

ADDITIONAL READINGS

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THE CAUSES OF LEARNING DISABILITIES

Although there has been a great deal of research into the possible causes of learning disabilities, it has not been possible so far to come up with a definitive answer. This, coupled with the cumbersome definition based primarily on exclusions, has aggravated the difficulties faced by those who have learning disabilities.

While it is certainly not particularly important to try to identify the cause(s) of a particular person's learning disabilities, it is useful to consider the factors that may be involved.

Heredity

It is suggested that close to 40% of persons with learning disabilities have inherited the condition. While the process of inheritance has not been fully explored, it is known that several chromosomes including the X and No. 15 are suspected of involvement. The type of inheritance is more complex than the standard process for inheriting eye or hair colour.

It is interesting to note that whereas 10% of the general population has learning disabilities, studies show that close to 40% of children placed for adoption have learning disabilities. This statistic, published by Dr. Larry Silver, may relate to genetic and/or behavioural and developmental issues.

Prenatal and Perinatal factors

Good prenatal care contributes to successful prenatal development. Babies who are born very prematurely or with very low birth weight are at risk for a variety of developmental problems, including learning disabilities.

The following have been identified as components of poor prenatal care:

- smoking, alcohol usage
- illicit drug use (e.g. heroin, crack, cocaine)
- exposure to toxic chemicals (e.g. bug sprays, solvents)
- poor nutrition, excessive use of caffeine

A difficult birth, especially if there is a lack of oxygen to the baby, is another possible cause of subsequent learning disabilities. Environmental toxins such as lead or mercury, before birth or in early life, can also adversely affect a child's mental development.

It is important to note that in a majority of individual cases it is not possible to pinpoint the cause(s) of the learning disabilities.

UNDERSTANDING LEARNING DISABILITIES

When a child is identified as having learning disabilities, we know two things: he or she has at least average intelligence, and possibly above average; and he or she learns in a different way. This means that the child is what we call an "exceptional student," and that the exceptionality is in the area of communications. This area covers the ability to process information. As simple as all this may sound, unlocking the mystery of how an individual child with a learning disabilities learns is a tremendous challenge. Think of the circuitry of a computer. As complex as it may be, all the bits and pieces are labelled and, if there is a malfunction, a trained technician can find the problem and fix it. The human brain, on the other hand, is infinitely more complex than a computer. Even the best neurosurgeons cannot repair the malfunctions in a person's ability to process information.

Processing information appears to require skills in four basic areas:

- the reception of information;
- the integration or organization of that information;
- the ability to retrieve information from its storage in the brain; and
- the communication of retrieved information to others.

Difficulties in any of these areas can seriously affect a child's ability to learn in a normal way, and these same difficulties may prevent the child from developing social competence or the ability to interact effectively with his or her peers or with adults. Each area of difficulty is composed of many skills, and many of the areas overlap with others or are dependent on others. Discovering the specifics of an individual child's difficulties is a very complicated task. In addition, each child's set of characteristics is unique. He or she may have difficulties in only one or two of the areas, or there may be difficulties in most of the areas. The severity of these difficulties ranges from mild, to moderate, to severe, thus adding a further set of complications.

Using formal and informal assessments, interviews, and observations, we attempt to piece together the puzzle. The most common characteristics, or "classic symptoms" are found in the following list of abilities:

- auditory perceptual skills: understanding what we hear;
- visual perceptual skills: understanding what we see;
- processing speed: the time it takes to process information;
- organization: keeping information in order in the right place;
- memory: short term and long-term storage and retrieval of information;

- fine motor skills: legible and effective written communication including copying what is seen;
- gross motor skills: control of body parts in walking, working and playing;
- attention: focusing on one thing for the required length of time;
- abstractions: interpreting symbolism; and
- social competence: effective interactions with others.

The frustrations and anxieties that the child with a learning disabilities experiences are beyond the comprehension of those of us who learn and get along with others satisfactorily. The most devastating result for these children is the gradual deterioration of their self-esteem, and everything must be done to help these children maintain it.

The common side effects of having learning disabilities may include distractibility, impulsiveness, mood changes, inconsistencies, work-avoidance behaviour, attention-seeking behaviours, and oppositional behaviours. Often, these behaviours develop to mask the real problems that learning disabled children face on a daily basis. However, if we take the time to talk to them, they will say that they only want to learn and to have friends like everyone else. With the right support and an individualized learning program they can be successful!

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WHAT IS DYSLEXIA?

Dyslexia is a learning disability involving difficulties with different forms of language. These can include problems with reading, spelling, understanding spoken language and/or expressing oneself in speaking or writing.

Dyslexia, like other learning disabilities, is not related to intelligence. An unexpected gap exists between a person's academic achievement and their intellectual ability (which in some cases may be very high).

People with dyslexia may have talents in many areas, in addition to their areas of difficulty. Each person's pattern of strengths and weaknesses is unique to them. In other words, no two dyslexics are alike. That is why assessment is very important.

Common Signs of Dyslexia:

Early signs

- difficulty learning to talk
- difficulty listening and following directions
- difficulty remembering
- difficulty pronouncing words correctly or expressing ideas clearly

In school

- difficulty learning the alphabet
- difficulty sequencing letters or numbers
- difficulty rhyming
- difficulty with sequence and memory for words
- difficulty learning to read, write and spell

A dyslexic may show some or all of the above signs.

Most persons with learning disabilities have some degree of dyslexia, such as problems remembering how words are spelled.

Phonological Awareness

Extensive studies have shown that children diagnosed with dyslexia consistency differ from other children in an ability called "phonological awareness." Phonological awareness involves the ability to notice, think about, and manipulate the individual sounds in word. Rhyming is an early activity encouraging the development of phonological, or "phoneme" awareness.

A phoneme is the smallest sound portion of a word, smaller than a syllable. Children have to be able to hear and distinguish phonemes in words before they can attach letters or letter combinations to them.

Diagnosis & Treatment

Diagnosis of dyslexia is based on a comprehensive assessment that may include tests of: intellectual ability, expressive and receptive language (both oral and written), academic achievement in reading, spelling, vocabulary, comprehension, handwriting and composition. Recommendations for educational remediation should be contained in a written report.

Appropriate remedial programming for dyslexia may include the following:

- direct instruction of language skills and concepts.
- systematic, step-by-step sequential teaching of the alphabetic phonic system of language
- multisensory instruction, involving seeing, listening, touching and doing

Dyslexia is something that people are born with, and in many cases there appears to be a family history. Ongoing research is documenting differences in the organization of the brains of individuals with dyslexia.

Dyslexia is not outgrown, but with appropriate education, understanding and time, many dyslexics learn to read and write, and go on to develop their special abilities and talents. They may be very successful in their chosen careers. A number of well-known scientists, artists, athletes and business and political leaders have dyslexia.

Adapted from information in monographs of the Orton Dyslexia Society, 1993/95 and the definition of dyslexia adopted by the ODS Research Committee and National Institute of Health, 1994; and in Dyslexia: An Introduction for Parents, Teachers and/or Individuals with Dyslexia, LDA of Canada, 1991.

WHAT ARE NONVERBAL LEARNING DISABILITIES?

Nonverbal learning disabilities are less well known than language-based learning disabilities such as dyslexia. Typically, people with nonverbal LD show:

- excellent memory for things they hear
- poor memory for things they see
- good reading ability
- very poor arithmetic ability
- excellent verbal expression and verbal reasoning
- problems with written expression (often because of poor handwriting)
- problems with sense of direction, estimation of size, shape, distance
- problems reading facial expressions, gestures, social cues, tones of voice

Nonverbal learning disabilities often go undiagnosed because reading ability tends to be regarded as the chief indicator of academic well-being by most public school systems. Because it has a pronounced effect on social interaction, as well as academic performance, nonverbal LD presents a unique challenge to parents, teachers and adult consumers.

