

# Chapter 1

## An Overview of the Field of Learning Disabilities

### Leonardo da Vinci (1452–1519)

Italian sculptor, painter, architect, engineer

Was believed to be learning disabled; used “mirror writing”

#### Contributions:

Painting: *Last Supper*

*Mona Lisa*

*The Adoration of the Magi*

Drawing: Illustrated his anatomical observations; designed helicopters, bicycles, pumps, and military weaponry

*Learning disability* (LD) is a term currently used to describe a group of neurological conditions that interfere with a person’s learning. Under the umbrella called LD, there are disorders related to listening, speaking, reading, reasoning, and mathematical calculation. Individuals with LD have intelligence in the near average, average, or above-average range. Because these individuals do not appear to be different, difficulties are not expected. The impact of the conditions may range from mild to severe. As we expand our knowledge of learning disabilities, we have come to realize that learning disabilities may also include an attention-deficit component, a socioemotional component, and perhaps emotional issues.

Unlike physical disabilities, learning disabilities are not so obvious and have been referred to as the “hidden handicap.” Sometimes these disabilities go unrecognized by parents, teachers, and physicians. As a result, individuals with learning disabilities may be thought of as “underachievers,” “lazy,” or “weird.”

Learning disabled individuals have to work harder to succeed. They receive more negative feedback regarding their work. They may experience feelings of frustration, anger, depression, anxiety, and worthlessness.

Individuals with LD need early identification, sound remedial teaching appropriate to their needs, personal and family counseling, continuous training in social skills, vocational guidance, and on-the-job coaching.

## History of Learning Disabilities

The field of learning disabilities is relatively young. Historically, the learning disabled person may not have been singled out in school; perhaps those with learning difficulties dropped out of school or went to work. With the technological revolution of the 1950s came a demand for an educated workforce that is adept at working with technology, machinery, and scientific study. Geographic mobility, an increase in international exposure, and the sudden spurt in technology are among many factors that have changed the scope of the education and work prospects for people with learning disabilities.

Dynamic social changes in society are putting pressure on schools to do a better job educating all students, especially as different tracking systems and measurement agents have demonstrated the numbers of students graduating from high school and other schools. Numerous studies point to the fact that almost a quarter of students who enter high school don't graduate.

Prior to 1937, there was no recognition of learning disabilities. In 1937, Samuel Orton, a neuropathologist, used the term "strephosymbolia" to describe a problem he had observed in children with reading difficulties, namely, the reversals of symbols, such as *b* and *d*, or words, such as *saw* and *was*. He thought that this might be caused by the failure of one hemisphere of the brain to establish dominance over the other, which he assumed resulted in mirror images of words and symbols. He noted that there seemed to be a continuum of reading disability ranging from mild cases to severe cases. The Orton Dyslexia Society was named for him.

The look-say method of learning to read in the early 1940s resulted in a high degree of failure to acquire reading skills. Samuel Orton, Anna Gillingham, Bessie Stillman, Romalda Spalding, and Grace Fernald responded to the need by developing alternative methods to teach students who couldn't learn to read by memorizing sight words. Despite their pioneering efforts from 1940 to 1960, most students with learning disabilities were thought to be slow learners. It was rare that they received any special help. If they did, they were usually put into classes for the educably retarded.

Research findings in the 1960s were disturbing. Many children who had been classified as retarded were found to have normal intelligence when tested in a nonverbal format. William Cruickshank suggested that their progress was being hindered by deficits in perception and deficits in attention.

A group of concerned parents of children who had difficulty reading met in Chicago in 1963 to discuss the needs of their children. At that time, doctors referred to these children as being “minimally brain damaged” (MBD). These parents objected to the use of that label. Samuel Kirk, who was at this meeting, suggested a new term, “learning disabled.” The parents adopted the new term and established the parent organization Association of Children with Learning Disabilities (ACLD) and began to demand services for their children.

