



ENHANCED

Learning

LEARNING DISABILITIES

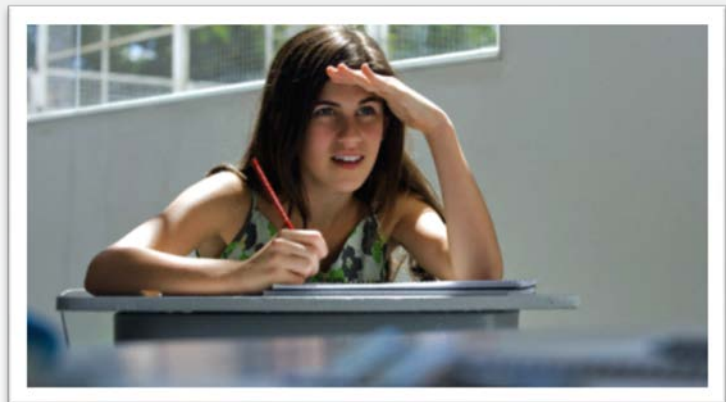
by Grant L. Martin, Ph.D.

Questions Answered

- What are learning disabilities?
- What are the common definitions of learning disabilities?
- What is the incidence of learning disabilities?
- What are the suspected causes of learning disabilities?
- What are the key symptoms of learning disabilities?
- How do learning disabilities relate to the learning process?
- How can a diagnosis of learning disabilities be made and who does the diagnosis?
- What are organizations that can be helpful for learning disabilities?

Few topics have generated more controversy than a discussion relating to the definition of learning disabilities. It all began in 1962 when Dr. Samuel Kirk made the first effort to define the term. Since that time, professionals, parents, and governmental agencies have tried to develop a definition that is valid, fair, and reliable in its interpretation. The use of a single term to describe this category of learning problems may help separate it from other types of special needs. However, there are many conflicting theories about the nature and causes of learning disabilities. The label "Learning Disabilities" is all-embracing. It describes a syndrome, not a specific child with specific problems.

A clear definition allows professionals to accurately identify, effectively treat or



remediate, and sufficiently motivate a student, so that his or her quality of life is improved. At least that is the ideal. The problem is children with learning disabilities usually exhibit a combination of characteristics and traits. No two learners are the same. However, there are some common themes that run through this particular type of learning problem.

DEFINITIONS OF LEARNING DISABILITY

A common premise of many definitions is that an individual with a learning disability has more severe difficulty acquiring, applying, and retaining information than would be predicted from other information about the person. Most definitions of learning disabilities will emphasize a discrepancy between a person's presumed intellectual capacity and their actual school achievement.

Learning disabilities arise from a deficiency in basic cognitive processes, which, in turn, contribute to academic failure. A learning disability can be seen as the presence of one or more specific cognitive deficits that create unique educational needs for the student.

There are two definitions that have the most impact and utility in the field at this time. In 1977, a definition developed by the U.S. Office of Education (USOE) was published in the Federal Register. This USOE definition is the most widely accepted one, because it is the definition used by most federal and state agencies to administer programs for students.

A set of operational criteria was included in the Federal Register to guide efforts to identify students with learning disabilities. These criteria stated that a specific learning disability exists if two features are present. The first is that the student is not achieving at the proper age and ability levels in one or more of several specific areas, when provided with appropriate educational opportunities. The second is that the student must have a severe discrepancy between achievement and intellectual ability in one or more of six areas: (1) oral comprehension, (2) listening comprehension, (3) written expression, (4) basic reading skill, (5) mathematics calculation, or (6) mathematics reasoning.

Adopted in 1990 the National Joint Committee on Learning Disabilities (NJCLD), a consortium of eight national organizations with interests in learning disabilities, approved a definition that tried to improve on the USOE's definition.

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across his life span. Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities, but do not, by themselves, constitute a learning disability. Although



learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance), or with extrinsic influences

(such as cultural differences, or insufficient or inappropriate instruction), they are not the result of those conditions or influences. (Disabilities, 1990)

The NJCLD thought an improved definition should reinforce the idea that learning disabilities could exist at all ages, should distinguish between learning disabilities and learning problems, and should make clear that learning disabilities could coexist with other handicapping conditions.

