

LEARNING DISABILITIES:

a new definition



LEARNING DISABILITIES ASSOCIATION OF ONTARIO, 2001

LEARNING DISABILITIES: A NEW DEFINITION	1
OPERATIONALIZING THE NEW DEFINITION OF LEARNING DISABILITIES FOR UTILIZATION WITHIN ONTARIO'S EDUCATIONAL SYSTEM, LDAO, 2001	3
INTRODUCTION	3
SECTION 1 -	3
<i>What are learning disabilities?</i>	<i>3</i>
<i>Establishing a context.....</i>	<i>4</i>
<i>The ongoing debate about a discrepancy between intelligence and achievement</i>	<i>4</i>
<i>Learning disabilities versus reading disabilities.....</i>	<i>5</i>
<i>Learning disabilities in culturally and linguistically diverse populations.....</i>	<i>6</i>
<i>Psychometric issues</i>	<i>6</i>
<i>Discrepancy related to delay in service provision</i>	<i>7</i>
<i>Psychological processes listed in footnote (a)</i>	<i>7</i>
<i>Phonological processing</i>	<i>7</i>
<i>Memory and attention</i>	<i>8</i>
<i>Processing speed.....</i>	<i>8</i>
<i>Language processing.....</i>	<i>9</i>
<i>Perceptual-motor processing.....</i>	<i>9</i>
<i>Visual-spatial processing</i>	<i>9</i>
<i>Executive functions.....</i>	<i>10</i>
SECTION 2.....	10
<i>The impact of learning disabilities on skill acquisition and execution</i>	<i>10</i>
SECTION 3.....	11
<i>The lifelong impact of learning disabilities</i>	<i>11</i>
SECTION 4.....	12
<i>How learning disabilities relate to other conditions which affect learning.....</i>	<i>12</i>
<i>Congenital versus acquired causes of learning disabilities</i>	<i>12</i>
<i>Considering coexisting conditions or comorbidity.....</i>	<i>13</i>
SECTION 5.....	15
<i>What do people with learning disabilities need in order to be successful in school and in life?</i>	<i>15</i>
<i>Differentiating between diagnosis and identification</i>	<i>16</i>
<i>Learning Disability as an Identification at an IPRC.....</i>	<i>16</i>
<i>Learning Disability as a Diagnosis</i>	<i>17</i>
<i>Diagnosis Versus Identification of Learning Disabilities.....</i>	<i>18</i>
ENDNOTES.....	19
<i>Looking at the definition as a whole.....</i>	<i>19</i>
<i>References</i>	<i>20</i>

Learning Disabilities: a new definition

“Learning Disabilities” refers to a variety of disorders that affect the acquisition, retention, understanding, organization or use of verbal and/or non-verbal information. These disorders result from impairments in one or more psychological processes related to learning^a, in combination with otherwise average abilities essential for thinking and reasoning. Learning disabilities are specific not global impairments and as such are distinct from intellectual disabilities.

Learning disabilities range in severity and invariably interfere with the acquisition and use of one or more of the following important skills:

- oral language (e.g., listening, speaking, understanding)
- reading (e.g., decoding, comprehension)
- written language (e.g., spelling, written expression)
- mathematics (e.g., computation, problem solving)

Learning disabilities may also cause difficulties with organizational skills, social perception and social interaction.

The impairments are generally life-long. However, their effects may be expressed differently over time, depending on the match between the demands of the environment and the individual's characteristics. Some impairments may be noted during the pre-school years, while others may not become evident until much later. During the school years, learning disabilities are suggested by unexpectedly low academic achievement or achievement that is sustainable only by extremely high levels of effort and support.

Learning disabilities are due to genetic, other congenital and/or acquired neuro-biological factors. They are not caused by factors such as cultural or language differences, inadequate or inappropriate instruction, socio-economic status or lack of motivation, although any one of these and other factors may compound the impact of learning disabilities. Frequently learning disabilities co-exist with other conditions, including attentional, behavioural and emotional disorders, sensory impairments or other medical conditions.

For success, persons with learning disabilities require specialized interventions in home, school, community and workplace settings, appropriate to their individual strengths and needs, including:

- specific skill instruction;
- the development of compensatory strategies;
- the development of self-advocacy skills;
- appropriate accommodations.

^a The term “**psychological processes**” describes an evolving list of cognitive functions. To date, research has focused on functions such as:

- phonological processing;
- memory and attention;
- processing speed;
- language processing;
- perceptual-motor processing;
- visual-spatial processing;
- executive functions; (e.g., planning, monitoring and metacognitive abilities).

This definition is supported by a background document entitled Operationalizing the New Definition of Learning Disabilities for Utilization within Ontario’s Educational System, LDAO, 2001.

Operationalizing the New Definition of Learning Disabilities for Utilization within Ontario's Educational System, LDAO, 2001

Introduction

Although the term "*learning disabilities*" has been in use since 1962, there is no single universally accepted definition of the condition. Current descriptions and definitions of learning disabilities are found in the World Health Organization's disabilities document, in legislation and policy pertaining to education, disability issues, psychology, medicine and human rights. In addition, groups such as the Learning Disabilities Associations and the National Joint Committee on Learning Disabilities have put forward their own definitions. While these definitions contain some common features, they are not consistent nor are they written in language readily understood and applied by those who have learning disabilities, their families and those who work in the relevant helping professions. This lack of a consistent definition represents a major barrier for people who have learning disabilities.

To address this and other related issues, LDAO's **Promoting Early Intervention for Learning Disabilities (PEI)** Project was established in 1999. The first deliverable for the project was a new definition of learning disabilities, meeting the following minimal criteria:

- the definition must be scientifically sound,
- based on and supported by current research findings,
- easily understood and utilized by all those who need to understand and use it,
- practical,
- and inclusive of the varying types of learning disabilities.

The new definition was developed by the Definition Working Group, a group of individuals representing all the relevant fields. The definition has been approved by the Steering Committee of the Promoting Early Intervention Project and subsequently endorsed by the LDAO Board of Directors. This supporting document has been developed to assist all those who utilize the definition of learning disabilities to understand the definition and its application and the underlying principles.