Shortly thereafter, the International Council for Exceptional Children created a division of the organization to address the needs of children with learning disabilities. By the late 1960s, education responded. Special education resource rooms were opened. Students were grouped for instruction according to their needs. Special educators tried to work on children’s perceptual deficits and to help them reduce their distractibility. Research in animal and human behavior by B. F. Skinner and others led to a very different approach, behavior modification, which became very popular in education during the 1960s.

Attempts to classify learning disabilities into LD subtypes began in the 1970s with the works of Elena Boder, Byron Rourke, and Linda Siegel, and have continued since. The most significant event of the 1970s was the passage of Public Law 94-142 (the Education of All Handicapped Children Act) by Congress in 1975. It guaranteed that each handicapped child, age three to twenty-one, would receive a “free and appropriate” education in the “least restrictive environment” possible. This law became known as the “mainstreaming” law. Children with LD were to be educated in regular classrooms unless the nature and severity of their disability was so great that it could be demonstrated that they could not make progress in regular classes. Each school was given the services of a resource specialist.

Public Law 94-142 had one enormous shortcoming: it did not provide school districts with adequate monies to provide the services it mandated. At the time of its passage, it was presumed that approximately 2 percent of schoolchildren would require services. By 1987, almost 5 percent of schoolchildren qualified for services under the LD category.

Early in the 1980s, educational endeavors changed focus. Less effort was devoted to remediating perceptual deficits, and the focus shifted to skills

development. About the same time, there was resurgence in research interest in learning disabilities. New technologies, such as magnetic resonance imaging (MRI) and positron emission tomography (PET), were making it possible, for the first time, to map electrical activity and blood flow in the brains of living subjects as they performed various educational tasks.

In the late 1980s, the Regular Education Initiative (REI) encouraged special education and regular education to join resources. The initiative said that students who had been served in pullout programs would be better served by their general education teachers in regular classrooms, if their teachers had help from special education personnel. "Inclusion" was the buzzword. In classes where inclusion was a success, it attests to the flexibility and cooperation of the two teachers involved, because this is truly team teaching. Resource specialists were encouraged to spend more time with regular teachers consulting and collaborating about students' special needs.

Late in the 1980s, researchers suggested that the true causes of reading disability were deficits in phonological awareness, phonological encoding, and phonological retrieval abilities. (See the work of J. K. Torgesen and Paula Tallal.) This research states that training in phonemic awareness and systematic phonics instruction are necessary for at-risk and reading disabled students.

In 1990, Public Law 94-142 was retitled and expanded. It is now called the Individuals with Disabilities Education Act (IDEA), Public Law 101-476. IDEA further refined the definition of a learning disability:

*"Specific learning disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculations. This term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.*

*(U.S. Office of Education, Federal Register)*

This definition reflects the historical development of the field. The definition also states who is included and who will be excluded from special education services under the label "learning disabled."

Many educators argue that the excluded child is being unfairly deprived of essential services. For example, there are children whose IQs fall between 75 and 85 who desperately need and would benefit from more

help, but do not get it because they do not fall into any category of special education. Likewise, the child whose parents move every few months is in desperate need of remedial help, but many schools have no programs available to address such needs.

Although IDEA requires that a child fit a standard profile in order to receive additional services, Section 504, a civil rights act, was designed to help students who might not qualify under IDEA regulations. (See Chapter Three for a more in-depth discussion of legislation.)

Nationwide, school performance statistics are mixed. Arguing for continued funding, the September 2007 NCLB Report Card to Congress indicated “continued growth and gains by America’s schoolchildren, particularly among younger and minority students.” The report lists increased reading scores for fourth graders and higher math scores for both fourth and eighth grades. However, the report does not detail, or even address, students with special needs. In fact, the researcher must be clever and diligent to find government data for the learning disabled child. For instance, in 2005 the Department of Education’s testing arm (the National Assessment of Educational Progress) published the *NAEP 2004 Trends in Academic Progress: Three Decades of Student Performance in Reading and Mathematics*. This report follows reading and math scores since the early 1970s. Their findings, again not breaking out learning disabilities, show a relatively flat line of scores: “the average reading score at age 9 was higher in 2004 than in any previous assessment year [9 points higher on a 500-point scale]. The average reading score at age 13 was not significantly different in 2004 from the average score in 1999 (the most recent previous assessment year), although it was higher than the average score in 1971. At age 17, there was no statistically significant difference between the average score in 2004 and the average score in 1971 or 1999.” (National Assessment of Educational Progress, 2005, data added.)

