

**Signals of Learning Disabilities
at Various Developmental Stages
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The earliest articles related to learning disabilities were written in the latter part of the 1800's. In the early 1900's Orton and Gillingham were working to not only identify, but instruct individuals whose visual and auditory processing systems were less efficient in mastering the written language skills of reading, writing, and spelling. For 70 years, case histories have been gathered and these reports provide valuable information in referring individuals for evaluation as early as possible.

25 CHARACTERISTICS OF DYSLEXIA & RELATED DISORDERS

Dr. Charles L. Shedd

1. **Spotty performance on IQ tests**, achievement high in some areas, low in others. This may be illustrated by the WISC: Dyslexia - There is a poor performance on digit span, arithmetic, coding and picture arrangement subtests when compared to vocabulary subtest.
2. **Below mental age on tests of drawing a person.** Employing a Goodenough-Harris scoring procedure for DAM it is found that for: Dyslexia - There is a ten to 20 point difference between WISC full scale IQ and DAM IQ. Qualitatively the drawings are lacking in detail.
3. **Poor performance on visual-motor Gestalt tests for age and indicated intelligence.**
If the Brea Gestalt Test is employed, for example, it is found that for:
Dyslexia - An error score of 9 to 15 is diagnostic. There are frequent error scores of rotation, failure in internal detail and distortion.
Attention Deficit Disorder - An error score of 16 or more is diagnostic. There are frequent error scores of rotation, failure in internal detail, distortion, destruction, addition and reduction of sides and angles.
4. **Poor performance on group tests which require reading and writing.** Dyslexia scores are frequently higher in arithmetic and comprehension than on those that require specific language skills.
Attention Deficit Disorder - There is temporary inefficiency or poor performance in all areas.
5. **Impaired temporal orientation.**
Dyslexia - There is a marked difficulty in estimating temporal intervals.
Attention Deficit Disorder - There is temporary inefficiency or impairment in estimating temporal intervals.

6. **Impaired right-left discrimination** - The Right-Left Discrimination Test developed by Shedd and Drake (1961) indicates that when error scores are greater than 19 there is an indication of specific learning disability (dyslexia and attention deficit disorder).
7. **Poor spatial orientation**
Dyslexia - There is poor utilization of allocated space.
Attention Deficit Disorder - There is poor utilization of allocated space with frequent overlappings and edgings.
8. **Field dependent perception.**
Dyslexia - There is a characteristic response to total field characteristics-figure-ground.
Attention Deficit Disorder - There is temporary inefficiency in focusing on the figure.
9. **Frequent perceptual reversals in reading and writing numbers beyond age and instructional level.**
These are characteristic of both dyslexia and attention deficit disorder.
10. **Impaired reproduction of rhythmic pattern.**
Dyslexia - There is a marked disability.
Attention Deficit Disorder - There is a temporary inefficiency.
11. **Impaired reproduction of tonal pattern.**
Dyslexia - There is a marked disability.
Attention Deficit Disorder - There is a temporary inefficiency.
12. **Impaired auditory discrimination.**
Dyslexia - There is a marked disability.
Attention Deficit Disorder - There is a temporary inefficiency.
13. **Speech irregularities.**
Dyslexia - There is a frequent mild irregularity marked by slurring, repetitions, hesitation and incomplete sentences.
Attention Deficit Disorder - There is marked difficulty expressed as articulatory and motor difficulties, monotony, delayed speech development, grammatical difficulties, vowel stop problems.
14. **Oral language delays and disorders**
Inability to make the normal associations of words (labels) to people, objects or ideas. Trouble comprehending what people say and/or difficulty in verbal expression. This disorder usually is found in combination with other learning differences making it a complex learning disability.
15. **Impaired coordination.**
Dyslexia - There is a non-specific motor awkwardness.
Attention Deficit Disorder - There are marked gross motor problems.
16. **Impaired fine motor skills.**

Dyslexia - There is an aperiodic loss of fine motor skills.

Attention Deficit Disorder - There is a marked chronic reduction of fine motor skills.

17. Reading disabilities.

Dyslexia - There is a primary problem of decoding with comprehension difficulties arising only as a consequence of lack of vocabulary development.

Attention Deficit Disorder - There are primary problems of decoding and comprehension.

18. Spelling difficulties.

Dyslexia - There is a marked reduction of spelling ability.

Attention Deficit Disorder - There is a temporary inefficiency. When there has been systematic instruction, this may be the most adequate skill.

19. Writing disabilities.

Dyslexia - There is mild dysgraphia.

Attention Deficit Disorder - There is marked dysgraphia.

20. Variability in performance.

This is marked in both, but more erratic in attention deficit disorder.

21. Poor ability to organize work.

This is marked in both, but more erratic in attention deficit disorder.

22. Slowness in finishing work.

This is marked in both, but more erratic in attention deficit disorder.

