

LDA

Learning Disabilities Association of America

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Learning Disabilities and Low Income Populations

Failure to succeed in school and poor social skills can result in long-term problems for individuals with learning disabilities. Chronic unemployment or underemployment is all too common. To understand and to effectively manage job training or financial assistance programs, it is wise to keep the need for adult literacy programming and social skills training in mind.

Here are a few facts about the relationship between learning disabilities and low income populations:

- 62% of students with learning disabilities were unemployed one year after graduation.
- 35% of students identified with learning disabilities drop out of high school – twice the rate of their non-LD peers.
- The U.S. Office of Juvenile Justice found that “LD youth were twice as likely to be judged delinquent by the courts than non-LD youth” as a result of inability to repeat their stories correctly, inability to follow sequences, inability to answer demand questions or to be declared oppositional.
- 65.4% of households in which family members report having specific learning disabilities have an annual income of less than \$25,000 as compared with 38.8% of the general population.
- Difficulty with reading comprehension and following a systematic birth control plan are among the top reasons teenage girls identified for NOT using birth control aids
- 50% of females with learning disabilities will be mothers (many of them single) within one year of leaving school.
- Within Washington state’s 1997 welfare caseload, 54% had learning disabilities; 35% were classified as “slow learners;” 14% had mental retardation and 5% have other learning needs.
- Substance addictions and learning disabilities are the most common impediments to keeping welfare clients from attaining and maintaining employment.
- 60% of adults with severe literacy problems have previously undetected or untreated learning disabilities.

August 2000

**Identifying and Teaching
Students with Learning
Disabilities**
Della Newlow

What is a Learning Disability?

- A disorder found in a person with normal intelligence that impedes learning of a specific skill
- Learning disabilities cannot be "cured"
- Impacts listening, speaking, reading, writing, reasoning, math, and social skills

**How does the community college
qualify students?**

Student referred for testing:	Student Arrives with IEP
<ul style="list-style-type: none">• 6 Step Process<ul style="list-style-type: none">• Intake Screening (have you tried studying?)• Measured Achievement• Ability Level (IQ greater than or equal to 85)• Processing Deficit• Aptitude-Achievement Discrepancy• Eligibility Recommendation	<ul style="list-style-type: none">• Review Individual Education Program (sent from another educational institution)• Meet with EAC counselor to determine services he/she is eligible for

Common Accommodations

- Extra time on exams
- Note-taker
- Shared Notes
- Tape recorded lectures
- Word Processor
- Calculator/multiplication tables
- Adaptive computer technology
- Scribe (someone writes for the student)
- Tutoring
- Registration assistance
- Reduced course load
- Graduation requirement waved or substituted

Overview of most common difficulties

- ❖ Long Term Retrieval
- ❖ Short Term Memory
- ❖ Processing Speed
- ❖ Auditory Processing
- ❖ Visual Processing
- ❖ Comprehension-Knowledge
- ❖ Fluid Reasoning
- ❖ Quantitative Ability



The following slides are shamelessly copied (pgs. 269-271) from:

WoodCock-Johnson III Reports, Recommendations, and Strategies
Nancy Mather and Lynne E. Jaffe

Long-Term Retrieval- ability to store and retrieve information

Possible Implications

- Learning and recalling information through association (facts, related ideas/concepts)
- Recalling information on tests through association
- Using associations provided by the teacher to facilitate storage and later retrieval
- Pairing and retaining visual with auditory information
- Retrieving specific words, memorizing poems, speeches, facts

Possible Recommendations

- Provide over-learning, review, and feedback
- Provide immediate feedback
- Provide a list of steps that will help organize behavior and facilitate recall
- Teach memory aids
- Provide multisensory learning
- Provide context and meaning based instruction
- Limit the number of new facts, words, concepts presented in one session

Short-Term Memory- ability to hold information in mental awareness and use it within a few seconds

Possible Implications

- Following directions
- Remembering information long enough to process it for understanding
- Recalling sequences
- Memorizing factual information (math facts)
- Listening to and comprehending lengthy discourse
- Taking notes

Possible Recommendations

- Keep oral direction short and simple
- Ensure directions are understood; have student paraphrase directions
- Provide compensatory aids (write directions, procedures, and assignments on board or paper, peer-shared notes, provide study guide to be filled out during pauses in presentation)
- Provide over-learning, review, and repetition
- Teach memory strategies (chunking, verbal rehearsal, visual imagery)

Processing Speed- ability to perform relative simple cognitive tasks automatically (without thinking) when under pressure to maintain focused attention

<http://www.youtube.com/watch?v=zhz9kt8z7c>

Implications

- Processing information rapidly
- Completing assignments within time limits
- Taking timed tests
- Making rapid comparisons between and among bits of information
- Copying

Recommendations

- Provide more time to complete assignments
- Reduce quantity of work in favor of quality
- Limit or structure copying activities
- Provide activities to increase rate and fluency (flashcards, board games, speed drills)

Auditory Processing- ability to analyze and synthesize auditory stimuli (but not comprehend language) important for language development

<p>Implications</p> <ul style="list-style-type: none"> • Acquiring phonics (decoding) • Learning structural analysis • Spelling • Speech perception • Learning foreign language • Developing musical skill 	<p>Recommendations</p> <ul style="list-style-type: none"> • Provide phonological awareness activities (rhyming, alliteration, imitation, songs) • Provide specific training in sound discrimination, blending, and segmentation • Emphasize sound/symbol associations in teaching decoding and spelling • Provide study guides for listening activities • Provide assistance with note taking • Accompany oral information with visual materials
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Visual Processing- involves perceiving, analyzing, and thinking with visual patterns spatial configurations and designs

<p>Implications</p> <ul style="list-style-type: none"> • Assembling puzzles • Using patterns and designs in art, geometry, and geography • Designing • Building • Sensing spatial orientation • Reading maps, graphs, charts, blueprints • Nothing visual detail • Sensing spatial boundaries (packing, fitting, assembly) • Organizing, arranging furniture, appliances, for efficient use and visual appeal 	<p>Recommendations</p> <ul style="list-style-type: none"> • Provide activities with manipulative • Providing copying, tracing, drawing activities • Provide activities involving construction and design • Verbally describe graphics and visually based concepts • Provide support for tasks requiring spatial organization
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Comprehension Knowledge- expressive vocabulary ability to grasp the relationship among word meanings, and knowledge acquired from general experience from mainstream culture