The chief characteristics of nonverbal LD include:

- tactile-perceptual deficits, usually on the left side of the body;
- coordination difficulties, again often more marked on the left side of the body;
- problems with visual-spatial organization;
- extreme difficulty adapting to new and complex situations;
- reliance on rote behaviours (which may or may not be appropriate) in new situations;
- trouble understanding nonverbal feedback in social situations;
- problems with social perception, social judgement and social interaction;
- distorted sense of time;
- very strong rote verbal abilities (e.g. large vocabulary);
- reliance on language as the primary means for social relating, information-gathering and relief from anxiety;
- difficulties with arithmetic and, later, with scientific concepts and theories;
- inattention and hyperactivity earlier in childhood; and social withdrawal and isolation later.

When people with nonverbal LD are assessed, typically their performance IQ is significantly lower than their verbal IQ because of the visual-spatial weaknesses.

YOUNG CHILDREN

Young nonverbal LD children tend to stray from home or groups and get lost easily. They often spill things at mealtime because of problems with motor coordination and have trouble dressing themselves for the same reason. Problems with spatial skills appear in weak understanding of nonverbal information (e.g. pictures, cartoons, passage of time) and nonverbal tasks like puzzles.

Many children with nonverbal LD use words in an adult fashion and learn to read before school age because of their auditory strengths. Thus, they often try to gain information about the world around them by asking endless questions of adults, rather than by exploring on their own. The inaccuracy of their visual perception, physical awkwardness and difficulty integrating information in space and time make it harder for them to make sense of the physical world. This compensation can compound the problem, however, for the less the child engages in physical exploration, the less s/he learns about relationships between objects in space.

ACADEMIC ISSUES

Students with nonverbal LD generally appear to possess above-average cognitive skills because of their verbal strengths, but often show academic difficulties as they reach secondary levels.

Spatial and coordination problems make printing and writing, learning math, telling time, reading and colouring maps and keeping their place on the page difficult from early grades. By high school, more complex verbal language is based on nonverbal processes like spatial relationships (in science, for example), logical ordering, and sequencing (both skills necessary for writing essays). This can cause problems in subject areas other than math. As well, students often experience difficulties with sense of time, arranging written material on a page, making change, and sewing and typing, all of which demand good spatial awareness.

Throughout the school years, kids with nonverbal LD are often inattentive and poorly organized because they have trouble integrating and interpreting incoming information. They tend to pay attention to each detail as it comes in, rather than combining them into more meaningful wholes. The effort quickly leads to information overload, with which these students will often cope by clinging to familiar habits and routines that help them to structure their world. Sometimes this adaptation appears as misbehaviour.

In later secondary and post-secondary education, information is frequently presented in lecture form. For students with nonverbal LD, problems arise because they have to

integrate information they hear with the act of writing, already difficult because writing is often awkward and slow. As well, students who attend equally to individual details as they appear have enormous difficulty separating important from unimportant information.

Teachers can support students with nonverbal LD by outlining material to be covered, using overheads containing central points while lecturing, providing clear schedules of the day's events, breaking complex tasks down into smaller, sequenced pieces, using discussion rather than lectures to develop and integrate ideas, and using students' strengths in rote learning to help them develop habits and routines to organize themselves and their work.

SOCIAL AND EMOTIONAL ISSUES

Possibly the biggest area of concern for children and adults with nonverbal LD is social skills. One result of having trouble processing nonverbal and spatial information is missing or misinterpreting subtle social cues, like facial expressions, gestures and tones of voice. For example, a phrase like "nice going" means something different when you've just dropped a ball or tripped over a skipping rope (again) than when you've gotten a perfect score on a spelling test. Confusing the two can spell "disaster" on the playground.

Unlike a student who has difficulty reading but does well with social and sports activities, students with nonverbal LD are affected in all areas. This can lead to social isolation, and kids will sometimes try to alleviate this by interacting only with adults, who are more appreciative of their verbal strengths and less concerned about physical awkwardness or violations of social conventions.

However, because children with nonverbal LD are highly verbal, parents and teachers tend to attribute their academic and social failure to laziness or poor character. This can lead to emotional problems like depression and anxiety that are expressed in internalizing ways (e.g. nail and cuticle biting, headaches, stomach problems, phobias).

Parents and teachers can help children with nonverbal LD learn more effective social skills by talking about social rules and playing games in which children guess the feelings that go with facial expressions and tones of voice (and figure out appropriate responses!). Friends and spouses of adults with nonverbal LD can help by pointing out social rules and articulating the information often carried by a look or a gesture.

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CENTRAL AUDITORY PROCESSING DEFICITS/ DISORDERS (C.A.P.D.)

Those Who Hear But Cannot Listen

Learning disabilities are related to the inadequate sensory and perceptual development of a number of sensory channels. Visual perceptual deficits have been the predominant concern of educators over the years; however, recently, there is a growing recognition that good auditory abilities are essential for successful academic progress and they can influence classroom behaviour.

Auditory acuity is the ability to detect the presence of sounds at various levels of intensity and frequency. It's only one of many auditory abilities, yet it's the only competency many teachers consider when evaluating a child's listening skills.

Other auditory abilities are not as widely understood and not as easily addressed.

Auditory attention is the ability to direct and sustain attention to preferred sound messages. Those with auditory attention problems have difficulty selecting relevant from irrelevant sounds (poor auditory figure-ground ability).

Auditory memory is the ability to remember auditory sound patterns. Children build a reserve of previously learned sound patterns from which they recall and then interpret and integrate their auditory environment.

Auditory discrimination is the ability to detect similarities and differences between sounds. Those with poor discrimination may not, for example, be able to hear the difference between the words took and book.

Auditory synthesis (integration) is the ability to blend independent sound units into complete aural units (words) such as c-ar-t, or t-a-ble.

Auditory comprehension is the ability to decode and derive meaning from sound messages. This requires competence in several auditory abilities: attention, memory, discrimination and integration.

Auditory-visual integration is the ability to integrate auditory and visual messages. Because sound is fleeting, visual stimuli often support the interpretation of sound. Associating a picture or the printed word with the spoken word is an auditory-visual integration activity.

Children who have C.A.P. deficits often find reading, writing and spelling difficult because these skills require an ability to: recognize and distinguish between sounds in

words; blend them together; separate words into syllables; and, follow auditory sequences. Many children with C.A.P.D. also have speech and language deficits such as low vocabulary, poor flexibility of vocal patterns and articulation problems.

All auditory abilities are interrelated - each one influencing the other. However certain situations can place greater demands on any one of these abilities. In recent years, the regular classroom has become a very busy, very noisy environment. Desks are clustered together in order to facilitate interactive learning activities. The burden of this classroom configuration on sensitive listeners is the likely reason more children with C.A.P.D. are coming to the attention of the professionals.

Many children with C.A.P.D. exhibit behaviour similar to children with A.D.D. They may also: speak too loudly; appear to daydream; get lost in rote verbalizations; not enjoy music; avoid explanations by using phrases like, "I forget.>"; substitute gestures for words; lip read; have trouble with phonics-based activities; and look to see what others are doing before beginning an activity.

Some assistive devices, like amplified sound and noise cancellation systems, are now being developed to aid sensitive listeners. Teacher awareness of auditorily sensitive students is crucial.

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HELPING STUDENTS WHO STRUGGLE TO WRITE

By Regina G. Richards, M.A.