Other key points indicate the need for serious attention:

- Only 70 percent of students in the United States graduate from high school in four years.
- One in ten schools fail to graduate 60 percent of their entering freshmen.
- 50 percent of adults who had below-basic reading skills were unemployed in 2003.

The status of education in the United States was the subject of a government report titled *A Nation at Risk*, published in 1983. Following this report, parents blamed teachers, and teachers blamed parents. The length of the school day and school year were slightly increased, but achievement scores continued to be poor through the 1990s.

At the turn of the century, a number of distinct trends have emerged:

- Reexamination of our educational theories and practices. One example of this is the movement toward combining the Whole Language reading approach with phonemic awareness training and phonetic skills development into a program called Balanced Literacy.
- A proposal for the development of a uniform, national achievement testing program.
- Stricter credentialing standards for teachers.
- An end to the practice of social promotion and tightening of the standards for promotion and graduation.
- Recognition by industry that it has a responsibility to provide parents with more family leave time, child care on work premises, and compensated time off for parents to help in their children's classrooms.
- The demand for reduction in class size has begun to be translated into action.
- Questions about the wisdom of the "severe discrepancy clause," which prevents earlier remediation for all students who need it.
- A growing awareness that we need to provide more vocational training services in high schools for students who do not wish to pursue academic goals or cannot meet the standards for promotion.

In the year 2000, the No Child Left Behind (NCLB) legislation was introduced to help hold schools accountable for their governance practices and levels of student performance. Schools now must submit yearly "progress reports" to government entities to demonstrate that they are performing at an acceptable level. NCLB legislation allowed the government to step in and take action if a school does not show adequate yearly performance. If a school continues to flounder, the NCLB legislation allows the government to remove funding for the school or take over its leadership and governance by appointed personnel.