Section 1 –

What are learning disabilities?

There are many different neuropsychological or neurobiological impairments or difficulties, which are collectively described as "learning disabilities". Learning disabilities are not a single or uniform condition and they do not affect solely one particular type of skill or area of learning. Other definitions have often used the term "*heterogeneous*" to describe this range. This definition uses "*variety of disorders*" instead, a more accessible term. Furthermore, it is important to note the diversity of the impact of learning disabilities. They range from mild to moderate to severe and an individual can have a number of different types of difficulties in different areas and at different levels of severity or complexity.

Establishing a context

The use of the term *disorder* indicates that the manifestations of learning disabilities are outside the normal range or continuum of human function, in terms of an individual's ability to process information and communicate. The word disorder is usually used to describe a "lack or loss of normal function". It is a term that appears in many psychological, psychiatric and other medical documents and manuals, including the DSM-IV. The level of observed diversity is often described as *clinically significant*.

The World Health Organization has, in the past, used a three-tier hierarchy of terms to describe the variations in human function, as related to disability issues. These were impairment, disability and handicap.

Impairment was defined as "loss or abnormality of psychological, physiological or anatomical structure or function". This made an impairment "intrinsic to the individual" (a phrase that appears in a number of other definitions of learning disabilities). An impairment is either functional or medical in nature and a learning disability is usually considered to be a neurological impairment.

An impairment became a *disability*, when the individual with an impairment was expected to carry out regular or routine tasks that relied on the use of skills or knowledge in the area(s), affected by the impairment.

The third level in this hierarchy was the term "*handicap*", which described the impact of the disability, when there were no accommodations or supports offered to the individual concerned. Most jurisdictions have eliminated the term "handicap" from legislation and regular use. However, this term still appears in the Ontario Human Rights Code and therefore it cannot be eliminated from usage until such time that the Human Rights Code is amended.

In December 2000, the World Health Organization released its new disability-related document, the *International Classification of Functioning, Disability and Health*. In addition to eliminating all references to handicap, this document also stressed the importance of matching the individual's strengths and needs to the demands of his or her environment. The LDAO definition also includes this important concept. (See section 3 of the definition)

People with learning disabilities usually have difficulties acquiring, retaining, processing, understanding, organizing and using information in all of its diverse forms. Within the educational system in the Province of Ontario, learning disabilities are included among "communication exceptionalities". In lay terms, they are often described as problems with information processing, especially verbal and non-verbal, symbolic and concrete information.

The ongoing debate about a discrepancy between intelligence and achievement

When the term learning disabilities came into use in 1962, Dr. Samuel Kirk introduced the concept of *psychological processing disorders*, which he said interfered with academic achievement. This was accompanied by an exclusion concept, that learning disabilities could not primarily be due to some other condition, including developmental disabilities (mental retardation). In 1965, Dr. B. Bateman expanded these concepts by emphasizing the importance of *underachievement* and a *discrepancy* between estimated potential and actual performance as key requirements for the identification of a learning disability.

Since the nineteen sixties most definitions of learning disabilities have included references to these key concepts of average intelligence and a measurable ability-achievement discrepancy.

This new definition does not restrict itself to the concept of a discrepancy between a global I.Q. calculation and achievement. However, the new definition does propose that learning disabilities are demonstrated by:

- impairments in one or more psychological processes related to learning, in combination with **otherwise average abilities essential for thinking and reasoning**, as well as
- **unexpectedly low academic achievement**, or
- **average or above-average achievement**, attained only at the expense of **unrealistically high levels of effort** and/or educational **support**.

Discrepancy factors have enabled diagnosticians to document the learning problems of people whose performances on measures of academic achievement or measures of specific processing skills are out of line with their level of measured intelligence. While a discrepancy may be observed at all levels of intellectual functioning, learning disabilities have been generally linked to average to above average intelligence. Applying a discrepancy formula enabled psychologists to deal with the inherent unreliability of many measures of ability by applying statistical procedures that take these sources of unreliability into account. As a result, psychologists are able to arrive at a more accurate differential diagnosis.

For people with learning disabilities and their families it has been particularly important to differentiate between intellectual or developmental disabilities and learning disabilities. Furthermore, this distinction has been crucial in ensuring that educational programs are accurately linked to the different needs of the two diverse populations. Nevertheless, the new definition does not contain any specific recommended criteria for intelligence testing or for the determination of a discrepancy. Any such recommendations will be found in the screening and assessment protocol that has been developed to support this definition the more appropriate location for diagnostic directions.

Recently, several researchers have begun to oppose the use of the discrepancy formula for the diagnosis of learning disabilities. Various reasons for this are explored below.

Learning disabilities versus reading disabilities

A great deal of recent research has focused specifically and exclusively on reading disabilities. Reading disabilities are now believed to be predominantly the result of phonological processing deficits.

Some researchers have observed that phonological processing deficits (problems with awareness and understanding of the underlying sound structure of spoken words) are not directly linked to intelligence. In other words, severe phonological processing problems have been observed in some poor readers at all ages, independent of their level of measured intelligence. In contrast, some children with very limited measured IQs have been found to be able to rapidly and accurately decode unfamiliar printed words (albeit with limited comprehension) at a level considerably in advance of their age or grade. Based on such findings, these researchers have questioned the contribution of any measure of intellectual functioning towards the diagnosis of individuals with reading disabilities and have argued for the abandonment of the use of any discrepancy formula as a diagnostic criterion.

The Definition Working Group endorsed the importance of recognizing phonological processing as one of the key factors in an individual's ability to learn to read. However, it also recognized that reading consists of more than just decoding and learning consists of more than just reading. Therefore, in its work to develop a new definition of learning disabilities, the Working Group was not prepared to apply research findings related primarily to reading disabilities to the whole field of learning disabilities. In fact, it strongly supports the importance of recognizing that the term "specific learning disabilities" includes both academic and non-academic areas of difficulty.