<p>Implications</p> <ul style="list-style-type: none"> • Learning vocabulary • Answering factual questions • Comprehending oral and written language • Acquiring general knowledge and knowledge in content areas • Using prior knowledge to perform activities and understand new concepts. 	<p>Recommendations</p> <ul style="list-style-type: none"> • Relate new information to acquired knowledge • Assess prior knowledge before introducing new topics, concepts • Re-teach relevant vocabulary or background knowledge • Provide specific vocabulary instruction such as the meaning of common prefixes, suffixes, and root words • Incorporate interests and prior knowledge areas into instructional activities • When presenting direction and discussing concepts, use vocabulary that is understood by the individual
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Fluid Reasoning- ability to use inductive and deductive reasoning to ascertain commonalities and differences, form concepts, generate rules, and apply rules to solve novel problems (creativity, abstract problems solving)


<p>Implications</p> <ul style="list-style-type: none"> • Drawing inferences • Solving abstract problems • Creating solutions to problems • Transferring and generalizing information • Solving unique problems • Thinking conceptually • Problem solving through rule application 	<p>Recommendations</p> <ul style="list-style-type: none"> • Teach problem-solving strategies • Provide over-learning, repetition, and review of concepts • Use real objects and manipulative to develop concepts • Teach strategies to increase understanding and retention of concepts (self talk, list of procedures or steps) • Encourage creativity with solutions • Teach problem-solving techniques in the contexts in which they are most likely to be applied
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Quantitative Ability- ability to comprehend quantitative concepts and relationships and to manipulate numerical symbols.

<p>Implications</p> <ul style="list-style-type: none"> • Reasoning with quantitative information • Understanding math terminology • Using numeric concepts • Apprehending numeric relationships • Using math symbols • Performing math applications 	<p>Recommendations</p> <ul style="list-style-type: none"> • Provide math-related instruction in developmental sequence • Assess knowledge of the concepts underlying weak skills • Establish a strong understanding of the foundational concepts for new skills • Use manipulative or real objects to introduce new concepts and extend known concepts • Emphasize problem solving and higher-level skills • Provide experience with practical math applications • Introduce new concepts and procedures in the practical situations in which they will be applied
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Now that I know this..

<http://www.youtube.com/watch?v=6LWUwT8d8tM>
 Let's look at who is here...
 How did we meet during this presentation?
 Do you feel like you might have a learning disability?
 Did you notice anyone who might have shown signs of these traits?
 Can the volunteers please stand up. Please stand up!





Indicators of Learning Disabilities

Selected from the 54 common indicators of Learning Disabilities (California State Long Beach Adult LD Program)

- 1. Regardless of the topic or speaker, do you have trouble listening to a lecture and taking notes at the same time?
2. Do you often reverse numbers, such as writing 64 instead of 46?
3. Is your written vocabulary limited by what you can spell?
4. Do you avoid reading - even for pleasure?
5. Do you have difficulty staying organized?
6. Do you feel that you know the material but are unable to do well on a test?
7. Do you have difficulty memorizing information?
8. Do you often lose your place on a page?
9. Do you often have to ask people to repeat directions?
10. Do you have difficulty managing your time?
11. Do you need more time than others to complete assignments?
12. Do you usually have to read material three or four times to make sense of it?
13. Do you misread math signs, such as mistaking + for x ?
14. Do you think you would do better on tests if you just had more time?
15. Do you have difficulty staying in the correct column in math?

If you answered yes to the majority of these questions, you may have a learning disability.

Contact the Educational Assistance Center (EAC) at 986-5830 to set up an appointment for a learning disability assessment.

Please see the reverse side for a list of accommodations available to students with learning disabilities.

A List of Typical Accommodations for Students with Learning Disabilities

- Note Taking Assistance
- Extended Test Taking Time
- Alphasmart Word Processor
- Quiet Individual Setting for Exams
- Tape Recorded Lectures
- Priority Registration
- Adaptive Computer technology
- Calculators
- Spell Checkers
- Tutoring
- Scribe
- Reduced Course Load

Definition of the term "Learning Disability"

To be considered learning disabled by the California Community Colleges, you must have average to above-average intelligence with difficulty in at least one area of information processing and one academic area (such as reading, writing, or math).

Description Of ADD vs. ADHD

By Barbara C Fisher & Ross A Beckley

Definition: AD/HD is the presence of a genetic biochemical disorder that does not allow people to work to their full potential.

- The Brain:**
- a) Frontal Lobe integrates all the information
 - b) Parietal area processes sensory information
 - c) Temporal – memory, balance, and hearing
 - d) Occipital is the visual area

Only the Frontal and Parietal areas are involved in AD/HD.

Neurotransmitters: The brain talks to itself chemically and electronically. The chemical messengers are called neurotransmitters.

A chemical imbalance is a neurotransmitter failure.

Symptoms can vary from day to day, hour to hour and sometimes cannot be seen. They affect everyone differently

Two Types: ADD without Hyperactivity and ADHD display different symptoms, have different effects and require different treatment.