23. Short attention span for age.

This is marked in both, but more erratic in attention deficit disorder.

24. Impaired concentration ability.

This is marked in both, but more erratic in attention deficit disorder. Hyperactivity of the dyslexic is task related and induced by the dyslexic while it is stimulus with the attention deficit disorder.

25. Impaired visual and auditory memory.

Due to brain processing errors, information received by visual (eyes) input and/or auditory (ears) input is not processed accurately and therefore is stored in memory inaccurately or because of a disorder of vigilance the processed information is not stored in memory.

PERCEPTUAL CATEGORIES

DYSLEXIA

Oral Reading: Low

Comprehension: Average to Above

Spelling: Low

Math: Average to Above

Handwriting: Average to Poor

Motor Skill: Average to Poor

RELATED DISORDERS

Attention Deficit Disorder (ADD/ADHD)

Oral reading - Average to Below
Average

Comprehension: Low to Average

Spelling: Low

Math: Low

Handwriting: Low

Motor Skill: Poor

Dyscalculia Math disability only

Written Expression disability

Dysphasia Oral language disability

Dysgraphia Writing disability that may occur with any of the above patterns

In case histories there is often a family history of dyslexia, little indication of difficulty in learning before reading is introduced, and increasing difficulty in school through the grades in reading, writing, and spelling. The histories of ADD/ADHD students indicate early speech/language disorders, motor skill delays and attentional difficulties. Family history may reveal others with similar challenges. In school this child is seen as impulsive, poorly organized and having the greatest difficulty with reading comprehension and math.

Both groups have a higher incidence of ear infections and allergies with a frequent family history of late onset diabetes.

Early Childhood

Delays in **co-ordination, speech and language, attention, and perception** are the early predictors of learning disorders. The average child will support the weight of his own head by 4 months, sit by 6 months, crawl by 8 months, stand by 10 months, and walk by approximately 1 year. The gross motor movement (large muscle) is refined over the first 5 years of life. As the large muscle movements are improved the child has the ability to begin to refine the fine motor movements of his hands: to learn to grasp, pick up small objects, hold objects, feed himself, cut his food, tie his shoes. In the process he learns to use the eyes and hands together to become more accurate in his motor skills. He refines his perception of space, weights, textures through his motor development. **His motor system develops the skills he will need later in school work.**

In a baby's first year, he hears the sounds of his language. The melody of the language is perceived first. The development of the sounds of the language are seen in cooing, babbling, echoing, and finally producing the first meaningful word, such as mama or dada. **In the first 5 years this word vocabulary grows for the average child to between 2,500 to 5,000 words and basic mastery of his mother tongue is achieved.**

Very young children are in a stage in which the brain is being bombarded with information sent by the senses. This stage of birth-3 years Dr. Maria Montessori called "The Absorbent Mind." Every sight, sound, smell, taste and feel bombard the brain. **The human being must assimilate this sensory input and in the first 5 years begin to organize it in a meaningful way.** The brain between 3 and 5 years develops, for most

children, an inhibition system in which targeted sensory information can be studied while other extraneous information is ignored. **The brain begins to have the ability for the selective and sustained attention necessary for learning in school.**

Throughout the first 5 years of life the child is refining his ability to interpret the sensory information his brain receives and to perceive finer and finer details of this input. For example, at birth he can perceive sound but this perception needs to be refined from gross sound awareness (loud/soft, high/low, etc.) to the minute differences of speech sounds to be ready for the beginning reading tasks of kindergarten and first grade.

If co-ordination, language, attention, and perception proceed in an average progression of ability, the child is “ready” for the higher cognitive tasks of reading, writing, spelling, math, science, and social studies. If these areas develop unevenly or are deficient, the child will be seen to have difficulty with some or all of the early academic learning tasks.

Even with processing deficits, the child has average or above mental ability and often compensates in the early elementary grades to the point that they are frequently not referred for evaluation until the third grade.

Elementary Grades

Bright children with reading disorders, such as dyslexia, have **auditory processing deficits**, such as difficulties with phonological awareness. They cannot perceive the discrete sounds in words or the location of the sounds accurately and consistently. They seem to perceive the auditory unit of a word as a glob of sounds. Often their speech indicates how they perceive the spoken language of others. Their speech may be mumbled, slurred, evidence articulation errors seen in younger children (basketti/spaghetti) and confused syllables (comtraval for comfortable).

Dyslexic students also have **difficulty in the visual perception** of internal detail in words so they frequently call words that start alike and look similar, one for the other (then/there, for/from). They miss more short words than long words, which are more distinctly different from one another.

In kindergarten, first, and second grade many parents, teachers and even some diagnosticians are **liable to believe that these perceptual dysfunctions are slow development which will improve with maturity.** Though in a very small number of children (about 1%) these errors may be maturation, in the majority these are clear signs of a learning difference.