Learning disabilities in culturally and linguistically diverse populations

Recently, some researchers have opposed the use of any discrepancy formulae because they have specific concerns about cultural bias within all forms of formalized intelligence testing, especially for students who are recent immigrants or whose cultural or linguistic diversity invalidates the use of many standardized tests.

The Working Group supported the concerns expressed about the inappropriate use of tests of intellectual ability (or other skills) with students whose backgrounds differ significantly from children included in the tests' normative samples. However, this legitimate concern about a specific group of students should not lead to the elimination of an important diagnostic criterion for a significantly large group of students for whom potential cultural or language bias is not an issue.

Psychometric issues

Another problem associated with the use of discrepancy formulae involves problems with the psychometric properties of the tests used, as well as influences from statistical phenomena such as regression to the mean. The use of tests that measure ability and achievement based upon different normative samples greatly complicates the degree to which scores from these tests can be meaningfully compared. In addition, due to their imprecision, the use of age-equivalents and grade-equivalents as a basis for comparison between tests is indefensible and contributes to serious under- as well as over-estimation of students with learning problems.

The best practice would be to compare **standard scores** from co-normed tests of ability and achievement (i.e., tests based upon the same normative sample), using proper statistical procedures and tables for comparing the degree of discrepancy and the frequency of such a discrepancy among the normative sample.

Some of these psychometric issues are especially problematic in the assessment of students who are outside the traditional "average ability range" as far as standardized scores are concerned. It is generally accepted that the diagnosis of learning disabilities calls for greater diagnostic and clinical judgement when the student's full scale measured I.Q. is more than one standard deviation from the mean, i.e., is below 85 (16th percentile) and above 115 (84th percentile). The members of the Working Group contend that a good assessment, based on information collected from a variety of test and non-test sources and augmented by clinical judgement will focus on identifying the primary causes of the difficulties and the most appropriate forms of intervention. A key requirement is to ensure that in the diagnosticians' judgement, the manifestations of academic and other difficulties are related to the observed psychological processing deficits and that neither can be more accurately ascribed to another condition.

Discrepancy related to delay in service provision

Recently, any use of the discrepancy formula has been opposed by those who think it will result in lengthy delays before students are deemed eligible for assessment, identification and access to special education programming. This has sometimes been described as “waiting to fail”, resulting from an inappropriate application of the concept of discrepancy.

School systems often focus on grade or age equivalents rather than measured ability and performance. The problem occurs when an ability-achievement discrepancy is rigidly and arbitrarily set using grade levels. For example, demanding that in order to be deemed eligible for assessment for learning disabilities and special education help, a student must be academically at least two or more years behind his or her age-appropriate peers. As a result of this misguided approach, students often cannot receive help, however obvious their needs might be, until they are in at least grade 3 and at the same time are functioning at a kindergarten level or below in areas such as reading, writing or math. Instead, educational policies should recognize the value of non-categorical screening and the availability of early intervention, without having to make a formal diagnosis in the early primary grades. Policies based on this understanding will assist professionals in developing informed diagnoses later based upon the student’s response to early intervention and the demonstrated capacity to learn with appropriate accommodations.

In other cases, where the student is receiving significant help at home or has above average ability, he or she may not reach the school’s discrepancy threshold for special education until about grade 6 or later. In such cases the student is often really struggling and may end up failing or repeating a grade before being referred for help, making intervention more difficult and less effective. While it is never too late to offer appropriate special education help to a student with learning disabilities, early identification and intervention are particularly important.

Psychological processes listed in footnote (a)

The psychological processes cited in footnote (a) reflect recent advances in research. These are processes that have been well researched and they are the ones with which practitioners in the field are reasonably familiar. However, this is not offered as an exhaustive list and in time there will likely be other psychological processes added to it.

Phonological processing

The term *phonological processing* refers to the use of speech-sound information in processing both written and oral language.

Phonological processing may include:

(a) *phonological awareness*, which is an explicit knowledge of the individual sounds (phonemes or allophones) that make up spoken language, measured by the ability to identify or manipulate the constituent sounds in words;

(b) *phonological coding* of information in short term involves the retention and manipulation of information in verbal form, measured by the recall of numbers, words and sentences and based on the representation of information about the sound structure of verbal stimuli in memory;

(c) *phonological recoding*, which is the ability to retrieve from long term memory phonological codes or sounds (pronunciations), associated with letters, word segments and

whole words as well as the translation of verbal information into a sound-based system for temporary storage in working memory for processes such as decoding unfamiliar words in fluent reading or during the beginning reading processes of blending and segmenting.

Difficulties with any of these phonological processes result in problems with reading and writing. (N.B. The above definitions may be found in S. B. Smith, D.C. Simmons & E.J. Kameenui, *Synthesis of research on phonological awareness: principles and implications for reading acquisition*. National Center to Improve the Tools of Educators: <http://idea.uoregon.edu/~ncite/documents/techrep/tech21.html>)

Memory and attention

Short-term memory: is the passive storage of a small amount of information (i.e., about 5 to 10 items) for a limited amount of time, usually no more than about 15 seconds. The information is quickly lost if it is not rehearsed or organized in some way.

Working memory: is the ability to hold information in short term memory while actively performing other mental operations which use this information (e.g., solving mental arithmetic problems).

Long-term memory: is the permanent storage of a seemingly infinite amount of information including knowledge of procedures, experiences and factual information. Long-term storage requires the activation of multiple cognitive abilities such as perception, thought, language, prior memories and, in particular, the use of strategies to process and organize the information meaningfully.

Retrieval: involves the use of cognitive strategies to efficiently and quickly access information stored in memory.

Attention: refers to the ability to selectively focus on some activities while ignoring others, to sustain concentration, to resist distraction and to shift attention among tasks. Attention is a complex and non-unitary activity. Attention may be passive (reflexive, non-voluntary and effortless) or active and voluntary. It is a necessary but not sufficient condition for any kind of learning activity.