	ADD without Hyperactivity	ADD with Hyperactivity
Cause:	The cause seems to reside primarily in the parietal lobe. The frontal lobe processes are intact.	The size and structure of many brain areas differs; especially, a lack of activity in the frontal area ("Hypofrontality"). This is linked to a deficiency of the neurotransmitters dopamine and norepinephrine which are involved with arousal and alertness. Low serotonin is linked to impulsivity and problematic behavior.
Main Indicators:	Fear; anxiety; low brain energy leading to a capacity problem; slow cognitive	Problems with attention, impulsivity and hyperactivity

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Common side effects included sleepiness, headache, tiredness and stomach pain. See Full Prescribing Information, including Patient Information.

	thinking; daydreaming; avoidance and procrastination; mental confusion; poor memory retrieval. But the frontal processes are intact so these people rely on logic.	
Impulsiveness:	Rarely impulsive but can appear so when frustrated.	Self-regulation is weak because the control mechanisms of the frontal lobe are not functioning well, e.g. self talk is not used; they are unaware of the consequences to their actions, fast cognitive speed contributes to impulsiveness.
Distractibility:	This is the primary problem. They cannot sustain attention and concentration because: <ul style="list-style-type: none"> a) low energy which causes loss of focus and follow through b) environmental factors c) their own racing or wandering thoughts 	Cannot maintain focus so have poor sustained effort; <u>race</u> from task to task; are easily bored; forget and lose things because they missed information due to being distracted; need external motivation
Hyperactivity/ Restlessness:	Due to <u>anxiety</u> , not the ADHD motor issue. These people are driven and cannot relax. Daring activities are rare; activities are not for excitement but for relief from constant, wandering, racing thought patterns and anxiety	Due to motor activity, not anxiety. These people crave excitement and stimulation.
Social Problems	Shy; withdrawn, immature; often seen and not heard; information processing difficulties lead to not knowing how to talk, dress, act, etc.; conversation is difficult because of slow thinking or missed information; they can manipulate because of fear of others' anger or guilt about asking directly; interrupt because their wandering thoughts will cause them to forget what they want to say. May appear to not be listening but this is really due	Egocentric; do not connect with others because they don't care; are rejected socially because of inappropriate behavior; are intolerant and can become abusive; cannot negotiate so manipulate others; interrupt because of impulsivity and lack of control; do not listen because of attention difficulties and lack of concern for others.

	to the person's information processing deficit.	
Communication:	When not talking excessively because of anxiety, these people say little but think a lot; therefore they do not display their thoughts or feelings. They are afraid to express anger or arouse it in others.	Meaningful relationships. However, personal relationships may be difficult and uncertain. Because of egocentricity, poor focus, distractibility, intolerance, etc.
Time Sense:	Time is poorly planned; being late is common but can be improved with teaching and practice	Time is poorly planned (miscalculation of time needed to complete a task); being late is common but can be improved with teaching and practice
Impatience:	Do not need instant gratification. These people become impatient only after trying unsuccessfully for a long time at which point they are tired, disheartened and upset.	Constantly frustrated and crave instant gratification
Sensitivity:	Shy and fearful of others' displeasure	Vulnerable to criticism to which they react, sometimes angrily.
Frustration Tolerance:	Desperate to succeed so will keep trying too long resulting in them being overwhelmed and despairing. This tendency may show as anger.	Frustration tolerance is low, leading to irritability, anger and aggression
Rigidity of thinking:	Tend to be concrete thinkers. May lead to rigid thinking patterns.	Black and white thinkers due to the frontal processes not functioning properly. They are rigid in relationships and are NOT team players.
Planning and Organization:	May appear to have difficulty planning but these difficulties are really the result of distractibility, confusion and slow thinking processes	There may be sequencing problems due to poor frontal lobe functioning
Perseveration:	A big problem. These people will keep trying too long, burn out, and quit	Not a problem for this population.
Learning Difficulties:	Information processing is poor because information is missed. Difficulties in slow cognition are common but once they understand the material they can use it. Reading and spelling be	May have learning disabilities (e.g. dyslexia) because of differences in brain functionality. Learning difficulties caused by the ADHD include

	difficult because of weak phonemic skills. Mental arithmetic can and geometry can also present problems	missing information, and failing to learn from ones mistakes. They can often comprehend information but cannot make use of it.
Lying:	Aim to please. If they do lie it is usually only to avoid others anger or disapproval.	May lie for no valid reason. Lying is impulsive and fear is not involved.
Criminal Activity:	Are not as at risk for criminal behavior as people with ADHD because they have a better understanding of the consequences to their action. Stealing is usually only committed to cover up something. People with ADD make poor criminals because they have slow cognitive speed and do not tend to get away in time.	A lack of internal rules to govern behavior may lead to criminal activity. Maintaining a job may be a significant difficulty leading to low income and crime. People with ADHD are highly represented in the prison system.
Excessive Behavior:	1) talking, 2) spending, 3) gambling, 4) anger, 5) movement, 6) eating, 7) alcohol/drug abuse especially cocaine Caused by no internal STOP sign, no guilt, and no anxiety	1) talking due to anxiety, not hyperactivity 2) alcohol/ drugs to self-medicate for anxiety (marijuana popular as it gives a sense of relaxation) 3) movement due to anxiety, not hyperactivity
Positive Attributes:	movers and shakers, exciting, energetic, aggressive (all assets in pursuits others are afraid to try). Can do well if self-employed	Positive Attributes: These people do really well what they know they can do

ADD Without Hyperactivity is not always recognizable if the person can compensate and "get by". Performance will be inconsistent because of all the weaknesses. The generalized anxiety can lead to panic attacks, phobias, sleep deprivation, depression and stress-related problems in later years.

ADD Without Hyperactivity - Over-focused Subtype

Indications:

1. Frontal processes are intact so it is NOT ADHD even though they look hyperactivity
2. Always worried, even as children.
3. Overly dramatic.
4. Overly sensitive, emotional, "fragile".
5. Perseverate (focus on one thing excessively) and may appear stubborn.

- 6. Overly focused and with rigid thinking. Can be advantageous in plugging on until the job is done.
- 7. Intolerant of change because of fear.
- 8. Their brain never stops, resulting in sleep deprivation.
- 9. Overly sensitive to medications.
- 10. Swallowing pills is difficult
- 11. Clothing must be loose especially at collars and cuffs.

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Adults with Learning Disabilities: An overview

Not so long ago, it was widely believed that learning disabilities – such as dyslexia, dysgraphia or dyscalcula – emerged when a child first tackled academic subjects in 1st grade, at age 6 or 7, and disappeared when a student left academic pursuits behind as an adult. We know now, however, that learning disabilities are lifelong in nature. Assessments of the pre-reading skills of very young children at 3 or 4 are accurate predictors of reading difficulties to come, and while many adults who've benefited from quality education targeted to meet their needs do learn to compensate and to a degree overcome their learning disabilities, they never actually go away.