The NJCLD definition is commonly acknowledged because of its broad support by professional organizations. The USOE definition has high usage because of its official legislative status. Together these two

definitions remain the most widely accepted definitions in use today.

Summary Definition

The best we can say, at this point, is that a learning disability is a problem of likely neurological origin that affects specific areas of learning and behavior in an otherwise competent person. A learning disability is not a result of emotional disturbance, mental retardation or hearing, vision or other sensory impairments, such as cerebral palsy. Learning disabilities can, however, coexist with other

handicapping conditions. It also is not a result of environmental factors such as inadequate parenting, poor teaching, economic disadvantages, neglect or abuse. Unfortunately, it may not be curable, and is therefore, a life-long condition. And finally, we have to acknowledge, it is not completely understood.

The areas of learning that are affected may include the input, output, storage, retention, retrieval and processing of information. This means a student can have difficulty in acquiring, remembering, organizing, recalling, or expressing information.

INCIDENCE OF LEARNING DISABILITIES

Because specialists cannot agree on a definition, figures on the incidence of learning disabilities are confusing. Different definitions and ways of diagnosing disabilities make it hard to know just how many students with learning disabilities exist in the schools. This keeps us from having an accurate understanding of the full scope of the problem. Most estimates suggest that 15% of the school population have some type of learning disorder.

The U.S. Department of Education reports that there are over 2.8 million students being served for specific learning disabilities. This number of students is approximately 47.4% of all children receiving special education services.

Researchers from the Centers for Disease Control and Prevention (CDC), in collaboration with researchers from the Health Resources and Services Administration (HRSA), have published a new study in *Pediatrics* magazine that shows the rate of learning disabilities was 7.66%, for the years 1997 to 2008. (Boyle, 2011)

Students with learning disabilities are approximately 5% of all school-aged children in public schools. (These numbers do not include children in private and religious schools, or homeschooled children.) Learning disabilities is by far the largest category of special education. Regardless of the varying incidence figures, the general impression is that learning disabilities are a problem of great magnitude and importance.

BOYS VERSUS GIRLS

Boys identified as learning disabled outnumber girls about six to one. Estimates and studies of the difference have ranged from 5:1 to 9:1. Some experts believe this gender imbalance is a result of biased referrals. Boys are more likely to act out and cause problems when they are frustrated in the classroom. Girls with learning problems may tend to withdraw and not draw attention to

themselves; and therefore, not become identified as readily. Other researchers believe the higher male incidence has something to do with heredity and some of the basic causes of learning disabilities. The fact is, no one really knows for sure if there really is a difference in incidence, if all biases were removed. All we can say is, historically, boys have been identified more often than girls.

CAUSES OF LEARNING DISABILITIES

Learning disabilities have no single or primary cause. Rather, they stem from a combination of biological and environmental influences. The probable causes of learning disabilities most likely lie in the physiology and operation of the brain and the neurological system. Brain structure, memory circuits, and brain cell electrochemistry are all involved in the process of learning. Learning depends on the proper operation of defined circuits that transfer the information and, ultimately, store it in a form accessible for retrieval. Most researchers are looking at interference in the operations of these mechanisms to identify the causes of learning disabilities.

There is also evidence that biology plays an important role in causing learning disabilities. Researchers have known for a long time that some learning problems seem to be inherited. Studies suggest between 25% and 40% of children and adolescents have inherited their learning disability. Some studies have concluded that one out of three cases of inherited dyslexia can be linked to a defective chromosome. Scientists suspect that, under certain conditions, this defective gene can sometimes cause a specific brain malfunction.

In summary, learning disabilities are probably caused from a variety of sources. Inherited tendencies, biological factors, and immature development may all play a part. Environmental factors, such as inappropriate schooling and harmful environments, may complicate a disability that is already present.

Here is a general checklist of the most common symptoms of learning disabilities. This will allow you to obtain an overview of the type of symptoms often found in this type of disability. Having two or three items on the list probably doesn't indicate a learning disability. If five or more are present, things begin to look suspicious, and further investigation is warranted. Now let's take a moment and try to get an overview of the learning process and how learning disabilities can impact a student's ability to learn.