Processing speed

Processing speed is the ability to perform simple cognitive or perceptual tasks rapidly and efficiently. Tests of processing speed typically require the individual to quickly carry out a sequence of simple mental operations (e.g., scanning visual items and marking those which are identical or which are different) with the stimuli being presented sequentially or randomly in either a visual or auditory mode.

Rapid automatized naming (also referred to a *speed of lexical access*) is a particular way in which processing speed may be measured. Recent research literature on the development of basic reading skills suggests that deficits in this skill may contribute to reading difficulties in some individuals. The nature of this type of disorder is not understood. Some researchers argue that slower performance on naming tasks (e.g., rapidly naming pictures, letters, numbers, etc.) reflects impaired phonological processing. Others claim that such a rapid naming problem is a separate deficit from phonological processing. Individuals who have both

phonological processing and rapid naming deficits appear to be the most severely impaired readers.

Language processing

Receptive language processing refers to an individual's understanding of oral and written language. A student with difficulties in this area may have trouble understanding meaning conveyed by vocabulary (including multiple meanings and figurative language), word structure (such as suffixes and prefixes), sentence structure (syntax/grammar) and meaning conveyed across sentences (such as in stories or a conversation).

Expressive language processing refers to a student's ability to express ideas in oral and written language. This may include difficulties with recalling and using vocabulary, word structure, sentence structure and the conveyance of ideas across sentences.

Receptive and expressive language processing primarily relate to the *semantics* of the language. People with learning disabilities may also have difficulties with the *pragmatics* of language, which involves communicating in practical ways, using both verbal and non-verbal channels. A student who has problems with pragmatics may have trouble understanding social contexts (such as an informal meeting with friends versus a formal meeting) and social cues (such as body language) influence meaning or in modifying language to suit the specific social context and/or using non-verbal communication cues, such as body language and how they influence the meaning of any communication.

Perceptual-motor processing

Perceptual-motor processing refers to an individual's ability to use sensory feedback to guide physical movements, i.e., linking perceptual input to motor output. This type of functioning involves reasoning and judgement as it relates to the processing and elaboration of complex perceptual or sensory inputs. Perceptual-motor processing relies on the integration of the senses (vision, hearing and touch) with co-ordination of the eyes, hands and both sides of the body. Problems may arise when the child's perceptual systems are immature (for example, resulting in a faulty visual interpretation of a design or faulty auditory processing of directions given), when motor skills are impaired (for example, resulting in difficulties in having the hand copy what the visual system recognizes), or when required information from the sensory perception system is unavailable to the motor system. Effective perceptual-motor processing calls for short term memory storage of the original sensory stimulus. This allows time for recognition of the stimulus, processing it e.g., organizing or integrating it and making the appropriate motor response.

Visual-spatial processing

Visual-spatial processing refers to an individual's ability to organize visual information into meaningful patterns. This broad ability also includes such sub-processes as the perception of spatial orientation as well as the ability to analyse, interpret and make sense of visual stimuli.

These skills represented some of the earliest developmental functions studied in relation to learning disorders in childhood. For some time, it was believed that reading disabilities were due exclusively to problems with visual-spatial processing. While subsequent research into phonological processing and its relationship to the development of reading skills has modified this belief, visual-spatial processing remains an important developmental area for many essential skills, including school -based skills.

The following components are considered key visual-spatial skills:

- **figure-ground discrimination**, which is the ability to differentially attend to a specific aspect of a visual stimulus (*the figure*), by separating it from the rest of the visual field (*the ground*);
- **perception of constancy**, which is the ability to recognize that objects have invariant properties even though their perceptual representation changes in response to how and where they are seen;
- **perception** of the position of an object in space and its **spatial relationships** with other objects or visual stimuli.

Executive functions

Executive functions is a term used to describe specific proactive mental (frontal lobe) control processes, the use of higher level cognitive functions or strategies, that reflect an “anticipatory, goal-oriented preparedness to act” in various cognitive processing, problem-solving and social situations. (Denckla 1994)

The key functions usually included under the heading of *executive functions* include **planning, monitoring, regulation, organization** and **metacognition**.

Planning is defined as “a dynamic, transactional process involving the conscious or deliberate specification of a sequence of actions, aimed at achieving some problem goal”. (Herbert, 1994)

Monitoring is described as observing and evaluating one’s own performance in problem-solving situations that require goal-oriented intentions and the application of strategies in relation to achieving a desired outcome.

Regulation (or self-regulation) is defined as having three distinct components:

- motivation (setting goals and expectations),
- cognition (perception, including the observation and evaluation of the application of strategies and skills)
- and affective skills (the use of active feedback to modify one’s performance to achieve a desired outcome). (Mithaug, 1993)

Organization is usually described as the development and implementation of reasoned and logical plans of action that anticipate the consequences of alternative solutions.

Metacognition refers to an awareness and understanding of skills and strategies, including what one knows, how one learns, how one applies knowledge and understanding to the learning process, including the application of coping and learning strategies and the patterns of utilizing prior successes and failures. Flavell et al. (1993) defined metacognition as “cognition about cognition”, while Torgesen (1994) recommends the inclusion of motor functions under this heading thereby covering both metacognitive knowledge and metacognitive behaviour.

Section 2

The impact of learning disabilities on skill acquisition and execution

Learning disabilities are often first noted when a child enters school and is expected to learn to perform specific academic skills at an age appropriate level.

However, it is important to recognize that, in addition to difficulties with school-based skills, learning disabilities may impact work and life skills. There has been significant debate in the learning disabilities literature concerning the relationship between deficits responsible for academic difficulties and those which contribute to social perception and social interaction skill deficits, problems with self-esteem and difficulties in certain non-academic intelligence areas, such as kinesthetic or emotional intelligence. The evidence suggests that social skill problems can be the result of processing deficits which occur in learning disabilities, especially non-verbal learning disabilities. The new definition refers to problems in non-academic areas to reinforce their importance in the lives of people with learning disabilities. However, social skill deficits should not be viewed as specific learning disabilities, unless they are accompanied by one or more of the other more traditionally recognized information processing deficit areas.