"Eli shook himself to stop daydreaming Writing was definitely the worst task of all. It was just way too hard to remember all the things he needed, like periods and capital letters. And then it was almost impossible to think about how to spell words when he was busy trying to think about the story." (1)

There are many reasons students hate to write, the primary of which is that writing is a slow and laborious process. The purpose of this article is to provide suggestions to help students, with emphasis on compensations. For further information on diagnostic issues, precise remedial suggestions, or the processing problems related to dyslexia and dysgraphia, the reader is referred to the references provided at the end.

Students benefit when they compensate for writing problems because so often writing struggles interfere with learning and prevent them from fully demonstrating what they have learned. Compensating helps them bypass the problem area and still accomplish the goal of the activity. Some example classroom compensations include the following:

Staging: dividing the task into smaller units and performing each subtask independently. Some students become overwhelmed because tasks appear to be too large or have too many steps. Staging helps them focus on each subtask with greater concentration and an emphasis on quality.

- **Decreasing quantity:** allowing the student to perform fewer math problems, write fewer sentences, or write a shorter story. Some students work so hard for each problem that they find it very difficult to perform an entire assignment or even to concentrate on the concept. Students with writing difficulties sometimes learn more from fewer problems because their concentration is more efficient. Allowing for shorter assignments encourages the student to focus on quality rather than quantity, thus often decreasing the urge to rush through.
- **Increasing time:** providing the student with more time to finish his work. Many times a student may be capable of completing the work, but unable to do so in the same amount of time as his peers. The extra time decreases the tendency for rushing through and can increase the focus on quality.
- **Copying:** reducing or eliminating copying demands, such as copying from the chalkboard, or even copying from another paper. Sometimes students with writing difficulties make multiple mistakes when copying information and it is important to insure that they have access to the correct information.

- **Providing structure for math:** using large graph paper or looseleaf paper turned sideways helps the student alignment numbers properly in multi-step math problems. Some students benefit from having their math problems machine copied in enlarged format with additional white space, as this also prevents errors in copying the problem.
- **Adjusting writing format:** allowing each student to choose the format that is most comfortable. Some students perform better in manuscript whereas other students perform better using cursive. Allowing work to be completed by computer word processing helps the student use staging more efficiently while also bypassing the mechanical difficulties of letter form and space.
- **Spelling:** allowing for misspelling on in-class assignments. Hold students responsible for correct spelling on final drafts, encouraging use of a phonics-based spell checker, such as one of the Franklin Electronic Resources® with a speaking component.(2)

CAUTION: It is unfair and counterproductive to make a student with writing problems stay in for recess to finish work. These children need more movement time, not less.

Keyboarding

The most efficient compensation for any student who struggles with basic letter form and use of spaces is to develop efficient word processing skills. Parents and teachers need to be aware; however, that it is very difficult to go through life totally avoiding use of paper and pencil and, consequently, it is important for each student to develop at least some basic handwriting skills. Specific multisensory strategies designed for dysgraphic students are useful for any student who needs help developing appropriate letter form and automatic motor movements. Specific remedial strategies that incorporate air writing, use of the vertical plane (chalkboard), simultaneous verbal cues, and reinforcement with tactile input, are most effective.(3)

In today's society, keyboarding skills are valuable for all students, but are particularly essential for the student who struggles with writing and/or spelling difficulties. Students are able to learn keyboarding skills at a very young age. However, keyboarding development requires practice and many students complain that the practice is especially boring. This can be a problem because consistency and frequency of practice are very important in developing automaticity. Consequently, it is useful to have the student practice keyboarding on a daily basis, but only for very short period of time each day. In early elementary, the student may practice only five to ten minutes a night. In

upper elementary, the practice sessions maybe 10 to 15 minutes a night. If the student is just beginning to learn keyboarding as a teenager, it may be necessary to extend the practice sessions to 15 to 20 minutes a night. The consistency of the practice is critical.

Many fun and efficient software programs are available to help students learn appropriate keyboarding. Access to a variety of programs helps decrease boredom and allows for choice, as the student may select different software each night. Alternate programs have also been developed which teach keyboarding skills based on the alphabetical sequence. One such program starts with the left hand and uses a poem which begins, "little finger a, reach for b, same finger c, d, e. (4)

Initially, as the student is learning, correct finger should not be required when he is typing for content, as this greatly increases the demands on active working memory. For most students, the habits developed during typing practice will eventually integrate with the finger used while concentrating on ideation and content.

Once a student learns word processing skills, she will have the option of progressing to use of voice-activated software, such as Dragon® NaturallySpeaking® (5) Such software allows the student to dictate into a microphone without the need for direct typing on the keyboard. However, this is a higher level skill which is much more efficient once the student knows and understands basic word processing and writing skills. Clear enunciation, lack of slurring words, and use of precise preplanning and organization are critical for success with voice-activated programs.

Note-taking

Many students with writing struggles are slow and/or inefficient when taking notes. This is particularly laborious for high school and college-age students. While a laptop computer can be efficient, it can be cumbersome to carry around. Also, it is expensive to fix or replace a vandalized, dropped, or otherwise broken computer. A successful alternative that has become popular with some older students is the use of a personal digital assistant such as the PalmPilot® series or the Visor Handspring® series. These units are quite small (palm size) and easy to transport in a backpack. A nearly standard size keyboard can be attached which greatly facilitates typing and, hence, note-taking. This is especially useful for recording homework assignments and "to do" lists. For note-taking during a lecture, many students still require the assistance of a note-taker, even if the complete notes are only used as a backup.

Spelling

Many students who struggle with writing also have difficulties with spelling. Even if they are able to spell correctly on a weekly spelling test, when they're thinking of content it

may be very difficult to also think of the correct spelling of the words they want. Some students then simplify their word usage. Other students just include the incorrectly spelled word.

When such students use a staging approach, they can first focus on pre-organization and then writing (or typing) a draft. A next step would be to go back and work on fixing misspelled words. Sometimes the spell checker on a computer does not help the student because the misspelled word is not close enough to correct. In such situations, the student should be taught to develop strong phonetic analysis skills so that she can learn to spell words phonetically, the way they sound. Then the student will be able to utilize technology such as one of the Franklin® Electronic Resources.(6) In our office, the Language Master 6000 has been found to be very appropriate because of its large font size and speech clarity.

Hand fatigue

A common complaint of students who struggle to write is that their hand gets tired when writing. This can be due to a variety of factors. Some of the most common factors are inappropriate grip, a very tight pencil grip, or inefficient writing posture. There are many efficient grippers that can be used with the pencil or pen to enhance the efficiency of the students grasp on the pencil. One example, the large Pencil Grip™, is ergonomically developed to work with the natural physiology of the hand to gently place fingers in the proper position for gripping!(7)

Students can be helped to decrease hand fatigue by performing warm-up activities before writing in the middle of the task. Such activities help the student manipulate and relax muscles in the writing hand. Some examples include:

- Rubbing palms of hands together
- Shaking hands slightly though firmly
- Clasping hands together and stretching upwards

For older students who need to take a large number of notes during a class, dividing their paper in half and writing on only one half the time helps reduce the drag of the writing instrument across the paper. This too will reduce writing fatigue.

Caution for teachers

One of the best compensations for a student who struggles with writing is to have a teacher that understands. For some students it is not possible to be neat while also focusing on content. Some students cannot focus on both neatness and use of writing

mechanics at the same time. This is why a staging approach is critical. Requiring concentration on only one or two aspects at a time will help reduce the overload for a student.

In the quote below, an elementary school student explains his frustration caused by his struggles in trying to be neat while also thinking.