Checklist for Identifying Common Symptoms of Learning Disabilities

- ✓ Poor letter or word memory
- ✓ Difficulty sounding out words
- ✓ Confusion, transposition, or reversal of letters, words or numbers
- ✓ Problems in sequencing letters, words, numbers or ideas
- ✓ Difficulty with organizational skills
- ✓ Poor auditory memory
- ✓ Difficulty with long- and short-term memory
- ✓ Inability to discriminate between letters, number or sounds
- ✓ Poor handwriting and copying
- ✓ Difficulty with attention or concentration; distractibility
- ✓ Restlessness, easily distracted
- ✓ Impulsiveness
- ✓ Difficulty listening well or remembering
- ✓ Forgetfulness, losing things
- ✓ Difficulty reading
- ✓ Trouble following multiple directions
- ✓ Difficulty taking tests
- ✓ Erratic performance from day to day
- ✓ Poor coordination
- ✓ Late gross- or fine-motor development
- ✓ Difficulty telling time or distinguishing left from right
- ✓ Late speech development, immature speech
- ✓ Trouble understanding words or concepts
- ✓ Trouble naming familiar people or things
- ✓ Tendency to say one thing, meaning another
- ✓ Inappropriate responses in many instances
- ✓ Poor adjustment to change
- ✓ Problems making and keeping friends
- ✓ Low self-esteem and lack of confidence
- ✓ Difficult to discipline

DESCRIPTION OF LEARNING PROCESS

Learning can be seen as a sequence of operations illustrated in the following diagram:

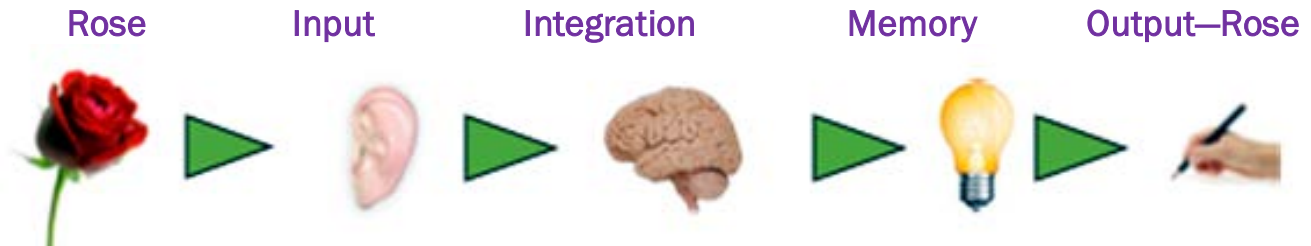


Figure 1. Sequence for Processing Information in the Brain

In this example, a student is taking a spelling test. The teacher says, “Rose. The red *rose* looked beautiful in the garden.” The student hears the verbalization from the lips of the teacher. The sound waves have gone from the teacher to the ears of the student and registered in the brain. This is the **input** or initial part of the sequence. The student begins to **integrate** or make sense of the particular sounds. The student recognizes the word “rose” as the word she is supposed to spell out of the other words the teacher used in the sentence. Integration can involve sequencing, abstracting and organizing, as the student translates the sound patterns into recognizable form, separates the target word from the other spoken words, and begins to search her **memory** for the right sequence of letter formation. The correct spelling for “rose” has previously been stored into the student’s memory. The storage and retrieval process can consist of either short-term or long-term memory. In this case, long-term memory is utilized to recall the letter formation, and eye-hand coordination is required to write out the word. In the case of spelling, the **output** occurs as the brain sends messages to the nerves and muscles resulting in a fine-motor response of writing the letters that make up the correct spelling of “rose.” If all goes well, the word is correctly spelled and the process has worked without a hitch.

This is a relatively simple example, but illustrates the various major stepping-stones along the pathway to learning. If a student has a learning disability, one or more of these stepping stones is unreliable, and does not function as it should, compared to the student’s abilities in other areas.

Dr. Larry Silver has used this same scheme to describe the various types of disabilities within the learning process. Following is an adaptation of his descriptions of input, integration, memory and output disabilities.

Input Disabilities

Information arrives at the brain as impulses from our various senses. Our eyes, ears, and muscles, are the major modalities or channels of learning in the classroom. We also learn from the senses of taste and smell, but they are not primary to most classroom learning.

This central input process, which utilizes the five senses of seeing, hearing, tasting, smelling, or touching, is called perception. Children who have perception problems in the area of visual input are identified as having visual perception disabilities. Such a student may have difficulty recognizing the position and shape of what they see. Letters may be reversed or rotated. The letters d, b, p, q, and g might be confused. Other students may jump over words, read the same line twice, or skip

lines. Yet other students may have poor depth perception or poor distance judgment. They might bump into things, fall over chairs, or knock over drinks.

