer on the board. Ensure all students have sufficient time to complete the worksheet. This allows the entire class to stay together during the guided practice. Now all students have completed his/her class work, avoiding additional work to take home, again reducing stress.

Introduce independent practice (homework) by allowing time to review and ask questions. This ensures a full understanding of homework expectations. Post all homework assignments on the board first thing in the morning; which gives ample opportunity for each student to have it recorded and to ask questions if he/she is unclear about the assignment.

Testing students for understanding of material is necessary; however, all tests should be well announced. This allows every student study time and should raise his/her confidence and ability to succeed. Dyslexic students generally are easily distracted; try to seat him/her next to quiet students. Allow sufficient time for the test; be flexible, dyslexic students work slowly and may need more time. Be sure to correct only for what is being tested for. Allow the student to concentrate on one task at a time. Excessive marking of non tested material errors is confusing and very discouraging.
The educational system can be better effective educators, of all students, by encouraging, or requiring, teachers to discover how a child learns best, and teaching to multiple intelligences and multi-senses. Currently, districts adopt textbooks and demand that teachers conform to only using the adopted programs. These adopted programs and the educational politics frequently do not encourage the teacher to address multiple learning styles. To be more effective teachers of dyslexic students, all teachers need awareness and methods training as part of his/her professional development.

Technology makes the required curriculum attainable for all students. It allows the interjection of music, pictures and interactive web sites into the current lecture format. This interjection can be used to change the lecture format, which is not reaching the dyslexics in the class, into a multi-sensory and even multi learning style presentation. The use of an active board allows the projection of computer generated graphics, pages of print scanned from a text or current teaching notes. The notes can be written, or typed, in any color and then printed for the student who was unable to proficiently copy the board notes. Technology is the bridge which can take the educational system requirements and make learning obtainable for the dyslexic student.
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