"So Eli figured it was easier to write just a few sentences. That didn't hurt his hand so much either. His teachers complained, but Eli kept writing very short stories. After all, teachers didn't understand what it was like to struggle and struggle to write, and still have the paper turn out sloppy and full of mistakes. They always told him how messy his papers were. They just couldn't understand how hard he tried. No matter how carefully he worked, the words didn't look like they were supposed to. Sometimes he knew how he wanted the words to look, but they just didn't turn out that way."(8)

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ASSESSMENT OF LEARNING DISABILITIES

by Dr. Norman Brodie, Ph.D. Chartered Psychologist
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BACKGROUND INFORMATION

A good diagnostic assessment for learning disabilities needs to address several important areas. A primary need at the onset of the diagnostic process is the taking of a good history. While the diagnostic testing can provide excellent evaluations of the current levels of functioning in the various areas assessed, it is also important to have:

a detailed history of the development of the problems (including a developmental history with attention to issues such as delayed speech and motoric milestones)

any family history of similar conditions amongst blood relatives (many learning disabilities "run in families" and are clearly related to genetic predispositions),

and personal history for relevant events such as head injuries or other neurological insults and emotional stressors (such as family break-ups, exposure to domestic violence or child abuse, reactions to changes in the family structure from additions or losses to the family, etc.)

This background information is crucial to a thorough assessment, as the professional not only has to determine if there are true educational deficits or impairments, but also to attempt to identify the cause of them in order to determine the correct line of intervention.

The next stage of the assessment process is to obtain some current information regarding the child's functioning in the day-to-day life situations such as at school and at home. Depending upon the age and expressive verbal skills of the child, a considerable amount of information may be obtained from a direct interview and asking specific questions about their experiences and feelings in different situations. This helps to identify how the child sees him or herself, as well as providing some insight into their self-esteem and approach to challenging situations. I also interview the parents whenever possible and generally attempt to get some additional information from both parents and the teacher through behavioural rating scales that help to quantify and make more specific the descriptions of the behavioural and emotional responses in different environments. This is especially critical when assessing for the possible presence of an Attention Deficit Hyperactivity Disorder (ADHD) and/or a Conduct Disorder, as many of the defining symptoms or problems associated with these

conditions are not likely to be displayed or observed in the one-on-one testing session in the office setting.

INTELLECTUAL FUNCTIONING

In the formal testing session, it is vital to obtain reliable measures of the child's current intellectual functioning and academic achievement as a basic prerequisite for making a diagnosis of learning disabilities. Intellectual testing is most commonly done using the latest version of the **Wechsler Intelligence Scale for Children**. This is the most widely used intellectual battery for children in North America, and it also now provides (since 1996) Canadian norms based on a very large sample of children from across Canada. The Canadian norms should generally be used as there are significant differences in performance level seen between the norms for the USA and Canada, largely indicating that the American norms tend to over-estimate the child's performance by a slight extent compared to standards in Canada.

The **WISC** is also a very useful test because it not only provides a general estimate of learning aptitude, it also provides a breakdown into the areas of Verbal, Performance (nonverbal) and Full Scale I.Q. It is also possible to identify patterns of strength and weakness across the profile that can help with determining more specific diagnoses of subtypes of learning disabilities (such as the identification of global language disorders or nonverbal learning disabilities subtypes) by consideration of discrepancies between the Verbal and Performance I.Q. scores and patterns of strength and weakness on the subtests.

ACADEMIC ACHIEVEMENT

In combination with the intellectual test results, it is also important to obtain concurrent measures of academic achievement using standardized tests that provide reliable estimates of performance relative to age or grade population norms. This allows for a comparison of performance using national standards rather than subjective ratings based on a comparison to the rest of the child's class (with uncertainty as to how he/she would compare to a different class of students). It also provides an objective basis for comparing performance to potential by contrasting standard scores from the achievement test (which are generally expressed in I.Q. like units) with the I.Q. scores to determine if the achievement level is significantly below the intellectual expectancy range. This is important in that all standard definitions of learning disabilities emphasize that the individual has a deficit in learning that is not attributable to general intellectual handicap or deficiency.

It is also important to consider the possibility that a very bright child who functions in the well above average range on the intellectual battery may still have a significant learning disabilities condition that results in a relative deficit on academic achievement as

reflected by low to even mid-average performances on the achievement tests. Formal assessment of academic achievement levels with standardized tests is also important with respect to qualifying for special education assistance in most jurisdictions in Canada. Most education departments have set quantified criteria for identification of learning disabilities based on performing below specific levels (often at below the 10th percentile) on one or more academic test areas, using a recognized educational achievement test.

Some of the most commonly used educational batteries include the latest versions of:

Woodcock-Johnson Psycho-Educational Battery

Woodcock Reading Mastery Test

Kaufman Test of Educational Achievement

Wechsler Individual Achievement Test

Wide Range Achievement Test

Canada Quick Individual Achievement Test

Each of these tests employs a battery approach to educational testing, employing a number of individual subtests that assess specific skill areas, allowing for the performance to be compared across subject or skill areas, and providing normative data that allows the individual's scores to be compared to standards established at a national level. All of these tests also correlate quite highly with one another, and the results obtained on one tend to be similar to the results obtained on another, such that selection of the specific test is often a matter of personal preference by the specific consultant.

In my own practice, I most often employ a combination of the **WRAT-3** and **C-QUIET** tests in combination with other measures as needed, such as the use of the **Canada French Immersion Achievement Test (C-FIAT)** that is produced by the authors of the **C-QUIET** to allow for a direct comparison of the student's performance levels in English and French when the child has been enrolled in a French Immersion school programme. I also employ a variety of more selective tests such as specific tests of reading vocabulary and reading comprehension from the **Gates-MacGinitie Reading Tests** or measures of visual spelling recognition and resistance to various forms of reading errors with the **Diagnostic Analysis of Reading Errors test** or measures of writing skills using the **Test of Written Language-3rd Edition**. The specific test battery selected is, however, of less importance than ensuring that the areas of identified academic weakness are systematically assessed with a reliable and valid achievement test. The test should provide standard scores and percentile rankings that can be contrasted to the intellectual estimates in order to identify discrepancies indicative of learning disabilities, and provide a breakdown of scores into functional areas for remedial planning purposes.

SELF-ESTEEM & EMOTIONAL STATUS

Another area that should be included in almost all psycho-educational assessments is a systematic evaluation of self-esteem and emotional status. Many students with learning disabilities have developed significant problems with self-esteem and emotional reactions to prolonged frustration. Negative self-esteem and childhood depressive reactions also seriously compromise the individual's ability to apply themselves to programming in an effective fashion. Therefore, when such emotional interferences are present (whether as a primary problem or as a secondary reaction to the learning disabilities), it is imperative that we recognize these as problems in their own right and initiate some intervention or provide assistance to help them begin the process of developing improved self-confidence (e.g. encouraging the child to participate in some extracurricular activities for self-esteem boosting success and "setting them up for success" in some areas). In some cases, the emotional distress and disturbance may be of sufficient severity that formal professional counselling and/or medical treatment of depression may be necessary. A combination approach of rebuilding self-esteem as well as improving the educational programming at the same time is most often necessary and critical for either aspect of the overall plan to succeed.

SUMMARY

What is most important is for the psychologist to be able to use the available information arising from the history, clinical interviews, test behavioural observations and objective test data to achieve an integrated or holistic picture of the individual and the specific needs for each case. Only with such a well detailed picture of the person as an individual can we begin to identify specifically what type of educational programme, supplementary assistance and educational modifications are appropriate for the specific situation. This places the psychological assessment findings well above the assignment of a simple label or diagnostic term. Through such a comprehensive evaluation process, the individual's strengths and talents are also highlighted and brought into focus as a basis for preserving and enhancing self-esteem and personal development.