Students with problems in the area of auditory input are said to have auditory perception disabilities. Students may have difficulty understanding, because they do not distinguish subtle differences in sounds. They confuse words and phrases that sound alike—for example, “blue” with “blow” or “ball” with “bell.” Some children find it hard to pick out an auditory figure from its background. Others process sound slowly and cannot keep up with the flow of conversation.

A student can also have kinesthetic or tactile disabilities, although this modality has been less researched. This category of sensory input involves nerve endings in the skin—tactile input, in the muscles—proprioception input, and in the inner ear—vestibular input. If a child has problems with any or all of these sensory inputs, it is called sensory integrative disorder. Depending on which sensory systems are involved, the child may have problems with tactile sensitivity, coordination of body movements, and adaptation to the position of the body in space. There can also be problems with the ability to easily direct his body to perform activities in a smooth, coordinated manner, and in the right sequence of activities.



Integration Disabilities

Once the information reaches the brain it has to be understood. This requires sequencing, abstracting and organizing activities. Sequencing deals with the ability to put things in their proper order, such as days of the week or months of the year. A student with a sequencing disability might recount a story by starting in the middle, going to the beginning, and proceeding to the end. The child might also reverse the order of letters in words—seeing “dog” and reading “god.” Such children are often unable to use single units of a

memorized sequence correctly. If asked what comes after Wednesday, they have to start counting from Sunday to get the answer. Even putting on one’s clothes in the right order would reflect this aspect of integration.

Abstracting refers to the ability to infer meaning from the symbols that arrive in the brain. A student with this problem will read a story and not be able to generalize from it. S/he may confuse different meanings of the same word used in different ways. A child with a disability in this area will appear to be very literal and concrete in her thinking and will have trouble generalizing concepts from one setting to another. S/he may have a hard time understanding jokes and is confused by puns or idioms.

Information, once recorded, sequenced and understood, must be organized. This means it is integrated into a constant flow of information and must be related to previously learned information. A student with an organizing disability will have difficulty pulling together multiple parts of information into a full or complete concept. They may learn a series of facts, without being able to answer general questions that require the use of these facts. Their lives in and outside of the classroom reflect this disorganization. Their room, locker, or notebook is chronically a mess, and the child has difficulty organizing time and planning ahead.

Memory Disabilities

Once information is received, recorded in the brain, and integrated, it is stored so that it can be retrieved later. This storage and retrieval process is called memory. Two types of memory are used—short-term and long-term. Short-term memory retains information briefly, while we attend to it or concentrate on it. Remembering a phone number long enough to dial it is an example of short-term memory in use. Long-term memory refers to the process by which you store information that you have often repeated. The ability to recall your address, social security number or your mother’s maiden name are instances of long-term memory. Most memory disabilities

appear to affect short-term memory. An example would be the child who seems to know his spelling words the night before, but can't get most of them correct on the spelling test the next day. Yet, this child may surprise you with his or her ability to recall events or places from long ago.

Output Disabilities

Output refers to the ways in which information comes out of the brain. This occurs by means of words or language, or through muscle activity, such as writing, drawing, gesturing, or moving the body. Problems communicating can be a result of either a language or motor disability.

The two forms of language used in communication are spontaneous language and demand language. Most often language disabilities involve demand language. Spontaneous language is used to initiate speech. The person is able to pick the subject, organize their thoughts and find the correct words. In demand language, speech is required in response to circumstances provided by someone else. There is no time to organize thoughts or select the best words. In a split second, the person must simultaneously organize, find words, and answer appropriately. A child with a language disability usually does not have problems with spontaneous language. However, the student will respond hesitantly in demand situations. S/he will pause, ask for the question to be repeated, give a confused answer, or fail to find the right words.