To further complicate matters for adults with learning disabilities, the information age has ushered in a corollary phenomenon, that of lifelong learning. In a world in which the typical individual can expect to undertake not only multiple jobs throughout the life span but indeed 2, 3 or more careers, the academic pressure to read, learn and remember new material never ceases.

The prevalence of learning disabilities has spiraled ever higher among students in American schools over recent years. There are many explanations for this: diagnostics are better able to detect learning disabilities; environmental hazards such as mercury in fish, agricultural pesticides, air pollutants, etc., pose increasing levels of risk during fetal development and to young children; poor instructional methods have left disadvantaged children behind and struggling with reading and learning difficulties that could be misdiagnosed as learning disabilities. Whatever the set of factors causing the rise in students with learning disabilities, one fact is clear: there were many, many children a decade or a generation ago who had learning disabilities that were never diagnosed and who never received appropriate treatment or instructional assistance.

What became of those people with learning disabilities who are now adults? Many of them dropped out of high school, frustrated by school failures. If they were girls, statistics indicate that a very high proportion of them became pregnant almost immediately upon leaving school, seeking life fulfillment outside of the academic experience that proved to be so unrewarding. If they were men and lucky, they found jobs – for the most part entry level and dead end jobs – and got on with life as best they could with low literacy skills. (One individual of note sold beer in the KingDome in Seattle for 17 years before being diagnosed with learning disabilities: he went to college, attained a master's degree and is now a prominent advocate working for the U.S. Department of Education in Washington, D.C.)

Those not so fortunate turned to crime or became victims of crime, seeking medicinal treatment for their neurological disorders in bottles and vials not found in better pharmacies. Although the Department of Justice, Bureau of Statistics has not been tracking disabilities among our nation's prison populations, educated estimates range from 40% to 65% or even higher for inmates and parolees who have learning disabilities, mild mental retardation, and psychiatric or addictive disorders, or some combination thereof. As many as 65% of the children incarcerated in juvenile correctional facilities prove to be eligible for special education services.

Assessments were run on all enrollees of the Kansas welfare system shortly after the reform

measures instituting the Temporary Assistance to Needy Families (TANF) program were passed. 36% of the women tested as having learning disabilities or mild mental retardation. Several years later, after TANF moved the easier-to-place recipients into employment, the hard core unemployed who remained on the rolls represented an even higher proportion of people with disabilities. Over half of the TANF caseload today can be assumed to have learning disabilities, mental retardation, psychiatric or addictive disorders, or a combination thereof.

There is a brighter side to the picture for adults with learning disabilities, of course. Any number of more affluent children attended excellent and very specialized private schools or benefited from top-drawer public special education systems, usually in affluent communities. Successful students with learning disabilities have gone on to attain graduate degrees at distinguished universities, and some have authored books to encourage their peers and proteges. Yet even among the highest achievers, life with learning disabilities is not always rosy. There is the bright young woman who managed to obtain a master's degree but cannot pass the Pennsylvania MCATS to enter med school; there is the certified special education teacher who cannot now pass the new high stakes teacher exams in Virginia; there is the priest with a master's degree unable to enroll in the doctoral program of his choice due to entrance exams of a design he'll never pass.

Add to the mix the fact that 50% of learning disabilities appear to be inherited genetically, and one realizes that all adults with learning disabilities are at high risk of having offspring facing the same kind of challenges and heartaches in school and in life that they themselves have had to face.

Who is there to help adults with learning disabilities? There are six nationally recognized learning disabilities organizations in the United States (who jointly belong to the Coordinated Campaign for Learning Disabilities and the somewhat more broadly defined National Joint Committee on Learning Disabilities). All of them focus on children and educational issues exclusively – all of them except the Learning Disabilities Association of America.

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Domains and Behaviors
Shaded area indicates a characteristic is more likely to apply at that stage of life. Check all that apply.

Preschool
Kindergarten

Grades 1-4

Grades 5-8

High School
& Adult

Social/Emotional (cont)

Has trouble evaluating personal social strengths and challenges					
Is doubtful of own abilities and is prone to attribute successes to luck or outside influences rather than hard work					

Attention

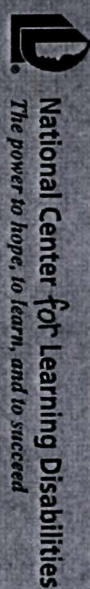
Fails to pay close attention to details or makes careless mistakes in schoolwork, work, or other activities					
Has difficulty sustaining attention in work tasks or play activities					
Does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace					
Has difficulty organizing tasks and activities					
Avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort such as homework and organizing work tasks					
Loses things consistently that are necessary for tasks/activities (e.g., toys, school assignments, pencils, books, or tools)					
Is easily distracted by outside influences					
Is forgetful in daily/routine activities					

Other

Confuses left and right					
Has a poor sense of direction; slow to learn the way around a new place; easily lost or confused in unfamiliar surroundings					
Finds it hard to judge speed and distance (e.g., hard to play certain games, drive a car)					
Trouble reading charts and maps					
Is disorganized and poor at planning					
Often loses things					
Is slow to learn new games and master puzzles					
Has difficulty listening and taking notes at the same time					
Performs inconsistently on tasks from one day to the next					
Has difficulty generalizing (applying) skills from one situation to another					

The National Center for Learning Disabilities (NCLD) works to ensure that the nation's 15 million children, adolescents and adults with learning disabilities have every opportunity to succeed in school, work and life.

NCLD provides essential information to parents, professionals and individuals with learning disabilities, promotes research and programs to foster effective learning, and advocates for policies to protect and strengthen educational rights and opportunities.



Learning Disabilities Checklist



Most people have problems with learning and behavior from time to time. During the school years, parents and educators should be on the alert for consistent (and persistent) patterns of difficulty that children and adolescents may experience over time as they may signal an underlying learning disability (LD). While variations in the course of development are to be expected, unevenness or lags in the mastery of skills and behaviors, even with children as young as 4 or 5, should not be ignored. And because LD can co-occur with other disorders, it's important to keep careful and complete records of observations and impressions so they can be shared among parent, educators and related service providers when making important decisions about needed services and supports.