Adapted from an article in LDA Yukon News, June 1998, reprinted with permission of the author.

WHAT IS ATTENTION DEFICIT/HYPERACTIVITY DISORDER?

ADHD is a syndrome that is usually characterized by persistent difficulties resulting in:

inattention or inability to sustain attention
impulsivity or weak impulse control
hyperactivity or restlessness, being "always on the go."

ADHD is a chronic condition that usually continues throughout the lifespan and affects the individual's life at work, home, school, and within the community. The characteristics of ADHD evident 40 years ago are still the same; however, the name has changed over the years as understanding and knowledge about the disorder have increased. The current diagnostic and statistical manual, DSM-IV, reflects this in the establishment of specific subtypes: the predominantly inattentive type, the predominantly hyperactive-impulsive type, and the combined type.

Diagnostic Criteria for Attention-Deficit/Hyperactivity Disorder

A. Either (1) or (2):

(1) **Inattention**: Six (or more) of the following symptoms of inattention have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

- (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- (b) often has difficulty sustaining attention in tasks or play activities
- (c) often does not seem to listen when spoken to directly
- (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
- (e) often has difficulties organizing tasks or activities (e.g., school assignments, pencils, books, or tools)
- (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (g) often loses things necessary for tasks or activities (e.g., school assignments, pencils, books, or tools)
- (h) is often easily distracted by extraneous stimuli
- (i) is often forgetful in daily activities

(2) **Hyperactivity-impulsivity**: Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

- (a) often fidgets with hands or feet or squirms in seat
- (b) often leaves seat in classroom or in other situations in which remaining seated is expected
- (c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- (d) often has difficulty playing or engaging in leisure activities quietly
- (e) is often "on the go" or often acts as if "driven by a motor"
- (f) often talks excessively

Impulsivity

- (g) often blurts out answers to questions before the questions have been completed
- (h) often has difficulty awaiting turn
- (i) often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that cause impairment were present before age 7.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [at work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder, and are not better accounted for by another mental disorder.

Subtypes

Combined type: If both criteria A1 and A2 are met for the past 6 months.

Predominantly inattentive type: If criterion A1 is met but criterion A2 is not met for the past 6 months.

Predominantly hyperactive-impulsive type: If criterion A2 is met but criterion A1 is not met for the past 6 months.

Causes of ADHD

ADHD is a neurobiologically based developmental disabilities, estimated to affect at least 3 to 5% of the school-age population. ADHD is more common in boys than in girls,

with the ratio being from 3 to 1 to as much as 5 to 1. No one knows exactly what causes ADHD. However, scientific evidence suggests genetic, neurochemical, and physiological factors contribute to the disorder.

While the exact cause of ADHD is unknown, what is known is that ADHD is not a behaviour disorder; it is not caused by "bad" parenting; it is not an indicator of low intelligence; and it is not a result of the child's lack of motivation or effort.

Diagnosing Attention Deficit Disorders

Since ADHD can affect children in so many ways, a comprehensive evaluation is necessary. This means that the person doing the evaluation should use multiple sources to collect the information needed. A thorough ADHD diagnostic evaluation includes the following elements:

1. A medical and family history
2. A physical examination
3. Interviews with the parents, the child, and the child's teacher(s)
4. Behaviour rating scales completed by parents/teachers
5. Observation of the child
6. Psychoeducational testing

Treating Attention Deficit Disorders

Treatment of the ADHD child usually requires a multimodal program involving a treatment team made up of parents, physicians, and behavioural or mental health professionals. With the right help most ADHD children overcome or learn to compensate for their disabilities. They can progress in school and strive toward reaching their potential. However, without the necessary help they are at risk. Many adults with ADHD are successfully employed as doctors, lawyers, teachers, actors, professional athletes, and so on.

Interventions may involve: 1) parent and teacher education; 2) educational planning/classroom accommodation; 3) behavioural management (including family counselling); and 4) medical management.

Medication has proven effective for many children and adults with ADHD. The decision to place a child on medication is a personal one and requires a thorough evaluation and careful consideration by both the parents and the physician.

Ritalin, a commonly used medication for ADHD, is a psychostimulant that has been prescribed for many years. Approximately 75-80% of children treated with stimulant

medications show improvements in the following areas: selective and sustained attention; impulse control; regulation of activity and arousal; social-emotional functioning; and academic productivity, accuracy, and organization.

Common side-effects of these medications include appetite loss, sleep difficulties, headaches, and stomachaches. The side effects can often be controlled through adjustments in the dosage. Research indicates that these medications do not have any significant effect on growth, on a long term basis.

Stimulants are also prescribed for adolescents and adults. Medications such as Imipramine, Desipramine, and Clonidine are also being used and other medications are currently being investigated.

The scientific and medical community has not endorsed megavitamins, chiropractic cranial manipulations, visual/ocular motor training, biofeedback, allergy treatments, or diets as useful treatments for ADHD. Consumers need to exercise caution when considering such treatments.

Reference: Synopsis of Psychiatry, 7th ed., edited by Kaplan, Saddock, & Grebb Diane Sherkin, M.S.W.

Adapted from an article from LDA of North York.

SOCIAL SKILLS DEVELOPMENT: Information for Parents and Teachers

Well developed social skills help us attract and keep friends, find and maintain employment...lead full and rewarding lives.

That's why a lack of social competence can be more debilitating to an individual than deficits in academic skills.

A lack of social perception is often an integral part of the dysfunction for many people who have learning disabilities - it is more than just a child's reaction to failures and frustrations experienced in school.

Many of the standard characteristics of learning disabilities are contributing elements to social skills deficits:

- individuals with visual/spatial deficits may not pick up important non-verbal cues from others, such as frustration or weariness, and this lack of understanding others' needs for sympathy, solitude, etc., means that they may not be very supportive as family members or friends;
- conceptual difficulties may result in habitual lateness, sloppiness and general disorganization - not endearing qualities to friends, teachers, parents or employers!

While one individual will exhibit strengths where others have weaknesses, the majority of individuals with learning disabilities will have problems in the area of social competence to some extent.

It is essential that attention be given to remediating social skills deficits before the self-esteem of a child is damaged and general adjustment negatively affected - and before he/she is expected to enter the world of adulthood and independence.

Many individuals with learning disabilities do not seem to learn appropriate social behaviours from observation and experience alone - social skills must be explicitly taught.

To insure that children develop the skills they need for successful integration, training will be effective only if it is a cooperative venture including parents, teachers, and peers. Social skills can't be learned in isolation.

All children, whether they have learning disabilities or not, will benefit from social skills training and it is, therefore, a necessary component of the curriculum at all grade levels.

An important factor in social skills training is the development of a healthy self-esteem. In order to have high self-esteem we must feel capable, significant, in control and worthy. In order to be successful, an individual must have confidence that he can be socially competent! Teachers, parents and peers can help in the development of self-esteem.

Some characteristics that may indicate a need for intervention in the way of social skills development:

- A lack of self-confidence;
- learned helplessness gives up easily; depends on others to solve his/her problems;
- impulsive does not consider consequences of actions; unreflective;
- very withdrawn or exceptionally boisterous has few friends;
- preservatives - may repeat the same questions and comments over and over, always returning to his/her favourite topic, and yet not see the effect this has on the listener;
- distractible cannot seem to focus attention; poor listener; often misunderstands and rules and directions in games;
- does not understand the impact of his/her behaviour does not accept consequences for his/her actions;
- has difficulty participating in a normal conversation frequently misses the point; interrupts often; lacks the ability to take the perspective of others;
- lacks a sense of humour takes expressions of sarcasm, irony and humour literally;
- has not learned age-appropriate independence skills;
- does not interpret non-verbal cues successfully facial expressions and body language indicating humour, exasperation or boredom, for example, may be totally overlooked;
- unsure/unaware of expected social rules e.g., tone of voice for speaking in a library or cinema; proper distance between people when speaking or sitting; when to touch, or shake hands with someone; who to share intimate information with;
- has a poor concept of the passage of time has not mastered age-appropriate sequencing concepts such as telling time or knowing the days of the week, months and seasons of the year, or holidays; seldom meets deadlines;
- disorganized behaviour lacks strategies to imagine probable outcomes of events, control impulses, or plan behaviour in advance.