Section 3

The lifelong impact of learning disabilities

While it is not usual to diagnose learning disabilities during the pre-school years, some impairments may be noted during that period - for example, language processing difficulties or the failure to meet certain developmental milestones. Prior to school entry, it is often reported by parents, that their children demonstrated uneven or delayed development in the acquisition of basic skills. These may include early language skills (e.g. listening and oral language), motor skills that are initially noted as difficulties with laterality - using pencils or crayons or learning to tie shoelaces, but may later affect writing or printing, as well as more traditional academic readiness skills (e.g. pre-reading skills such as rhyming, or sound-symbol recognition). Parents often describe these difficulties as “**unexpected**” and not in keeping with their children’s level of general development which appeared average or above in other areas, such as problem-solving or intellectual functioning.

The work of the Screening and Assessment Working Group, in developing the screening and assessment protocol will elaborate on these observable factors. However, it is important to note that there is ongoing debate about the validity and reliability of psychometric testing, when a child is less than seven years of age. At such a young age, non-categorical screening and intervention may be more appropriate than the use of psychometric tests.

During the early primary grades, these same types of unexpected difficulties have often been noted through classroom observation and screening programs offered by the school system. For example, the development of phonological processing skills, usually acquired by the age of 6 or 7 by most children, may be delayed or compromised for some students with learning disabilities. Other children with learning disabilities may have difficulty acquiring basic writing and math skills. This is not due to poor teaching or lack of instruction, nor is it due to lack of effort on the part of the student. In fact, many parents report spending an inordinate amount of time with their child, completing homework assignments or providing tutors in an effort to remediate or reinforce basic academic skills to have their children achieve. Teachers, while not necessarily aware of the time and effort expended by students and/or their parents in order to enhance school achievement, often comment on the difference they observe between some students’ skills in structured academic tasks and their apparent cognitive development.

These problems persist beyond elementary and secondary school into post-secondary and even into the workplace. As a result, individuals with learning disabilities will require ongoing accommodations, supports and services in order to be successful.

Since learning disabilities relate directly to the way that the human brain processes information, the condition does not disappear over time. However, its manifestations will change both in expression (the type of observable difficulties that the learning disability produces) and severity at different life stages, as both the individual and the environmental demands change. In order for adults with learning disabilities to overcome barriers, it is crucial to create a positive match between the demands of the learning, working and living environment and the individual's strengths and needs. Adults with specific learning disabilities can learn to identify such a positive match and to advocate for the accommodations that will ensure their potential future success.

Often, services available to students within the educational system change as the students enter secondary school and a streamed academic setting. The identification and the accompanying services are often discontinued, frequently to the detriment of the student. Many such students are led to believe that they no longer have learning disabilities. This can have a significant detrimental impact on their future post-secondary education and employment prospects since the challenges of living with a learning disability will persist.

Section 4

How learning disabilities relate to other conditions which affect learning

It is very important to differentiate specific learning disabilities from more global intellectual or developmental disabilities. The primary purpose of such differentiation is to ensure that individuals are provided with services, supports and accommodations that are appropriate for them and that meet their specific needs. Mild to moderate intellectual disabilities are sometimes designated "general learning disabilities" within the educational system, which results in confusion and the delivery of inappropriate special education services. This is misleading and should not be done. In some jurisdictions, especially those countries whose educational system is linked to or modelled on the British system, the term "learning disabilities" is used to describe individuals with below average intelligence. At the same time, "dyslexia" is often the sole learning disability recognized for educational purposes. As a result, good readers are sometimes called dyslexic in spite of the fact that they have some other specific learning disabilities.

In developing this definition, it was decided to limit the use of related terms and not to include any of the terminology that is sometimes used to describe learning disabilities, such as dyslexia, dysgraphia, dyscalculia, etc.

It is useful to consider both intrinsic and extrinsic factors that are involved in the development of learning disabilities and about other conditions which may co-exist with learning disabilities. If these factors are fully understood and utilized in developing and delivering programs, services and supports to persons with learning disabilities, then many of the potential problems and barriers faced by this population may be reduced or even eliminated.

Congenital versus acquired causes of learning disabilities

It is obvious that anything which affects the brain will affect learning. It is now well substantiated that factors within the brain itself, genetic influences as well as in the environment can have an impact on learning and consequently on learning disabilities. In the area of reading disabilities, for example, careful research has estimated that about half of the individual differences in these conditions are related to genetic factors.

Other studies have emphasized that learning disabilities can be due to the effects of a number of different genes, acting in combination with environmental influences. In other words, there is

no single gene that can be identified as responsible for all of the variation in learning strengths and deficits observed in individuals with learning disabilities. In fact, a number of different chromosomal disorders (for instance, Fragile X and XYY syndrome in boys and Turner's syndrome in girls) can be expressed in forms which include learning disabilities.

Environmental factors which contribute to learning disabilities are also broad. These can roughly be divided into factors that influence the development and integrity of the brain during pregnancy, during the birth process, and after birth. During pregnancy, it is well established that both prescription and non-prescription drugs (especially alcohol and nicotine) can contribute to disorders which may include learning disabilities. Fetal Alcohol Syndrome and Fetal Alcohol Effects are the best known syndromes in this group. Infections of the mother during pregnancy (such as rubella or measles) can also negatively affect the fetal brain, leading to different types of learning difficulties, depending on the nature of the infection and the gestational period during which it occurs.

Traumatic conditions during the birth process, particularly those resulting in lack of oxygen during birth (e.g., cerebral palsy resulting from anoxia), can cause brain damage and result in learning disabilities. At birth, both low birth weight (which is significantly more common for women who smoke during pregnancy) and prematurity (especially in combination with Respiratory Distress Syndrome) are associated with a variety of negative outcomes, including learning disabilities. Following birth, any source of acquired brain injury may result in a range of effects, including learning disabilities. These include traumatic events ("shaken baby syndrome", falls, accidents), exposure to toxic chemicals (e.g., to heavy metals such as mercury or lead from contaminated soil or through solvent inhalation or "gas sniffing"), hypoxia (loss of oxygen to the brain as a result of suffocation or choking), infections (especially meningitis and encephalitis) and inflammation of the brain (e.g., Reyes Syndrome).