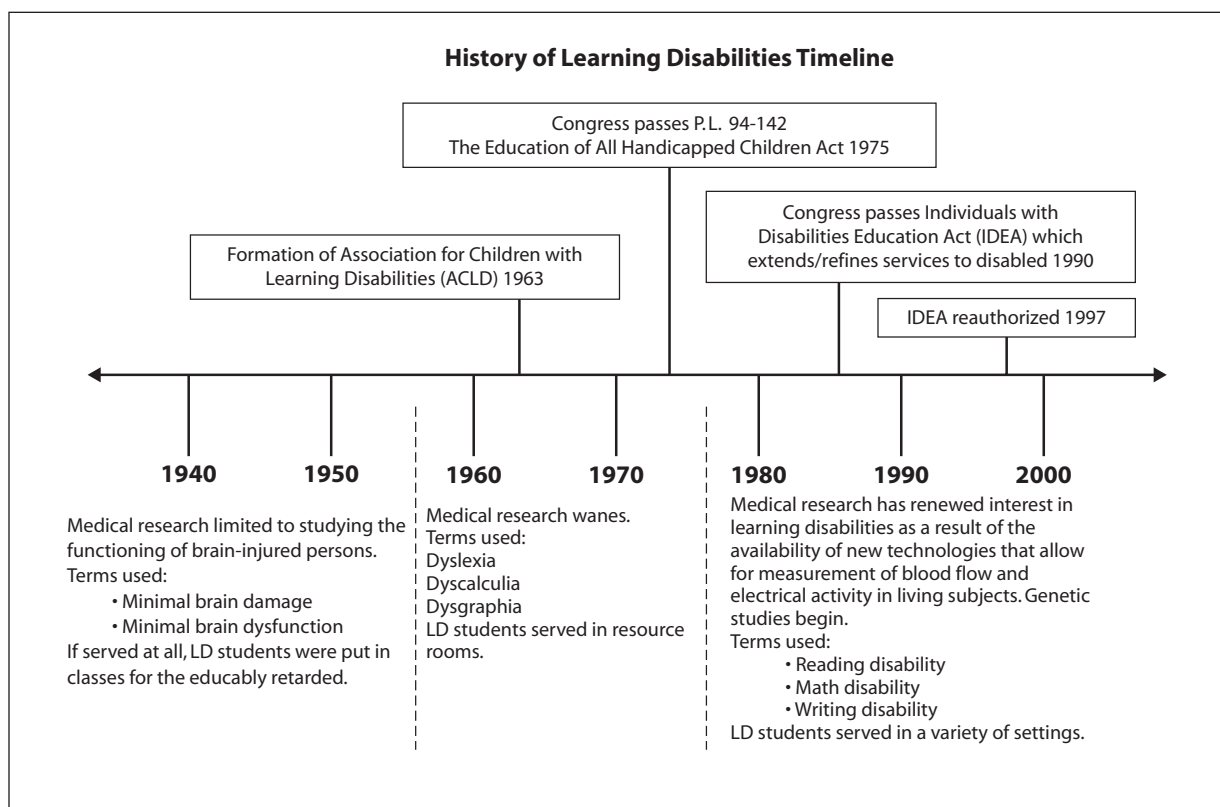
## Causal Factors

Current literature and research reveal that a number of causes of learning disabilities are under study. Among them are the following:

1. There is a strong familial factor. It is not uncommon to find that several members of the same family have the condition. LD can be inherited.
2. The incidence of learning disabilities increases when there is a difficult pregnancy or delivery, or prematurity.

3. Certain prenatal conditions can harm the fetus, including any condition that interferes with the fetus receiving adequate oxygen or nutrition, and maternal use of cigarettes, drugs, or alcohol during pregnancy.
4. Postnatal or birth trauma, such as high and sustained fever, head trauma, or near-drowning, may cause learning problems.
5. Early childhood exposure to lead, aluminum, arsenic, mercury, and other neurotoxins have been linked to and, in some cases, shown to cause learning impairment. In fact, recent data show a definitive link between lead and a host of learning disorders. Exposure to even low levels of environmental lead and cigarette smoking during pregnancy can cause ADHD (Braun, Kahn, Froehlich, Auinger, and Lanphear, 2006).

Research shows that what happens during the years from birth to age four is critically important to later learning. The role of infant stimulation and cultural deprivation is being studied. We know that early in life, the brain starts to pare away brain cells that are not being used. We have learned that for language to develop properly, young children, birth to age three, need to be sung to, talked with, and read to. In many homes, there is little interactive conversation (soliciting and receiving both a verbal and physical response), which may contribute to phonological awareness deficits. This lack of interactive communication may in turn lead to reading failure.





## Incidence

How many people have learning disabilities? We really don't know. Estimates range from 5 percent to more than 30 percent. It depends on whom you count. According to the U.S. Office of Education, 5 to 15 percent of the school population is identified as being LD, but data from twenty-six countries show that the incidence of dyslexia ranges from a low of 1 percent in Japan and China to a high of 33 percent in Venezuela. In the United States, 20 percent or more of students have trouble learning to read. Many children are evaluated and found to have a learning disability, but they do not qualify for special education services because they do not show a severe discrepancy between ability (intelligence) and performance. What constitutes a severe discrepancy varies from state to state—a child can qualify for service in one state but not qualify in another state. Even with such variation across states, national incidence rates break down as follows:

Between 3 and 8 percent of children in the United States have ADHD.

Approximately 1 in 150 children have autism, and 1 in 94 boys is diagnosed with autism.