Strategies for developing and/or strengthening social skills in children and young adults with learning disabilities

- take every opportunity to praise appropriate social behaviour

- model appropriate behaviours - talk out conflicts; respond to others' points of view; listen without interrupting;
- role play new and/or difficult behaviours and situations - introducing oneself; joining a conversation; ordering from a menu; being interviewed for a job; accepting, or asking for, a date; returning an item to a store, etc.;
- arrange family or group discussion times where feelings and opinions can be expressed; (although everyone has the right to remain silent) and respected (no "put downs");
- provide opportunities for making suggestions and decisions - what to study, what to do or where to go for a class outing or family vacation, what to grow in the garden, what chores to be responsible for, etc.;
- model self-praise and let children know they have permission to feel proud of and share their accomplishments;
- let students evaluate their own work and decide what they would like to have displayed;
- help children learn to interpret facial and body cues so that they can be aware of others' needs and concerns. Provide practice attending to perceptual cues by watching television or videos without sound, or looking at photographs, and ask questions such as, "What does her expression show us she is feeling?", "How can we tell this man is in a hurry?", "What type of social event is this?". Characters in movies can also demonstrate the different roles we play in life - child, parent, friend, consumer, neighbour etc.;
- acknowledge the intensity of children's emotions and even should a child be at fault in a situation, empathize and validate feelings of rejection and embarrassment - experiences can be analyzed to plan other options for behaving in case a similar situation arises;
- make social expectations clear by talking about appropriate behaviours for specific situations and/or occasions (a non-verbal cue, established before an event, can help keep behaviour on track);
- provide opportunities for peer interactions (and include individuals who do not have social skills deficits);
- help individuals learn to organize their environment - e.g. use calendars and checklists, establish routines, practice planning & completing events (an outing with a friend, a family dinner).

Reprinted from an information sheet by L.D.A. of Canada.

ADULTS WITH LEARNING DISABILITIES

Having specific learning disabilities is an inherent, life long condition that can affect friendships, school, work, self-esteem or daily life. Many adults with learning disabilities have graduated from high school, college, trade schools or university, becoming successful in business, the arts or in their chosen profession. But for many, success has not been easy. Even though they are intelligent, some adults are conditioned to believe that they are stupid, lazy and defeated, resulting in frustration, disappointment, low self-confidence and failure.

What are Learning Disabilities?

The term 'learning disabilities' refers to a disorder affecting individuals of potentially average to above average intelligence by interfering with the central nervous system and its ability to process information. Learning disabilities affect the way in which an individual takes in, remembers and understands information, as well as how an individual expresses that knowledge.

Some adults may experience problems in one or more of these general areas:

Memory	Reasoning	Coordination
Communication	Social Competence	

Common Signs and Characteristics

Adults with learning disabilities may excel in the following areas:

Imagination	Creativity
Motivation	Perseverance
Spoken language	Verbal information
Visual information	Mathematics

Or they may have difficulty in the following areas:

- Reading, writing, spelling, communicating and calculating
- Following written instructions
- Expressing ideas in writing
- Completing job application forms
- Finding or keeping a job
- Budgeting and managing money
- Managing time and activities
- A short attention span, restlessness or hyperactivity

- Carrying out simultaneous tasks
- Remembering and following the sequence of instructions
- Breaking tasks down into segments
- Following verbal instructions
- Understanding appropriate social behaviour
- Poor coordination and spatial disorientation
- Classification and organization of information
- Problem-solving strategies

How Many People Have Learning Disabilities?

You are not alone! Learning disabilities affect approximately 1 out of every 10 people. This is more than 2 million Canadians.

Is It Too Late?

Before 1980, very little was done to help adults with learning disabilities. What can you do? If solid coping skills and compensatory strategies are not developed, the learning disabilities may continue to interfere with work, education and social relations. By developing skills and taking advantage of new technologies adults with learning disabilities will be able to succeed. Remember, it is never too late to ask for help.

Using Successful Strategies

You can make a difference by taking control of your life and achieving your potential.

- Develop coping strategies
- Know and manage your specific learning disabilities
- Find other adults with learning disabilities for sharing strategies and information
- Be assessed by a professional trained in learning disabilities (e.g. educational psychologist, psychological associate)
- Get counselling
- Develop your self-esteem through your strengths
- Set goals based on your abilities
- Know and use technology to compensate for weaknesses
- Know your legal rights

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ADULTS WITH LEARNING DISABILITIES AND ASSESSMENT

A comprehensive assessment by a member of the College of Psychologists is required to diagnose a learning disabilities. This process should involve an interview and a series of different types of tests, which may take several hours and require more than one appointment. The assessment should consist of:

1. An initial interview
2. Tests of cognitive functioning and information processing
3. Tests of academic achievement levels
4. Social and emotional evaluations
5. Feedback interview

1. INITIAL INTERVIEW

An initial interview should cover a thorough review of:

- birth history and early development
- language and cultural background;
- medical history including vision, hearing, neurological status, illnesses, allergies, medications and current health conditions;
- family and social history to determine social, behavioural or emotional factors or any hereditary patterns;
- academic and work history;
- previous psychological evaluations and relevant medical tests.

This intake interview is crucial in providing the assessor with a thorough understanding of the background against which to interpret the results of the testing. The reasons that lead the individual to seek an assessment should be discussed, as well as current problems and challenges, and expectations of what the assessment will accomplish.

2. TESTS OF COGNITIVE FUNCTIONING AND INFORMATION PROCESSING:

Versions of the Wechsler Adult Intelligence Scale are widely used to assess cognitive functioning and determine levels of intellectual abilities. In addition, specific measures should be included in the test battery to assess: short and long term memory; receptive and expressive language; verbal and non-verbal abstract reasoning or logic; attention span; visual perceptual abilities including various spatial tasks; sequencing, right-left orientation and fine motor dexterity; and organizational and planning skills.

3. TESTS OF ACADEMIC ACHIEVEMENT LEVELS:

Basic skill areas of reading, spelling, written expression and mathematics should be evaluated. The

profile of reading subskills should be determined (e.g.: reading vocabulary, word recognition, comprehension of paragraphs, and phonemic awareness); math computation and problem-solving; mechanical and creative aspects of writing. With this detailed information, the assessor should outline an effective plan to remediate or compensate for the academic difficulties.

Study skills, organizational and workplace skills, as well as time management, are other areas that should be assessed along with the basic skills. Learning disabilities screening questionnaires may be used to assess the individual's perception of areas of ability and difficulty, life skills, specific academic problems, and workplace issues.

4. SOCIAL AND EMOTIONAL EVALUATIONS:

This part of the assessment consists of formal instruments to determine whether social/emotional problems occur concurrently with or are secondary to learning disabilities. Anxiety, depression, poor self-esteem and attention deficit disorder are important areas to examine.