As reported in the McCain & Mustard *Early Years Study*, 1999, both physical and emotional abuse and neglect during the early years of development have also been found to be associated with later learning problems and learning disabilities. There is also some evidence that recurrent middle ear infections (which are known to be aggravated by second-hand smoke) may contribute to language processing difficulties, depending on the age when they occur.

In older individuals, strokes and tumours may also result in learning disabilities. It has also been noted that post-traumatic stress syndrome, often observed in individuals who have had traumatic experiences such as being held in a prison or concentration camp for a long time or who were the victims of torture, also gives rise to symptoms which are similar to or actually are acquired learning disabilities. Sometimes it may not be possible to determine whether the observed difficulties, such as memory loss, inability to concentrate, poor motor co-ordination, etc., are actually acquired learning disabilities or not. However, the same interventions that assist those who have learning disabilities will often prove beneficial to these individuals.

It should also be noted that all of these conditions described above can lead to global impairments in some individuals, and to learning disabilities in others, depending upon a variety of factors.

Considering coexisting conditions or comorbidity

Comorbidity is described as a situation where two or more conditions that are diagnostically distinguishable from one another tend to occur together. The exact nature of the relationship between comorbid conditions is a matter of some debate in the research literature (Martini,

Heath & Missiuna, 1999; Clarkin & Kendall, 1992; Goff, 1992). It is particularly difficult to determine whether one condition is in fact a symptom of the other - causality versus correlation. These important debates aside, research provides support for a number of conditions co-occurring with learning disabilities more often than expected "just by chance".

The largest body of studies supports a comorbid relationship between learning disabilities and attention deficit disorder (with or without hyperactivity). This extensive research, featuring comorbidity estimates as high as 70%, was summarized recently by Riccio, Gonzalez & Hynd (1994) and Maynard, Tyler & Arnold (1999).

In fact, learning disabilities are sometimes confused with Attention Deficit Hyperactivity Disorder (ADHD). It is important to note that these are **two distinct conditions**, in spite of the significant level of co-morbidity. ADHD is **not** a specific learning disability. The distinguishing characteristics of students with ADHD include being more easily distracted, failing to finish assignments, weaker persistence of effort, day dreaming, looking away more often from activities they are requested to do and demonstrating less persistence of effort when completing boring activities (Barkley, Dupaul & McMurray, 1990). As well, children with ADHD have been distinguished from those with LD based on their higher levels of activity and impulsiveness. As mentioned above, a very large percentage of those who have ADHD also have accompanying learning disabilities, while approximately 30% of those who have learning disabilities also have ADHD. Nevertheless, the interventions that benefit people with ADHD and those who have learning disabilities are not the same. Therefore, it is important to diagnose these conditions accurately, before developing an Individual Education Plan for the student.

Confusion sometimes also arises for students who have learning problems arising from an **acquired brain injury**. While several symptoms of this condition also occur in children with learning disabilities, acquired brain injury is sometimes treated as distinct from learning disabilities. It is important to note that neither ADHD nor acquired brain injury are identified as specific exceptionalities within the Ontario educational system. As a result, many students with these conditions are included under the learning disability designation for the purposes of special education service delivery.

A group of disorders also found frequently to be comorbid with learning disabilities is that involving social, emotional, and/or behavioural difficulties (Kamphaus, Frick & Lahey, 1991; Glassberg, Hooper & Mattison, 1999). Studies suggest that anywhere from 24% to 52% of students with learning disabilities have some form of such a disorder (Rock, Fessler & Church, 1997). This group encompasses diagnoses such as conduct disorder and oppositional/defiant disorder (DeLong, 1995; Shaywitz & Shaywitz, 1991), as well as social adjustment disorder (Lyon, 1996).

Research also suggests that depressive or dysthymic disorders co-occur with learning disabilities (San Miguel, Forness & Kavale, 1996) although the nature of the relationship continues to be controversial (Wiener, 1998).

Research provides significant evidence supporting the co-morbidity of the following disorders with learning disabilities:

- Tourette's Syndrome (Burd, Kauffman & Kerbeshian, 1992; Shady, Rulton & Champion, 1988; Chase, Friedhoff & Cohen, 1992; Walter & Carter, 1997).
- Schizophrenia (James, Mukherjee & Smith, 1996; Gillian, Johnstone, Sanderson, Cunningham & Muir, 1998);

- Epilepsy (Kerr & Espie, 1997; Espie, Kerr, Paul, O'Brien, Betts, Clark, Jacoby, & Baker, 1997; Laidlaw, Richens & Chadwick, 1993);
- Language/communication disorders (Riccio & Hynd, 1993; Schoenbrodt, Kumin & Sloan, 1997);
- Hearing impairment (Bunch & Melnyk, 1989);
- Visual disabilities (low vision, blindness) (Erin & Koenig, 1997); and
- Developmental co-ordination disorder (Missiuna, 1996; Fletcher-Finn, Elmes, & Strugnell, 1997; Martin, Heath & Missiuna, 1999);

Section 5

What do people with learning disabilities need in order to be successful in school and in life?

This is an important part of LDAO's new definition of learning disabilities and it differentiates it from many others. Most do not include references to treatment and management issues, such as how individuals persons with learning disabilities may be helped to cope with and compensate for the impacts of their condition.

Research indicates that all of the following four components need to be an integral part of the services and supports that are available to people with learning disabilities, in order to help them achieve their goals and overcome any barriers resulting from the condition.