PURSUING A DIAGNOSIS

Medical Exam

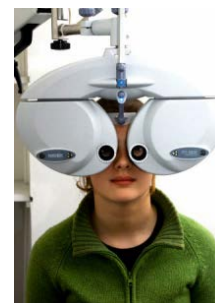
One of the first steps in the evaluation process is to rule out any primary medical problems that could be affecting a student's learning. This means the student should have a complete physical exam, as well as thorough vision and hearing evaluations. Learning disabilities are thought to be deficiencies in

Motor disabilities also fall into two categories. If a child has difficulty coordinating the use of groups of large muscles, such as those in the arms, legs and trunk, it is called a gross motor disability. Difficulty in performing tasks that require coordinating groups of small muscles, such as those in the hand, is called a fine motor disability. Gross motor disabilities may cause the child to be clumsy and to stumble, fall, bump into things, or have trouble with general physical activities, such as running, climbing, riding a bike, buttoning shirts, or tying shoelaces.

The most common form of fine motor disability shows up in poor handwriting. Children with this problem write slowly, and their handwriting is often unreadable. In addition to problems with the mechanical aspects of written responses, this student will have difficulty getting thoughts written out. They will have difficulty with spelling, grammar, and punctuation. These children can give an excellent verbal description of a proposed essay or report, but produce confused and error-filled written work. (Silver, 2006)

The previous description is one way to describe learning disabilities. The learning process is very complex and no one understands the intricate workings of the brain in complete detail. This model can help a parent begin to get a general understanding of how their child learns and where possible problems may exist. Each child will have their own combination of learning strengths and weaknesses. The goal is to arrive at a profile that best describes the student you are concerned about.

how the brain processes information. Yet, if problems exist with the initial input of data through the hearing or seeing modalities, we want to identify the source. Sometimes, correcting vision or hearing impairments can alleviate learning problems.



Psychological Evaluation

Screening for emotional problems is also important. However, it is hard to tell the chicken from the egg. Did emotional factors cause the learning problems or did the learning difficulties cause the emotional problems? Most children with learning disabilities will struggle with self-esteem issues. There will be times when the child is unhappy, sad, or depressed. Has the continual failure in the classroom caused the depression, or is the black cloud of gloom brought about by other factors such as parental divorce, death of a loved one, or undisclosed abuse? Emotional contributions to learning problems can be evaluated by mental health professionals, such as child psychiatrists or psychologists, as well as social workers and child therapists

Several points can be made here. One is that the entire evaluation is not necessarily completed all at once. It may evolve over several years, as different features are addressed and other symptoms become easier to identify. Be prepared to understand the child's problems a portion at a time. It may take everyone quite a while to unravel the puzzle. Another point, is to be prepared for the difficulties in identifying precisely all of the causes of your child's learning problems. Emotions, brain function, learning style, and environment interact in wonderfully complex ways. And, collectively, we professionals aren't smart enough to figure everything out in all cases. Along with your advocacy role, that necessitates persistent inquiry, be prepared to learn patience.



Who Will Do the Evaluation?

Public School Students

If the student is attending a public school, the first line of resource is the classroom teacher.

Ask the teacher how to initiate a referral to have your child evaluated. Often it will be the teacher who brings up the concern in the first place; so, he or she will undoubtedly have a plan for starting the process. In most schools there is a *focus of concern* process that is used to evaluate a student and determine eligibility for services. A focus of concern can be initiated by school personnel or the parent; and each district is supposed to have the process spelled out, so parents know exactly what will be done and on what timeline.

Basically, the process consists of identifying the concerns on a referral form. Then the various school personnel, such as a nurse, communication disorder specialist, classroom teacher, school psychologist, learning specialist, and administrator, collect data on the student's academic, medical, social, emotional, and intellectual characteristics.

The school district has a specified number of days (usually around fifteen to twenty) to act on the referral and make a determination of whether or not there is good reason to believe the student is a candidate for assessment. If the school concludes there is just reason to complete the evaluation, the parent is informed in writing of this decision and asked to give permission for the process to continue; then the assessment is conducted. The assessment is supposed to be completed in a certain number of days (usually thirty-five to forty-five days after parental consent is received). If the school does not believe an assessment is justified, an appeal process is available to the parent in order to try to get the decision overturned.

The advantage of the school-based assessment is that it is free to you as a taxpayer. If your child attends a public school, the staff that works with your child will probably be involved in the assessment. This facilitates communication and followthrough, once the evaluation results are implemented.