Currently, more boys than girls are identified as being LD. The ratio is about 3 to 1. Many explanations have been offered for this, including that males seem to be more susceptible to brain damage, both prenatally and postnatally, and that males may be more disruptive in the classroom and therefore garner more attention from the teacher than females.

## Primary Characteristics of Learning Disabilities

One indication of a learning disability is a perceptual deficit, and they are very common. Perceptual deficits are not caused by deficits in visual or hearing acuity. While glasses and hearing aids will help with acuity problems, they do not help persons who have perceptual problems. Perceptual deficits occur because the brain misinterprets sensory information. (Symptoms of perceptual deficits are discussed in Chapter Ten, and suggestions are given for helping students to cope with these deficits.)

Eighty percent of students identified as being LD have problems in the area of reading. It appears that deficits in phonological processing underlie difficulties learning to read. Research has shown that children who do not develop phonemic awareness will have reading difficulty later. (See the works of Stanovich, 1988, and Mann, 1991.) It has also been found that intervention programs that provide instruction in phonemic awareness and supply ample opportunities for decoding practice have been successful with at-risk and reading disabled children.



Phonological processing skills include our awareness and ability to “tease out” sounds (phoneme discrimination) within words, our ability to learn these symbols of the language and to recall their sounds quickly (phonological memory), and our ability to generalize this information to a variety of oral, written, and reading tasks.

## **Comorbid or Co-occurring Conditions**

An individual with LD may be further handicapped by the simultaneous existence of other conditions. Three prevalent conditions are Attention Deficit Hyperactivity Disorder (ADHD), Conduct Disorder (CD), and Tourette Syndrome (TS).

### **Attention Deficit Hyperactivity Disorder**

ADHD co-occurs with LD in approximately one out of every three individuals identified for special education services. Symptoms of ADHD include the following:

- Impulsivity; acting without consideration of consequences
- Inability to complete routine (or what are considered “boring”) tasks
- Distractibility
- Inability to sit or stand still
- Blurting out
- Low frustration tolerance or short fuse
- Overreaction to stimuli
- Sleep disturbances
- Disorganization or a tendency to be messy or to lose things
- Inability to plan ahead
- Inability to mind one’s own business
- Intrusiveness
- Incessant talking
- Inattention
- Forgetfulness
- Problems with planning
- Difficulty carrying out directions from start to finish

It was once believed that children with ADHD outgrew their problems. Although some children may outgrow the symptoms of the disorder, others do not.

## Conduct Disorder

Conduct Disorder (CD) is sometimes a co-occurring condition with ADHD. In addition to the primary symptoms of inattention and impulsivity, those with CD exhibit a lack of respect for the rights of others. There may be cruelty to others or animals, lying, fire-setting, intentional breaking of rules, and denial of responsibility for acts. Children with CD may have been abused, neglected, or both. They may not have received logical and reasonable consequences for improper actions, and they may have been raised in an environment where the previously mentioned actions are not perceived as unusual and, in some cases, are even encouraged.

## Tourette Syndrome

Tourette Syndrome (TS) is an inherited neurological disorder. The condition is characterized by involuntary motor tics or vocal tics or both these types of tics. Symptoms begin in childhood, increase in adolescence, and improve in adulthood. The condition occurs in about one out of one thousand children and more often in boys. The tics may vary from mild to severe and may include excessive eye rolling or blinking, twitches, finger tapping, sniffing, and throat clearing. More serious tics include squealing; barking; echolalia (repeating what someone says); bursts of profanity, racial slurs, or sexually inappropriate words or actions. There may be obsessive behaviors, such as a need for symmetry or evening things up; anxiety related to germs; and ritualistic behaviors. On Individual Education Plans (IEPs), a diagnosed TS student should be labeled "Other Health Impaired." The symptoms are part of their handicapping condition. Tourette Syndrome is frequently accompanied by ADHD and LD.

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When referring a child to a physician for diagnosis, a teacher's or parent's careful observations of symptoms may help the physician delineate which disorders the child manifests.