Keep in mind that LD is a term that describes a heterogeneous ('mixed bag') group of disorders that impact listening, speaking, reading, writing, reasoning, math, and social skills. And remember: learning disabilities do not go away! A learning disability is not something that can be outgrown or that is 'cured' by medication, therapy, or expert tutoring. So, early recognition of warning signs, well-targeted screening and assessment, effective intervention, and ongoing monitoring of progress are critical to helping individuals with LD to succeed in school, in the workplace, and in life.

The following Learning Disabilities Checklist is designed as a helpful guide and not as a tool to pinpoint specific learning disabilities. The more characteristics you check, the more likely that the individual described is at risk for (or shows signs of) learning disabilities. When filling out this form, think about the person's behavior over at least the past six months. And when you're done, don't wait to seek assistance from school personnel or other professionals.

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For more information
 visit our web sites:

www.LD.org

www.GetReadyToRead.org

Learning Disabilities Checklist

Domains and Behaviors <i>Shaded area indicates a characteristic is more likely to apply at that stage of life. Check all that apply.</i>	Preschool Kindergarten	Grades 1-4	Grades 5-8	High School & Adult
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Appears awkward and clumsy; dropping, spilling, or knocking things over				
Has limited success with games and activities that demand eye-hand coordination (e.g., piano lessons, basketball, baseball)				
Has trouble with buttons, hooks, snaps, zippers and trouble learning to tie shoes				
Creates art work that is immature for age				
Demonstrates poor ability to color or write 'within the lines'				
Grasps pencil awkwardly, resulting in poor handwriting				
Experiences difficulty using small objects or items that demand precision (e.g., Legos, puzzle pieces, tweezers, scissors)				
Dislikes and avoids writing and drawing tasks				

Language

Demonstrates early delays in learning to speak				
Has difficulty modulating voice (e.g., too soft, too loud)				
Has trouble naming people or objects				
Has difficulty staying on topic				
Inserts invented words into conversation				
Has difficulty re-telling what has just been said				
Uses vague, imprecise language and has a limited vocabulary				
Demonstrates slow and halting speech, using lots of fillers (e.g., uh, um, and, you know, so)				
Uses poor grammar or misuses words in conversation				
Mispronounces words frequently				
Confuses words with others that sound similar				
Inserts malapropisms ('slips of the tongue') into conversation (e.g., a rolling stone gathers no moths; he was a man of great statue)				
Has difficulty rhyming				
Has limited interest in books or stories				
Has difficulty understanding instructions or directions				
Has trouble understanding idioms, proverbs, colloquialisms, humor, and/or puns (note: take into account regional and cultural factors)				

Domains and Behaviors <i>Shaded area indicates a characteristic is more likely to apply at that stage of life. Check all that apply.</i>	Preschool Kindergarten	Grades 1-4	Grades 5-8	High School & Adult
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Has difficulty with pragmatic skills (e.g., understands the relationship between speaker and listener, stays on topic, gauges the listener's degree of knowledge, makes inferences based on a speaker's verbal and non-verbal cues)				
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Language (cont.)

Confuses similar-looking letters and numbers				
Has difficulty recognizing and remembering sight words				
Frequently loses place while reading				
Confuses similar-looking words (e.g., beard/bread)				
Reverses letter order in words (e.g., saw/was)				
Demonstrates poor memory for printed words				
Has weak comprehension of ideas and themes				
Has significant trouble learning to read				
Has trouble naming letters				
Has problems associating letter and sounds, understanding the difference between sounds in words or blending sounds into words				
Guesses at unfamiliar words rather than using word analysis skills				
Reads slowly				
Substitutes or leaves out words while reading				
Has poor retention of new vocabulary				
Dislikes and avoids reading or reads reluctantly				

Reading

Dislikes and avoids writing and copying				
Demonstrates delays in learning to copy and write				
Writing is messy and incomplete, with many cross outs and erasures				
Has difficulty remembering shapes of letters and numerals				
Frequently reverses letters, numbers and symbols				
Uses uneven spacing between letters and words, and has trouble staying 'on the line'				
Copies inaccurately (e.g., confuses similar-looking letters and numbers)				
Spells poorly and inconsistently (e.g., the same word appears differently other places in the same document)				

Written Language

Dislikes and avoids writing and copying				
Demonstrates delays in learning to copy and write				
Writing is messy and incomplete, with many cross outs and erasures				
Has difficulty remembering shapes of letters and numerals				
Frequently reverses letters, numbers and symbols				
Uses uneven spacing between letters and words, and has trouble staying 'on the line'				
Copies inaccurately (e.g., confuses similar-looking letters and numbers)				
Spells poorly and inconsistently (e.g., the same word appears differently other places in the same document)				

Domains and Behaviors <i>Shaded area indicates a characteristic is more likely to apply at that stage of life. Check all that apply.</i>	Preschool Kindergarten	Grades 1-4	Grades 5-8	High School & Adult
--	------------------------	------------	------------	---------------------

Has difficulty proofreading and self-correcting work				
Has difficulty preparing outlines and organizing written assignments				
Fails to develop ideas in writing so written work is incomplete and too brief				
Expresses written ideas in a disorganized way				

Written Language (cont.)