"Specific skill instruction" describes appropriate teaching and training that is built on an individual's identified strengths. It focuses on the development of compensatory strategies in those weaker skill areas where the learning disability interferes with the learning process. Specific skill instruction must be individualized. The teaching/ training process must be adjusted to match the individual's learning style, rather than assuming that the individual will eventually learn, no matter what the teaching process is, provided that "he/she tries harder". Traditional remedial techniques of teaching, testing and re-teaching in essentially the same way frequently do not work for students with learning disabilities. Examples of specific skill instruction include differentiated teaching strategies, for example, reducing the number of tasks without reducing the standard or expected quality; allowing for an extended learning period to achieve mastery; reteaching a particular skill in a substantially different way than that used to instruct the rest of the class; and emphasizing the importance of acquiring learning and compensatory strategies.

"Compensatory strategies" are ways in which individuals who have learning disabilities can apply coping skills to help themselves overcome the impacts of their learning disabilities, without necessarily having to rely on the assistance of other people or draw particular attention to their needs. Examples of successful compensatory strategies include using colour-coding, applying visual cues such as highlighting, drawing arrows, using a notepad or a handheld tape recorder to ensure that directions are not forgotten, learning a format for approaching certain complex tasks, etc.

"Self-advocacy training" is an essential part of enabling and empowering people with learning disabilities to identify and ask for the accommodations that they need in order to achieve their potential. Successful self-advocacy relies on self-awareness and a thorough understanding of personal strengths and difficulties.

Accommodations are defined as alterations and changes in the way individuals with disabilities are enabled to function to demonstrate and apply their skills and knowledge. Accommodations are aimed at eliminating or ameliorating a disadvantage without altering the validity of the work in doing so. Examples of successful accommodations may include using adaptive technology, getting assistance from another person such as a note taker or scribe or having extra time to carry out certain tasks. It is particularly important that any identified and recommended accommodations are directly linked to the strengths and needs of the person with a learning disability. The obligation to provide accommodations is mandated in the Canadian Charter of Rights and Freedoms and the Ontario Human Rights Code. This obligation applies throughout the individual's life span.

During the consultation process, it was suggested many times that the term "*modification*" should also be included in this section of the new definition, as a requirement for students with learning disabilities. The Definition Working Group declined to include this recommendation.

Modifications are not synonymous with accommodations nor are they mandated in law. In an educational setting, modifications are usually viewed as ways in which the learning expectations, curriculum content, materials used, standards demanded and/or outcomes are changed - usually lowered. This is why modifications are not acceptable during the administration of standardized tests and examinations, (including high stakes tests such as those administered by the Education Quality Accountability Office in the Province of Ontario) as well as the licensing examinations that individuals write to be able to work in certain professions and occupations.

Students with specific learning disabilities are *able* to learn, provided that they are taught the way in which they learn best. They can usually demonstrate their skills and knowledge provided that they have access to accommodations appropriate for their needs. While access to specific skill instruction is an essential component of the teaching and learning process, most students with learning disabilities are able to work within the parameters of the provincial curriculum, without having to rely on significant modifications.

Differentiating between diagnosis and identification

For the purposes of "operationalizing" the new definition of learning disabilities, a clear distinction must be made between "**learning disability**" as a psychological **diagnosis** made by an appropriately qualified professional under the Regulated Health Professions Act (RHPA), 1993, and as a formal **identification** through the Identification, Placement and Review Committee (IPRC) process, governed by the *Education Act*, and Regulation 181/98, the regulation which sets out the IPRC process. Such appropriately qualified professionals include registered psychologists and psychological associates. School board personnel working in the special education field must familiarize themselves with the differentiation between these two processes. This is necessary so that they can accurately communicate the information expected and needed by parents, students and those who develop programming for students with learning disabilities, based on the results of assessments.

Learning Disability as an Identification at an IPRC

Identification at the IPRC occurs through reference to the definitions provided by the Ministry of Education and contained in the Special Education Information Handbook. These definitions are also included in every school board's special education plan. The latest version of the definitions of exceptionalities was circulated to school boards on January 15, 1999 and school boards

were advised that they were expected to utilize these specific definitions for identification purposes. It is important to note that identification in this context centres on a **need**, while a diagnosis centres on a **cause**. This differentiation follows from the definition of an Exceptional Pupil under Section 1 of the *Education Act*:

“A pupil whose behavioural, communicational, intellectual, physical or multiple exceptionalities are such that he is considered to need placement in a special education program.” (Emphasis added)

Identification involves consideration of a variety of information in order to determine whether a pupil meets the criteria for the Ministry of Education’s definition of “learning disability”, as an area of exceptionality. Information used to make an identification includes reports from teachers, parents, and regulated health professionals including, but not limited to, members of the College of Psychologists. Unlike diagnosis, which involves an individual professional’s formal opinion concerning the cause of an individual’s symptoms, identification is accomplished through a school board committee and is carried out solely for the purpose of planning how best to meet the pupil’s strengths and needs.

Under the Regulated Health Professions Act, “communication of a diagnosis” is listed as one of the Controlled Acts, the performance of which is legally restricted to members of certain professional colleges, including the College of Physicians and Surgeons of Ontario and the College of Psychologists of Ontario. Since the Controlled Act is **only** performed when information is communicated to a client or his/her personal representative, communicating such information to other individuals (e.g., to other professionals, in multi-disciplinary teams, or at I.P.R.C. meetings where the client or his/her representative is not present) does **not** constitute performance of the Controlled Act. However, the policy of the College of Psychologists also stipulates:

“Normally, the outcomes of psychological assessments, including any psychological diagnoses, have been communicated to the pupil or his or her parents, guardians or personal representatives prior to the IPRC meeting because of the implications of potential harm and the right of the client to have direct access to the regulated professional who is accountable to the public. Unless a member of the IPRC team is authorized under the law to perform the controlled act, a diagnosis should not be conveyed to the client or his or her personal representative at, or following the meeting, unless this has already been done by a legally authorized health care professional.”¹

Learning Disability as a Diagnosis

Section 27(1) of the *Regulated Health Professions Act* defines the Controlled Act of communicating a diagnosis as:

“Communicating to the individual or his or her personal representative a diagnosis identifying a disease or disorder as the cause of symptoms of the individual in circumstances in which it is reasonably foreseeable that the individual or his or her personal representative will rely on the diagnosis” (emphasis added)

All three elements underlined must be present for the Controlled Act to be considered to have been performed. The following statements further clarify the legal and procedural requirements surrounding the controlled act of diagnosis:

“In the course of engaging in the practice of psychology, a member (of the College) is authorized, subject to the terms, conditions and limitations imposed upon his or her certificate of registration, to communicate a diagnosis identifying, as the cause of a person’s symptoms, a neuropsychological disorder or a psychologically-based psychotic, neurotic or personality disorder.”²

“The formulation of a diagnosis is usually made in the course of a psychological assessment that takes the observations of an individual’s strengths and weaknesses further to identify and integrate causes, antecedents and determinants in such a way as to provide a psychological interpretation consistent with an accepted nomenclature and associated body of knowledge and research.”³

“In the course of providing assessment and consultation services, a diagnosis is formulated in circumstances where the assessment or consultation ... determines that a person has a learning disability in that his or her skill level in an area of academic functioning is markedly below the level expected on the basis of the person’s intellectual capacity, where the discrepancy is not due to deficient educational opportunities, cultural or linguistic difference, hearing or vision impairment, physical disability, or primary emotional disturbance.”⁴

Considering all of the above points, the term “learning disability” constitutes a diagnosis when it is used to provide an explanation for a learning problem through a classification, formulation or causal statement linking it to a neuropsychological disorder and when this information is communicated to the individual, or to his or her personal representatives under circumstances in which he/she or they could be expected to rely upon the diagnosis (i.e., generally in a face-to-face meeting or through a written report).

In the overall interest of public protection (which is the fundamental basis of the RHPA), the only persons legally entitled to communicate such a diagnosis in Ontario are members of a Regulated Health Profession with access to the controlled act. There are substantial penalties under RHPA for individuals who perform the controlled act of diagnosis without authorization, as well as penalties for their employers. Restrictions imposed on the performance of controlled acts are not uniquely the policy of the College of Psychologists of Ontario. They are legislated under the RHPA and apply to all regulated health professionals, unregulated service providers, and the public generally.

Diagnosis Versus Identification of Learning Disabilities

Several exceptionality groupings, including “learning disability”, describe conditions which fall within the meaning of the controlled act as defined in the Psychology Act. The policy of the College of Psychologists of Ontario states:

*“If a pupil is included in one of these categories due to a determination of the **cause** of the disorder, this would require a psychological diagnosis. This is in contrast with the use of similar terminology by the IPRC to refer to the nature of services provided by the educational system. Care must be taken in making this distinction clear to the client so as to avoid the unauthorized communication of a diagnosis.”⁵*

While the College of Psychologists recognizes the distinction between the diagnosis and identification of learning disabilities, the College has stated to the Ministry of Education that communication of a diagnosis of a learning disability is a controlled act within the meaning of the *Regulated Health Professions Act* and should be carried out only by qualified health

practitioners. This position has been formally acknowledged by the Minister of Education and Training:

“With regard to the definition of ‘qualified professionals,’ it is the responsibility of the Ministry of Health and the professional colleges, operating under the Regulated Health Professions Act, to determine the meaning of the term “qualified professional” with respect to the diagnosis of medical and health-related conditions, including those conditions that underlie learning disabilities.”⁶

The Registrar of the College of Psychologists has made the following recommendation to the Minister of Education and Training:

“The College would like to stress the importance of having learning disabilities formally diagnosed in school systems by qualified health professionals, in particular members of the College of Psychologists, prior to identifications being made through I.P.R. Committees. This will ensure that all relevant factors and other possible conditions are considered and minimise the likelihood of students being mis-diagnosed or mis-labelled as having a learning disability when they do not.

“Many parents are not sufficiently knowledgeable to appreciate the difference between a psychological diagnosis of a learning disability and the identification of a learning disability through the I.P.R.C. process. To ensure that all students who receive this identification have been previously diagnosed would eliminate this source of confusion and contribute to better programming, based upon carefully identified areas of strength and weakness. Accurate diagnoses would reduce confusion for students and parents alike and ensure appropriate allocation of needed resources.”⁷

Endnotes

1. Communication of a Diagnosis: A Controlled Act in Psychological Practice (Statutory Requirements and Policy of the College of Psychologists of Ontario, December 1997, *The Bulletin*, Volume 24 No. 2., page 9)
2. *Psychology Act*, 1991, Section 4.
3. Communication of a Diagnosis: A Controlled Act in Psychological Practice (Statutory Requirements and Policy of the College of Psychologists of Ontario, December 1997, *The Bulletin*, Volume 24 No. 2., page 5)
4. Communication of a Diagnosis: A Controlled Act in Psychological Practice (*ibid.* page 9)
5. Communication of a Diagnosis: A Controlled Act in Psychological Practice (*ibid.* page 9)
6. Letter from the Hon. David Johnson, Minister of Education and Training, to Dr. Catherine Yarrow, Registrar of the College of Psychologists of Ontario, December 29, 1998.
7. Letter from Dr. Catherine Yarrow, Registrar of the College of Psychologists of Ontario, to the Hon. David Johnson, Minister of Education and Training, April 12, 1999.

Looking at the definition as a whole

It is recommended that the new definition of learning disabilities be utilized as a whole, in documents such as the Ministry of Education’s **Special Education Information Handbook** and the Ministry of Education’s program standards that are currently under development for all exceptionalities. The definition should always be referenced to the supporting document. It is also important to use this definition in conjunction with the screening and assessment protocol.

References

References related to the contents of the definition of learning disabilities and the supporting document are available from the Learning Disabilities Association of Ontario. Please contact LDAO's resource personnel at:

LDAO,
Suite 1004, Box 39
365 Bloor Street East
Toronto, Ontario
M4W 3L4
Telephone: 416-929-4311
Facsimile: 416-929-3905
E-mail: resource@ldao.on.ca