5. FEEDBACK INTERVIEW AND WRITTEN REPORT:

Once the testing is completed, a feedback interview is carried out to convey the results, along with suggestions for remediation to improve weaknesses, or compensatory strategies and accommodations to cope more effectively with problem areas. Areas of strength should be discussed as well as weaknesses. A written report is provided either at the same time or sometime following the session. There should be opportunities for the client to ask questions in the feedback interview and after receiving the written report.

The report should provide a clear statement about whether or not there are learning disabilities; the types, extent and severity of the learning disabilities; an outline of strengths and weaknesses, guidelines for remediation and compensatory strategies; and recommended accommodations in academic or employment settings.

WHO DOES THE ASSESSMENT?

The psychological assessment should be carried out by, or under the supervision of, a registered psychologist or psychological associate who specializes in learning disabilities, and has experience with adults. In Ontario, communicating a diagnosis of learning disabilities is a controlled act under the Regulated Health Professions Act, restricted to members of the College of Physicians and Surgeons, and the College of Psychologists. Registered psychologists and registered psychological associates may diagnose learning disabilities.

COST OF ASSESSMENT

Psychologists are usually not covered under provincial health plans. Many insurance companies cover some portion of psychological testing and most require a letter of referral

from a physician to the psychologist or psychological associate, if covered. Some people may be covered by the extended benefits plan of their work health insurance plan. The cost of assessment typically ranges from \$1500 to \$2500. Many unemployed or underemployed adults cannot afford such fees. It is sometimes possible to gain access to an assessment through an institution (college, university or hospital) or government agency (ODSP, Worker's Compensation, HRDC) if an individual meets their requirements and is willing to wait. It is advisable to check cost and coverage before starting the assessment, and clients can ask about a sliding scale fee structure and/or payment over time.

BENEFITS OF AN ASSESSMENT

Many adults have grown up feeling inadequate, attributing their difficulties to a general lack of ability. Knowing that there is a specific reason for their difficulties can be a great relief. A better understanding of their strengths as well as their weaknesses can be an important first step towards building self-esteem and developing more effective coping strategies.

AFTER DIAGNOSIS, WHAT NEXT?

All information provided to the assessor is strictly confidential, and cannot be shared with third parties without the client's written permission. Whether or not to disclose to others is a very personal decision and some prefer to keep the information private, at least initially. However, many employers are willing to accommodate special needs in a supportive yet confidential manner, and an employee is entitled to reasonable accommodations under Human Rights legislation.

There are many excellent support programs for the student with learning disabilities in community colleges and universities, so it is useful for students to self-identify in order to access services and accommodations.

Many adults who are newly diagnosed with learning disabilities could benefit from counselling to help them understand their strengths and weaknesses. Career counselling and adult support groups may be helpful as well.

ADAPTED FROM A FACT SHEET PREPARED BY:

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CONTROVERSIAL TREATMENTS

How Are New Treatments Evaluated?

The road by which a particular treatment is shown to be effective can be long and arduous. The process begins with the formulation of a hypothesis, or idea. This hypothesis is usually based upon an existing body of knowledge (e.g. "Since stimulant medication helps ADHD children, it might also help ADHD adults").

The second step is the development of a protocol to evaluate the effectiveness of the proposed treatment. The treatment itself, and the way in which it will be implemented must be carefully defined (e.g. "X amount of medication will be provided to Y number of adults with histories of ADHD for Z period of time").

The researcher must also specify the way in which the effectiveness of the treatment will be evaluated. Care must be taken, for example, to be sure that the effects of the treatment are not due simply to placebo effect. Placebo, which is Latin for "I shall please," refers to the very well documented fact that people may respond to all sorts of ineffective treatments as long as they believe that the treatment has the power to help them. Placebo effects can be more dramatic than most people realize. In a classic example, a drug known to cause vomiting actually brought relief to people suffering from severe nausea and vomiting when they were told it would help them.

The researcher must also take care that all who participate - researchers and research subjects alike - are "blind" (unaware of) whether they receive the active treatment or the placebo treatment. Otherwise, the expectations of either party could influence the findings.

Appropriate measurement techniques and statistical tests must be built in, so that the entire scientific community can evaluate the findings. Finally, the results must be subjected to the scrutiny of this group. This means that the findings must be published in journals which accept articles for publication only after careful examination by other scientists who have expertise in the particular field.

As if this were not enough, findings are not considered substantive until additional studies have been conducted to reaffirm (or disconfirm) the findings. This process can take years but it allows us to make sound decisions about new treatments.

Alternative Treatments: Another Path

There is also a second path which some practitioners follow, sometimes in an effort to short-cut the longer, more accepted process. This path is fraught with many problems. On this path, proposed treatments stem from concepts which are outside of the mainstream of

existing knowledge. They may be instituted long before there is any research which supports their effectiveness - often after only brief, poorly designed trials involving a small number of people. Measurement techniques and statistical means of evaluation are scanty, at best, and often single-case studies are offered as "proof" of the effectiveness of the treatment.

This treatment approach is usually publicized in books or journals which do not require independent review of the material by recognized experts in the field. Often, in fact, the advocate of a particular treatment approach publishes the work. This fact should raise the warning for the consumer-parent. Additionally, although parent support groups have an essential role in the treatment of childhood disorder, in the case of a controversial treatment, parent support groups advocate one and only one treatment. These groups then play an important role in publicizing and promoting that treatment. Unfortunately, enthusiasm is not a substitute for careful scientific investigation.

These alternative interventions commonly claim effectiveness for a broad range of problems. When asked for proof to support these claims, however, proponents are unable to produce documentation. Proponents may also claim to have access to knowledge and information not shared by the medical community at large and, when their treatments are criticized, they may explain this as reflecting a conspiracy against them in the scientific community.

How Can A Parent Be A Wise Consumer?

If you are the parent of a child with ADHD and/or learning disabilities, you know how difficult your job can be. Of course, you want to obtain the very best treatment for your child. In a spirit of "How can it hurt to try it?" you might be tempted to throw caution to the wind when you hear about a new treatment that promises to help.

But promises are not enough. You also have the responsibility to invest your family's resources of time, money and energy wisely. This means that you must become an informed consumer.

In this paper, we have provided general guidelines for evaluating new treatments. Listed below are some additional tips to help you recognize treatments that are questionable.

- Overstatement and exaggerated claims are "red flags". Be suspicious of any product or treatment that is described as "astonishing," "miraculous," or "an amazing breakthrough". Legitimate health professionals do not use words like these, nor do they boast of their success in treating huge numbers of patients.
- Be suspicious, too, of any treatment that claims to treat a wide variety of ailments. Common sense tells us that the more grandiose the claim, the less likely it is that there is any real merit behind it.
- Do not rely on testimonials from people who say they have been helped by the product or the treatment. Enthusiasm is not substitute for evidence and legitimate health

professionals do not solicit testimonials from their patients.

- Be sceptical about claims that a treatment is being suppressed or unfairly attacked by the medical establishment. Legitimate health professionals eagerly welcome new knowledge and better methods of treatment for their patients. They have no reason to suppress or oppose promising new approaches.

Excerpts from an article by Sam Goldstein PhD & Dr. Barbara Ingersoll, C.H.A.D.D.E.R., Fall/Winter, 1992

www.lDAO.ca

LEARNING DISABILITIES INTERVENTIONS: Making Sense of The Evidence

Introduction

Effective individualized treatment is the prescription for any child diagnosed with a learning disabilities (LD). However, choosing the right treatment can be a daunting and confusing process. Controversies with respect to the efficacy of many LD interventions abound. How does an "intervention consumer" make sense of the vast array of treatments that are available? As with any potential purchase it is always wise to investigate before buying. To be an informed LD treatment consumer means evaluating the scientific validity of a treatment before accepting claims of efficacy.