## Prognosis

Whenever a child is diagnosed as being LD, invariably the question arises, What is the prognosis for the child? That is hard to predict because it depends on many factors, such as the following:

1. The nature and severity of the disability
2. Whether ADHD, CD, or both are also present

3. The intellectual potential of the child
4. The quantity and quality of the intervention
5. When the intervention is begun (earlier is better)
6. The quantity and quality of the parental relationship (Does the parent talk with the child, supervise homework, provide a tutor, expose the child to wholesome experiences, work on social skills, and/or use effective parenting skills?)
7. The temperament of the child
8. The maturity and social skills of the child
9. The quality of communication between school and parent
10. The stability of the home
11. The persistence of the child (the most revealing factor in this list)

Having a learning disability does not doom a person to failure. Historians have postulated that a number of successful and famous persons have had the condition: Thomas Edison, Albert Einstein, Winston Churchill, Woodrow Wilson, George Bernard Shaw, Cher, Tom Cruise, and Charles Schwab. All these individuals found ways to maximize their strengths rather than concentrate on their weaknesses. Persistence pays off. As teachers and parents, we can hinder or help. In general, students with high IQs who come from homes in which education is valued and where parents engage the help of tutors tend to have better prognoses.

## **Programs and Settings for the Learning Disabled**

Public schools provide a variety of programs to assist children with LD. If a baby is born at risk for a disabling condition, the local public school system may be asked to provide help to the parents—counseling, locating needed services, and parenting advice. Children who are two and younger can be referred to intervention services and specialists through their family doctors, or parents may request that the local Early Intervention Team evaluate their child in their home or at a controlled location. For children between the ages of birth and three years old, state agencies may devise an Individualized Family Service Plan.

For LD children from three to five years old, programs are available through the state's local Early Intervention Team. Parents can be referred to these programs through their pediatricians, day-care providers, or simply by going online to find their own local Early Intervention Specialist.

Each state provides a range of services to parents of children with learning disabilities or even developmental delays. Services can be provided in a child's home, preschool, or day-care center, depending on the ruling of the state Early Intervention Team.

When the child enters elementary school, there are a variety of settings for obtaining service. The least restrictive setting would be for the child to receive special education services within the regular class setting. Providing special education services can be accomplished in a variety of ways:

- Special education personnel could come into the room to assist the child.
- Special educators could meet with the regular teacher in a collaborative or consultative mode to plan the child's program.
- The child could go to a resource room for help for part of the day.
- The child could be placed in an LD special day class for all or part of the day.

It is the job of the IEP team to determine the amount and type of service the child needs to make academic progress. Children may also be qualified for services of other professionals, such as a speech therapist and/or an adaptive physical education teacher. These services are available through secondary school or until age twenty-one.

Although the needs of most children with LD can be handled in the ways just described, occasionally there are students whose needs are so great that they require more restrictive placements—in special day classes for emotionally disturbed students or in special residential schools. Some may be served at home or in a hospital.

Colleges and universities now provide assistance to LD students, such as placing them in classes of sympathetic professors, providing extra tutorial help, granting modification of time limits or testing formats, and furnishing special equipment. In addition, some colleges have departments devoted to helping students with LD coordinate their college responsibilities. These departments may help students arrange for tutoring and help them navigate the technological tools that offer text-reading software and voice recognition software for writing papers. College textbook publishers are increasingly offering digital textbooks for students to purchase and use with any supportive media the student may choose.

## **Facts About Learning Disabilities**

- More boys than girls are identified as learning disabled; the ratio is about 3:1 (Cone, Wilson, Bradley, and Reese, 1985). Recent studies suggest that

as many girls as boys may have the condition but are not identified (Shaywitz, Fletcher, and Shaywitz, 1995).