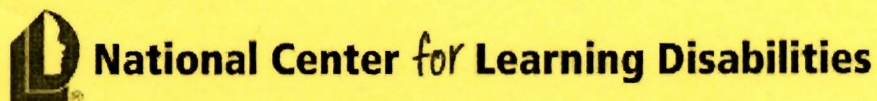
Has difficulty with simple counting and one-to-one correspondence between number symbols and items/objects				
Difficulty mastering number knowledge (e.g., recognition of quantities without counting)				
Has difficulty with learning and memorizing basic addition and subtraction facts				
Has difficulty learning strategic counting principles (e.g. by 2, 5, 10, 100)				
Poorly aligns numbers resulting in computation errors				
Has difficulty estimating (e.g., quantity, value)				
Has difficulty with comparisons (e.g., less than, greater than)				
Has trouble telling time				
Has trouble conceptualizing the passage of time				
Has difficulty counting rapidly or making calculations				
Has trouble learning multiplication tables, formulas and rules				
Has trouble interpreting graphs and charts				

Math

Does not pick up on other people's mood/feelings (e.g., may say the wrong thing at the wrong time)				
May not detect or respond appropriately to teasing				
Has difficulty 'joining in' and maintaining positive social status in a peer group				
Has trouble knowing how to share/express feelings				
Has trouble 'getting to the point' (e.g., gets bogged down in details in conversation)				
Has difficulty with self-control when frustrated				
Has difficulty dealing with group pressure, embarrassment and unexpected challenges				
Has trouble setting realistic social goals				

Social/Emotional

Does not pick up on other people's mood/feelings (e.g., may say the wrong thing at the wrong time)				
May not detect or respond appropriately to teasing				
Has difficulty 'joining in' and maintaining positive social status in a peer group				
Has trouble knowing how to share/express feelings				
Has trouble 'getting to the point' (e.g., gets bogged down in details in conversation)				
Has difficulty with self-control when frustrated				
Has difficulty dealing with group pressure, embarrassment and unexpected challenges				
Has trouble setting realistic social goals				



Social/Emotional Challenges of Learning Disabilities

By Sheldon H. Horowitz, Ed.D.

Published: September 1 2004

Are you:

Having difficulty adapting to new social situations;

Not being sure how to ask for help (and from whom);

Looking to peers for how to respond (rather than forming an independent opinion), and,

Missing social cues or having trouble reading nonverbal cues (for example, standing too close to someone during conversation even when they pull away, or laughing inappropriately at jokes or telling jokes at inappropriate times)

Or how about:

Feeling that no matter how hard they try, they just can't succeed;

Rating themselves as less capable than their peers and lacking self-assurance, and,

Attributing their successes to luck rather than hard work, good effort or even innate ability.

I'll bet that some (if not a substantial number) of these characteristics fit the person you have in mind. While it's safe to say that individuals with learning disabilities do not typically have significant social-emotional problems, it's also safe to say that compared to their peers, they do run a greater risk of having problems in dealing with their emotions and in knowing how to behave in certain situations. There is considerable debate about if and how social-emotional skills can be taught, but there is little doubt that problems in this area can and do pose some of the greatest challenges for individuals with LD of all ages.

How important are these skills for people with learning disabilities? **VERY IMPORTANT!** Let's look at the results of a much quoted 20 year longitudinal study conducted by the Frostig Center in California. The researchers looked at the "natural history" of learning disabilities in a group of students followed over many years, and one of the main questions they asked was, "What factors promote or prevent the success of individuals with LD?" The study concluded that even more than academic skills, the factors that predicted success over time were:

Self-awareness

Proactivity
Perseverance
Emotional stability
Goal setting
The use of effective support systems

So while much of our attention in helping students with LD is often directed toward improving academic performance, some of the characteristics that really make a difference in the lives of these individuals appear to fall within the social-emotional domain.

Additional Resources

Lavoie, Rick (1994). Teacher's Guide to Last One Picked-First One Picked On: Learning Disabilities and Social Skills (excerpt).

Learning Disabilities Quarterly, Winter 2004, Volume 21, no.1. Social-Emotional Side of Learning Disabilities. Council for Learning Disabilities, Leesburg, VA.

Raskind, Marshall H. et al (1999). Patterns of Change and Predictors of Success in Individuals with Learning Disabilities: Results From a Twenty-Year Longitudinal Study. *Learning Disabilities Research & Practice*, 14, (1), 35-49. Lawrence Erlbaum Associates, Inc.

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Read all Research Roundup Columns by Dr. Horowitz in the Research Roundup Archive.

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"The power to hope, to succeed, and to learn."



Math Learning Disabilities

By: Kate Garnett (1998)

While children with disorders in mathematics are specifically included under the definition of Learning Disabilities, seldom do math learning difficulties cause children to be referred for evaluation. In many school systems, special education services are provided almost exclusively on the basis of children's reading disabilities. Even after being identified as learning disabled (LD), few children are provided substantive assessment and remediation of their arithmetic difficulties.

This relative neglect might lead parents and teachers to believe that arithmetic learning problems are not very common, or perhaps not very serious. However, approximately 6% of school-age children have significant math deficits and among students classified as learning disabled, arithmetic difficulties are as pervasive as reading problems. This does not mean that all reading disabilities are accompanied by arithmetic learning problems, but it does mean that math deficits are widespread and in need of equivalent attention and concern.

Evidence from learning disabled adults belies the social myth that it is okay to be rotten at math. The effects of math failure throughout years of schooling, coupled with math illiteracy in adult life, can seriously handicap both daily living and vocational prospects. In today's world, mathematical knowledge, reasoning, and skills are no less important than reading ability .

Different types of math learning problems

As with students' reading disabilities, when math difficulties are present, they range from mild to severe. There is also evidence that children manifest different types of disabilities in math. Unfortunately, research attempting to classify these has yet to be validated or widely accepted, so caution is required when considering descriptions of differing degrees of math disability. Still, it seems evident that students do experience not only differing intensities of math dilemmas, but also different types, which require diverse classroom emphases, adaptations and sometimes even divergent methods.

Mastering basic number facts

Many learning disabled students have persistent trouble "memorizing" basic number facts in all four operations, despite adequate understanding and great effort expended trying to do so. Instead of readily knowing that $5+7=12$, or that $4 \times 6=24$, these children continue laboriously over years to count fingers, pencil marks or scribbled circles and seem unable to develop efficient memory strategies on their own.