The importance of being an informed LD intervention consumer

Frustrated parents of children with untreated LD are especially vulnerable to empty promises of miracle cures and treatment breakthroughs. Desperate for solutions, some may impulsively choose controversial untested treatments. Uninformed choices not only waste time, energy and possibly finances but can potentially subject already overburdened children to unnecessary frustration and failure. Although there will always be uncertainties associated with any treatment, carefully weighed choices will reduce the risk of wasted resources, disappointment and learning setbacks.

The efficacy of available LD treatments

Swanson points out that we are biased by the publication of only positive outcomes in intervention research (Swanson, 2000). This practice leads to the impression that all treatments work and are equally effective. Unfortunately the fact that an LD intervention is available to the public does not mean that it has been proven or even tested. As well, popularity and even widespread use are not valid indicators of efficacy. In the absence of any formal regulations monitoring the value of available LD treatments, even unsubstantiated treatments can be openly promoted and sold to the public.

Understanding claims of proof

Consumers should not be expected to intuitively grasp the notion of scientific proof. The requirements for the designation "evidence-based" are far more involved and stringent than is generally assumed. Further, the procedures and criteria of the scientific method, which forms the basis of proof, are simply not common knowledge. To recognize this is the first step toward learning to distinguish valid from unfounded LD treatments.

It is not surprising that false or misleading claims about LD treatments are regularly and successfully marketed to the general public. Those who make invalid allegations depend on consumers' lack of research expertise for their success. The less consumers understand about scientific validity, the easier it is to sell unsubstantiated treatments as proven interventions. Unless consumers make deliberate efforts to become informed they will be ill equipped to

judge the validity of LD interventions and have no basis with which to make sound treatment choices.

To legitimately promote a treatment as effective requires proof. If there is no mention of testing, research, or evidence, it is highly unlikely that the intervention in question has been subjected to any kind of scientific inquiry. Without research support, allegations of treatment validity remain unsubstantiated and should be viewed with caution and even skepticism. This is not to say that interventions without an evidence-base are necessarily ineffective. It simply means that claims of treatment efficacy should be reserved for interventions that have been subjected to proper scientific investigation. Unfortunately, this is often not the case with treatment promotions regularly being made in the absence of proof.

Beware of subjective reports

Testimonials, anecdotes and personal accounts although sometimes compelling do not constitute scientific evidence. Even if accurate, subjective reports are based on individual cases that do not generalize to other situations. Stories of treatment success are of value if they provide hope and direct consumers to investigate new interventions but they do not qualify as proof and should never be thought of as such.

How to determine if an intervention has research support

The terms "research", "evidence", "support" tend to be used loosely and sometimes haphazardly. In reality there is good research and bad research. More often than not research does not meet the standards of proper scientific investigation. Alleged evidence might be scientific or anecdotal, systematically determined or casually gathered. Even among valid research studies, only a small percentage provide decisive information about treatment efficacy.

The first step in evaluating any claim of research support is to locate the source of the alleged evidence. By whom, when, and how was the information obtained? If there truly is evidence supporting the effectiveness of an intervention, it should be made available to the consumer. More often than not, simply locating the source of the research (or finding that it does not exist) will be enough to determine whether or not claims of support are justified. If there is systematic research underlying a claim of proof, reference will be made to a particular study or studies. Research published in academic journals will be identified by a reference which lists the author(s), date, article title, journal title, volume, and page number of the research study. The publication of research in a peer reviewed journal is one indication of its quality and means that the research has been reviewed and scrutinized by a panel of experts in the field. While publication in a peer reviewed journal does not guarantee scientific rigor, an absence of peer reviewed research is a very good indication that any allegations of proof are false.

Not all research findings qualify as proof

Unfortunately, the majority of published intervention studies lack scientific rigor. In a comprehensive synthesis of 30 years of learning disabilities intervention research, Swanson

and colleagues examined evidence from 900 different LD intervention studies. Of these 900 studies, only 25% met the author's criteria for inclusion in the analysis. Further, of the 25% included in the synthesis, only 5% met the high standards of proper research methodology (Swanson, et al., 1999). The results of this review highlight the complexities of scientific research and the difficulties associated with establishing proof.

Clearly, treatments should not be regarded as valid simply because published studies have been cited. Second-hand accounts of research findings are only interpretations of actual results and are frequently biased, misleading or altogether incorrect. In the process of interpretation, results can be inadvertently or intentionally misrepresented. In order to determine the actual outcomes of an intervention study it is advisable to consult the original source of the cited research whenever possible.

The original research source, although more accurate and reliable than secondary interpretations, is often more difficult to understand. All experimental studies use some form of statistical analysis which can be incomprehensible to non-experts. Indeed researchers themselves spend years studying and learning about the statistical analysis of data. It is not recommended or at all necessary to become an expert in statistical analysis to understand claims of intervention efficacy. A review of the introduction and discussion sections of the research report will be sufficient to get a general sense of any significant findings and their interpretation by the authors. Because the research has been subjected to peer review, definitive claims of treatment efficacy will only be made if they are justified by the results.

The scientific method

Investigators use several kinds of research to further our understanding of LD interventions. Three common designs include descriptive analyses, large-scale field studies, and experimental designs. All of these approaches contribute to our understanding of LD interventions but not all can provide us with proof of treatment efficacy. Evidence for treatment validity can only be obtained through the use of experimental designs which follow the scientific method.

When intervention research adheres to the standards of the scientific method, valid claims of efficacy can be made with a minimum of bias. Using the scientific method, researchers first form a hypothesis or idea which is then formulated as a prediction (e.g. "treatment X will help children with LD learn to read"). An experiment is then designed to test this prediction. The nature of the treatment, how it will be implemented, and the means for evaluating treatment efficacy are all objectively defined and described in detail prior to conducting the intervention. Pre and post intervention measures are obtained with the use of objective measures.

The most credible intervention studies always control for alternative explanations of the research findings. A control group is composed of individuals who are similar to participants in the treatment group on most important measures such as age, type of disabilities, etc.

However, the control group does not receive the treatment. Without a comparison control group there would be no way of knowing whether the treatment or some other factor caused observed changes in behavior or performance.

Once an experiment has been conducted, statistical tests are carried out to determine if any treatment effects are scientifically meaningful or simply due to chance. If statistically significant results are found, the research must then be subjected to scrutiny by experts in the field before

being accepted for publication in peer reviewed academic journals. Finally, for a finding to be considered well established, the research must be confirmed through replication by independent researchers in the field.

Successful research does not equal successful implementation

Once a particular intervention is shown to be effective through properly controlled experimentation, the process of implementation can begin. Implementation involves transferring what has been established in a controlled research setting to the everyday environment. The conditions of carefully controlled experimentation can be quite different from real life circumstances. The very things that are controlled for during intervention studies form a critical part of real life and cannot be ignored during treatment implementation. Challenges associated with transferring research findings to the real world make the process of implementation perhaps as daunting as the process of proving treatment validity.

Conclusions

Obtaining scientific proof of LD treatment efficacy, replicating valid findings, and finally implementing proven interventions is an extremely lengthy, arduous and costly process. This fact coupled with the intense demand for effective LD treatments has led to the proliferation of a myriad of unsubstantiated LD interventions.

To be an informed LD intervention consumer means learning to distinguish evidence-based treatments from unsubstantiated claims of treatment efficacy. Fortunately, there are clearly defined steps that can be taken to verify any allegations of proof. The general recommendation for the LD intervention consumer is to proceed with caution, become informed, and scrutinize any claims of efficacy. An awareness of the complexities of intervention research will perhaps encourage LD consumers to have patience when making important decisions regarding LD treatments.

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