The last ten years have provided the LD field with the neurological research of Geshwind, Galaburda, Sherman, Rose, and others demonstrating that the dyslexic brain is anatomically different than the brain of the average reader. Yale physicians Sally and Bennett Shaywitz have identified the parts of the brain used in reading through MRI studies. The National Institutes of Health studies are finding that at least 95% of even the poorest readers can learn to read at grade level if they are given early and proper instruction in sound-letter relationships.

By the third grade, these differences are clear. There are several reasons for this time of reference for diagnosis being the greatest. In the first two grades, everyone is learning to decode the written symbols that make words and attach meaning to the words, phrases and sentences. There is a great range of ability in these skills ranging from the rare 3-year-old excellent reader to the adult who is a slow, labored and inaccurate reader.

The majority of humans exposed to any effective system for teaching reading is decoding with ease and understanding what is read by the third grade. Those who are still

struggling become more obvious as not making normal progress. There are, of course, the uninformed adults who assume the child is not trying and is not motivated. Motivation is rarely if ever the cause of a reading failure. The greatest number of ineffective readers is attempting neurological skills for which the processing systems are faulty.

If the elementary child is not referred for testing, identification and clinical instruction, their language skills make very slow, uneven progress. Other students continue a steady gain in skills while the learning different student becomes more frustrated and confused. The more intellectually able the LD student, the greater the frustration. Emotional and behavioral overlays, such as clowning, withdrawal, or hostility, may become a part of the student's way of distracting others from his academic weaknesses.

Each year of elementary school, grades 1-5, the gap between the learning different student and the average student becomes greater. The written work and spelling of the LD student is like the work of a younger child.

Middle School Grade 6-8

In these years the difficulties of the LD student increase, as the work volume, timing factors and requirements continue to escalate. The LD elementary student who had difficulty writing a paragraph now has the challenge of multi-paragraph papers, essays, book reports, and research reports. The average student is becoming an independent worker. The middle school LD student cannot finish his work in the same amount of time as the average student, because of the slower speed of his neurological processing. His auditory discrimination and memory skills make note taking difficult to impossible. The writing of other students is becoming richer in vocabulary and varied in sentence structure. **The LD student knows much more than he can express in writing. Frustration and issues of self-esteem often worsen during these years** in which others are maturing in their academic skills and the LD student produces work not even adequate for much younger students.

High School

Even the mildest learning difference becomes a more major hindrance as the LD student attempts the required courses in high school. The levels of abstraction in reading comprehension increase, the complexity of the literary vocabulary, the demand to write comprehensive fluid papers in which ideas flow, the need to organize for more courses with higher cognitive and perceptual requirements all overload the brightest student with a learning difference. Since the processing speed of the LD student is considerably less than the average student the volume of reading and writing within the time given are overwhelming.

By these years many LD individuals are suffering from depression, some from anxiety, and are more at risk for alcohol and drug abuse and suicide than the person who is successful in school and feels in control of his life.

College and Adulthood

Learning different students who have received no remediation may make it into college, but few can sustain the four-year effort. A pattern of going and dropping out is repeatedly seen. For those who do have persistence and a talent area in which to major, a degree is attained. College is rarely a carefree time for this student. Often they describe these years as highly stressful.

In the working world, the unremediated adult is often seen as bright and creative but erratic in work performance, slow in completing work projects and disorganized. Some find a niche in which their talents overshadow their weaker areas, others are not as successful and are seen moving from job to job and never sustaining a position. For some social skill problems and attention deficit disorder add to the burden of their difficulties.

The success of the LD adult relates greatly to the severity of their processing disorder and their support system. A mildly dyslexic person with strong math skills and an above average mental ability may be seen as a dynamo in the business world. He or she hires a secretary to write letters and correct spelling.

Those individuals with the learning disabilities associated with ADD have strengths as “out of the box” thinkers and are often entrepreneurs. If they are partners with a person who can help them channel their creativity they are highly successful. Without this balance they can make decisions with poor judgment or impulsivity, which can lead to problems in coping with the demands of adult life.

In addition, since the **LD person is often embarrassed about his weaknesses**, he may work to hide his difficulties from everyone. **If he does not trust others to admire who he is, he may have difficulty with interpersonal relationships**, especially intimate long-term commitments.

If a child is identified in pre-school as being at-risk for a learning difference; if it is understood that he processes information differently even though he is intelligent; if he gets early help in prescribed educational methods, **he will never know the intense disappointment in his abilities the unidentified LD child experiences. The treated child will not be “cured”** and will know some learning is hard for him, but with professional support **he will not know the fear, confusion, and frustration of the LD child who is not helped.** He can receive an appropriate education, achieve academic skills closer to his potential, feel successful in school, understand his learning profile and gain strategies to deal with the challenges he faces. The difference can be a person with many deficits in his education, inadequate performance in school, damage to the person’s abilities and self-esteem with all the dangers to which this unsuccessful person is now exposed versus a productive, coping person who contributes to society.