For some, this represents their only notable math learning difficulty and, in such cases, it is crucial not to hold them back "until they know their facts." Rather, they should be allowed to use a pocket-size facts chart in order to proceed to more complex computation, applications, and problem-solving. As the students demonstrate speed and reliability in knowing a number fact, it can be removed from a personal chart. Addition and multiplication charts also can be used for subtraction and division respectively. For specific use as a basic fact reference, a portable chart (back-pocket-size, for older students) is preferable to an electronic calculator. Having the full set of answers in view is valuable, as is finding the same answer in the same location each time since where something is can help in recalling what it is. Also, by blackening over each fact that has been mastered, overreliance on the chart is discouraged and motivation to learn another one is increased. For those students who have difficulty locating answers at the vertical/horizontal

compensations; and at the same time, providing the full, enriched scope of math teaching.

The written symbol system and concrete materials

Many younger children who have difficulty with elementary math actually bring to school a strong foundation of informal math understanding. They encounter trouble in connecting this knowledge base to the more formal procedures, language, and symbolic notation system of school math. The collision of their informal skills with school math is like a tuneful, rhythmic child experiencing written music as something different from what he/she already can do. In fact, it is quite a complex feat to map the new world of written -math symbols onto the known world of quantities, actions and, at the same time to learn the peculiar language we use to talk about arithmetic. Students need many repeated experiences and many varieties of concrete materials to make these connections strong and stable. Teachers often compound difficulties at this stage of learning by asking students to match pictured groups with number sentences before they have had sufficient experience relating varieties of physical representations with the various ways we string together math symbols, and the different ways we refer to these things in words. The fact that concrete materials can be moved, held, and physically grouped and separated makes them much more vivid teaching tools than pictorial representations. Because pictures are semiabstract symbols, if introduced too early, they easily confuse the delicate connections being formed between existing concepts, the new language of math, and the formal world of written number problems.

In this same regard, it is important to remember that structured concrete materials are beneficial at the concept development stage for math topics at all grade levels. There is research evidence that students who use concrete materials actually develop more precise and more comprehensive mental representations, often show more motivation and on-task behavior, may better understand mathematical ideas, and may better apply these to life situations. Structured, concrete materials have been profitably used to develop concepts and to clarify early number relations, place value, computation, fractions, decimals, measurement, geometry, money, percentage, number bases story problems, probability and statistics), and even algebra.

Of course, different kinds of concrete materials are suited to different teaching purposes (see appendix for selected listing of materials and distributors). Materials do not teach by themselves; they work together with teacher guidance and student interactions, as well as with repeated demonstrations and explanations by both teachers and students.

Often students' confusion about the conventions of written math notation are sustained by the practice of using workbooks and ditto pages filled with problems to be solved. In these formats, students learn to act as problem answerers rather than demonstrators of math ideas. Students who show particular difficulty ordering math symbols in the conventional vertical, horizontal, and multi-step algorithms need much experience translating from one form to another. For example, teachers can provide answered addition problems with a double box next to each for translating these into the two related subtraction problems. Teachers can also dictate problems (with or without answers) for students to translate into pictorial form, then vertical notation, then horizontal notation. It can be helpful to structure pages with boxes for each of these different forms.

Students also can work in pairs translating answered problems into two or more different ways to read them (e.g., $20 \times 56 = 1120$ can be read twenty times fifty- six equals one thousand, one hundred and twenty or twenty multiplied by fifty-six is one thousand, one hundred, twenty). Or, again in pairs, students can be provided with answered problems each on an individual card; they alternate in their demonstration, or proof, of each example using materials (e.g., bundled sticks for carrying problems). To add zest, some of the problems can be answered incorrectly and a goal can be to find the "bad eggs."

Each of these suggestions is intended to move youngsters out of the rut of thinking of math as getting right answers or giving up. They help create a frame of mind that connects understanding with symbolic representation, while attaching the appropriate language variations.

intersections, it helps to use cutout cardboard in a backward L-shape.

Several curriculum materials offer specific methods to help teach mastering of basic arithmetic facts. The important assumption behind these materials is that the concepts of quantities and operations are already firmly established in the student's understanding. This means that the student can readily show and explain what a problem means using objects, pencil marks, etc. Suggestions from these teaching approaches include:

- Interactive and intensive practice with motivational materials such as games
...attentiveness during practice is as crucial as time spent
- Distributed practice, meaning much practice in small doses
...for example, two 15-minute sessions per day, rather than an hour session every other day
- Small numbers of facts per group to be mastered at one time
...and then, frequent practice with mixed groups
- Emphasis is on "reverses," or "turnarounds" (e.g., $4 + 5/5 + 4$, $6 \times 7/7 \times 6$)
...In vertical, horizontal, and oral formats
- Student self-charting of progress
...having students keep track of how many and which facts are mastered and how many more there are to go
- Instruction, not just practice
...Teaching thinking strategies from one fact to another (e.g., doubles facts, $5 + 5$, $6 + 6$, etc. and then double-plus-one facts, $5 + 6$, $6 + 7$, etc.).

(For details of these thinking strategies, see Garnett, Frank & Fleischner, 1983, Thornton, 1978; or Stern, 1987).

Arithmetic weakness/math talent

Some learning disabled students have an excellent grasp of math concepts, but are inconsistent in calculating. They are reliably unreliable at paying attention to the operational sign, at borrowing or carrying appropriately, and at sequencing the steps in complex operations. These same students also may experience difficulty mastering basic number facts.

Interestingly, some of the students with these difficulties may be remedial math students during the elementary years when computational accuracy is heavily stressed, but can go on to join honors classes in higher math where their conceptual prowess is called for. Clearly, these students should not be tracked into low level secondary math classes where they will only continue to demonstrate these careless errors and inconsistent computational skills while being denied access to higher-level math of which they are capable. Because there is much more to mathematics than right-answer reliable calculating, it is important to access the broad scope of math abilities and not judge intelligence or understanding by observing only weak lower level skills. Often a delicate balance must be struck in working with learning disabled math students which include:

- a. Acknowledging their computational weaknesses
- b. Maintaining persistent effort at strengthening inconsistent skills;
- c. Sharing a partnership with the student to develop self-monitoring systems and ingenious

The language of math

Some LD students are particularly hampered by the language aspects of math, resulting in confusion about terminology, difficulty following verbal explanations, and/or weak verbal skills for monitoring the steps of complex calculations. Teachers can help by slowing down the pace of their delivery, maintaining normal timing of phrases, and giving information in discrete segments. Such slowed down "chunking" of verbal information is important when asking questions, giving directions, presenting concepts, and offering explanations.