- Students with learning disabilities are usually identified by the time they reach late third or early fourth grade (Bender, 2001).
- More students are identified because of deficits in reading and the language arts than in mathematics (Smith, 1994).
- IQs of identified LD students are typically in the 90 to 95 range (Bender, 2001).
- Students with LD tend to have deficits in short-term memory. In looking at testing results, you will find that short-term memory scores are often below the 25th percentile.
- About one-third of students on Resource Specialist caseloads have attentional deficits, and a somewhat higher percentage of students in special day classes have attentional problems.
- Phonological awareness deficits and poor phonics development are common among the LD population. Phonemic awareness and phonics training will make LD students better readers and spellers (Bradley and Bryant, 1985).
- Studies that measure time-on-task indicate that nondisabled students are on task 60 to 80 percent of the time, whereas students with LD are on task 30 to 60 percent of the time (Bryan and Wheeler, 1972; McKinney and Feagan, 1983).
- Drug therapies are often effective in reducing behaviors that interfere with learning. Current research suggests that psychostimulant medications increase arousal and alertness of the central nervous system (DuPaul, Barkley, and McMurray, 1991) by stimulating the production of chemical neurotransmitters. Psychostimulant medications seem to lengthen attention span, help control impulsivity, and improve ability to stay on task and to sit quietly (Parker, 1992).
- Students with LD are not as socially acceptable as other students when rated by their peers and teachers (Bender, 2001).
- As many as 50 percent of students with LD will drop out of school prior to high school graduation (Levin, Zigmond, and Birch, 1985).
- Students with LD are more likely to encounter trouble with the law (Keilitz and Dunivant, 1986).
- In comparison to other parents, the parents of students with LD expect less of their children in both academics and behavior. (Bryan and Bryan, 1983).

## Summary

The history of the field of learning disabilities has been one of great changes and learning, and new strides are continually being made into the fields of study regarding how we speak, learn, and produce information. New studies focus on how well our schools are educating our students, how many children graduate from high school, and how we may continue to help the children who struggle.

As educators and parents, we have a tremendous opportunity to influence children's lives. We have the power to make their days joyous or dreadful because we help determine the environment in which they live.

## List of Major Organizations for the Learning Disabled

### **Children and Adults with Attention Deficit Disorder (CHADD)**

(Information on ADD and local support groups)

8181 Professional Place, Suite 201, Landover, MD 20785

Web site: [www.chadd.org](http://www.chadd.org)

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### **Council for Learning Disabilities (CLD)**

(International organization for professionals in the field)

P.O. Box 40303, Overland Park, KS 66204

Web site: [www.cldinternational.org](http://www.cldinternational.org)

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### **International Dyslexia Association (IDA)**

(Formerly the Orton Dyslexia Society; has state and local branches for anyone interested in language-based learning disorders)

Chester Building, Suite 382, 8600 La Salle Road,

Baltimore, MD 21286-2044

Web site: [www.interdys.org](http://www.interdys.org)

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### **Learning Disabilities Association (LDA)**

(Organization for anyone interested in improving the quality of life for the learning disabled)

4156 Library Road, Reston, VA 22091

Web site: [www.ldanatl.org](http://www.ldanatl.org)

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**National Center for Learning Disabilities (NCLD)**

(Information on learning disabilities)

99 Park Avenue, New York, NY 10016

Web site: [www.nclld.org](http://www.nclld.org)

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**Reading Rockets**

WETA Public Television

2775 S. Quincy Street, Arlington, VA 22206

Phone: 703-998-2001

Fax: 703-998-2060

E-mail: [readingrockets@weta.org](mailto:readingrockets@weta.org)

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**TeachingLD**

(Resources about teaching students with learning disabilities)

Web site: [www.teachingld.org](http://www.teachingld.org)

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**Periodicals on Learning Disabilities****Annals of Dyslexia**

Published by the International Dyslexia Association

Chester Building, Suite 382, 8600 La Salle Road,

Baltimore, MD 21286-2044

Web site: [www.interdys.org/AnnalsofDyslexia.htm](http://www.interdys.org/AnnalsofDyslexia.htm)

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