Private and Home School Students

Regardless of where the child attends school, parents still have access to the services of the public school for the assessment. Whether s/he

attends a private Christian school or is home schooled, the same level of services is supposed to be available. The procedure is the same. The parent goes to the local school their child would ordinarily attend and fills out the focus of concern request. The staff has the same responsibility to make a decision about the appropriateness of the referral, and then move ahead, if there seems to be a legitimate reason for the assessment. The public school will need to get some basic performance information from the child's private school or home school teacher, but the process is just the same as if you were a part of the public school. After all, the parent's tax dollars are still going to their salaries.

Private Resources for Evaluation

Sometimes the public school evaluation may not seem adequate. School personnel may be so overburdened and understaffed that the evaluation process is minimal or incompetent. Other parents don't want to go through all the paper work and administrative hassles to get an evaluation completed through the public resources. Sometimes parents may believe the school doesn't want to identify special needs students, because they don't have or don't

want to spend the money on the accommodations or remediations necessary to meet those needs. It is also possible to need a second opinion, when parents have evaluated the results of the school assessment and want an elaboration or confirmation by an independent source.

Any of these reasons could prompt the parent to seek an evaluation with a private clinician or organization. First of all, you want someone who has the credentials and experience to assess and make recommendations regarding learning disabilities in children and adolescents. You can ask the school for recommendations. Public schools usually can't recommend just one person, but should be able to give you a list of several professionals who specialize in this area.

More information about the testing process and resources for private school students or home school students is available in my book, *Help! For Teachers*. (Martin, 2004)

The next step in the process is to take the evaluation results and translate the findings into the most appropriate education program for the student. This part of the process will be described in the article on the Individual Educational Program. ■

Online Resources

Division for Learning Disabilities (DLD). The CEC Division for Learning Disabilities is a national professional organization consisting of teachers, higher education professionals, administrators, parents, and others. The major purposes of DLD are to promote education, discuss current issues, encourage interaction among disciplinary groups, foster research, advocate exemplary professional training practices, and promote exemplary diagnostic and teaching practices for persons with learning disabilities. www.dldcec.org

International Dyslexia Association. The International Dyslexia Association (IDA) is a non-profit organization dedicated to helping individuals with dyslexia, their families and the communities that support them. www.interdys.org

Learning Disabilities Association of America. LDA has provided support to people with learning disabilities, their parents, teachers and other professionals. At the national, state and local levels, LDA provides cutting edge information on learning disabilities, practical solutions, and a comprehensive network of resources. www.lidaamerica.org

LD OnLine.org is the world's leading website on learning disabilities and ADHD, serving more than 200,000 parents, teachers, and other professionals each month. LD OnLine seeks to help children and adults reach their full potential by providing accurate and up-to-date information and advice about learning disabilities and ADHD. The site features hundreds of helpful articles, multimedia, monthly columns by noted experts, first person essays, children's writing and artwork, a comprehensive resource guide, very active forums, and a Yellow Pages referral directory of professionals, schools, and products. www.idonline.org

National Center for Learning Disabilities. The National Center for Learning Disabilities (NCLD) is committed to ensuring that all students with learning disabilities graduate from high school with a standard diploma—prepared for college and the workplace. This site provides an online guide to essential information about learning disabilities, early literacy and learning resources, support for adolescents and adults with learning disabilities, public policy and advocacy tools. www.nclد.org

National Dissemination Center for Children with Disabilities. They serve the nation as a central source of information on disabilities in infants, toddlers, children, and youth. You will find information on IDEA, the law authorizing early intervention services and special education. Their State Resource Sheets will help you connect with the disability agencies and organizations in your state. www.nchcy.org

National Institute of Child Health and Human Development (NICHD) The NICHD was initially established to investigate the broad aspects of human development as a means of understanding developmental disabilities, including intellectual and developmental disabilities, and the events that occur during pregnancy. Today, the Institute conducts and supports research on all stages of human development, from preconception to adulthood, to better understand the health of children, adults, families, and communities. www.nichd.nih.gov

National Institute of Mental Health (NIMH) The mission of NIMH is to transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery, and cure. www.nimh.nih.gov

Recording for the Blind & Dyslexic (RFB&D) is a national nonprofit, volunteer organization that is the leading producer of accessible audio books for students with disabilities, such as visual impairments or dyslexia, which make reading standard print difficult or impossible. RFB&D serves 185,235 members worldwide by circulating 502,501 titles. www.rfbد.org

Resources

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