Equally important is frequently asking students to verbalize what they are doing. Too often, math time is filled either with teacher explanation or with silent written practice. Students with language confusions need to demonstrate with concrete materials and explain what they are doing at all ages and all levels of math work, not just in the earliest grades. Having students regularly "play teacher" can be not only enjoyable but also necessary for learning the complexities of the language of math. Also, understanding for all children tends to be more complete when they are required to explain, elaborate, or defend their position to others; the burden of having to explain often acts as the extra push needed to connect and integrate their knowledge in crucial ways.

Typically, children with language deficits react to math problems on the page as signals to do something, rather than as meaningful sentences that need to be read for understanding. It is almost as though they specifically avoid verbalizing. Both younger and older students need to develop the habit of reading or saying problems before and/or after computing them. By attending to the simple steps of self-verbalizing, they can monitor more of their attentional slips and careless errors. Therefore, teachers should encourage these students to:

- Stop after each answer,
- Read aloud the problem and the answer, and
- Listen to myself and ask, "Does that make sense?"

For youngsters with language weakness, this may take repeated teacher modeling, patient reminding and much practice using a cue card as a visual reminder.

Visual-spatial aspects of math

A small number of LD students have disturbances in visual-spatial-motor organization, which may result in weak or lacking understanding of concepts, very poor "number sense," specific difficulty with pictorial representations and/or poorly controlled handwriting and confused arrangements of numerals and signs on the page. Students with profoundly impaired conceptual understanding often have substantial perceptual-motor deficits and are presumed to have right hemisphere dysfunction.

This small subgroup may well require a very heavy emphasis on precise and clear verbal descriptions. They seem to benefit from substituting verbal constructions for the intuitive/spatial/relational understanding they lack. Pictorial examples or diagrammatic explanations can thoroughly confuse them, so these should not be used when trying to teach or clarify concepts. In fact, this subgroup is specifically in need of remediation in the area of picture interpretation, diagram and graph reading, and nonverbal social cues. To develop an understanding of math concepts, it may be useful to make repeated use of concrete teaching materials (e.g., Stern blocks, Cuisenaire rods), with conscientious attention to developing stable verbal renditions of each quantity (e.g., 5), relationship (e.g., 5 is less than 7), and action (e.g., $5+2=7$). Since understanding visual relationships and organization is difficult for these students, it is important to anchor verbal constructions in repeated experiences with structured materials that can be felt, seen, and moved around as they are talked about. For example, they may be better able to learn to identify triangles by holding a

triangular block and saying to themselves, "A triangle has three sides. When we draw it, it has three connected lines." For example, a college freshman who had this deficit could not "see" what a triangle was without saying this to herself when she looked at different figures or attempted to draw a triangle.

The goal for these students is to construct a strong verbal model for quantities and their relationships in place of the visual-spatial mental representation that most people develop. Consistent descriptive verbalizations also need to become firmly established in regard to when to apply math procedures and how to carry out the steps of written computation. Great patience and verbal repetition are required to make small incremental steps.

It is important to recognize that average, bright, and even very bright youngsters can have the severe visual-spatial organization deficits that make developing simple math concepts extremely difficult. When such deficits are accompanied by strong verbal skills, there is a tendency to disbelieve the impaired area of functioning. Thus, parents and teachers can spend years growling, "She's just not trying...She doesn't play attention...She must have a math phobia...It's probably an emotional problem." Because other accompanying weaknesses usually include a poor sense of body in space, difficulty reading the nonverbal social signals of gesture and face, and often nightmarish disorganization in the world of "things," it can be easy to mistake the problem for a constellation of emotional symptoms. Misreading the problems in this way delays the appropriate work that is needed both in mathematics and the other areas.

In summary

Math learning difficulties are common, significant, and worthy of serious instructional attention in both regular and special education classes. Students may respond to repeated failure with withdrawal of effort, lowered self-esteem, and avoidance behaviors. In addition, significant math deficits can have serious consequences on the management of everyday life as well as on job prospects and promotion.

Math learning problems range from mild to severe and manifest themselves in a variety of ways. Most common are difficulties with efficient recall of basic arithmetic facts and reliability in written computation. When these problems are accompanied by a strong conceptual grasp of mathematical and spatial relations, it is important not to bog the student down by focusing only on remediating computation. While important to work on, such efforts should not deny a full math education to otherwise capable students.

Language disabilities, even subtle ones, can interfere with math learning. In particular, many LD students have a tendency to avoid verbalizing in math activities, a tendency often exacerbated by the way math is typically taught in America. Developing their habits of verbalizing math examples and procedures can greatly help in removing obstacles to success in mainstream math settings.

Many children experience difficulty bridging informal math knowledge to formal school math. To build these connections takes time, experiences, and carefully guided instruction. The use of structured, concrete materials is important to securing these links, not only in the early elementary grades, but also during concept development stages of higher-level math. Some students need particular emphasis on the translating between different written forms, different ways of reading these, and various representations (with objects or drawings) of what they mean.

An extremely handicapping, though less common math disability, derives from significant visual-spatial-motor disorganization. The formation of foundation math concepts is impaired in this small subgroup of students. Methods to compensate include avoiding the use of pictures or graphics for conveying concepts, constructing verbal versions of math ideas, and using concrete materials as anchors. The organizational and social problems that accompany this math disability are also in need of long-term appropriate remedial attention in order to support successful life adjustment in adulthood.

In sum, as special educators, there is much we can and need to do in this area that calls for so much greater attention than we have typically provided.

About the author

Dr. Garnett received her doctorate from Teachers College, Columbia University. Over the last 18 years Dr. Garnett has been on the faculty of the Department of Special Education, Hunter College, CUNY where she directs the masters program in Learning Disorders. She is currently with The Edison Project, where she is the architect of their Responsible Inclusion/Special Edison Support.

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