



Understanding Learning Disabilities!

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'What are learning disabilities?' 'What do they look like in my classroom?' and 'How can we help students with learning disabilities (LD) succeed?' In order to frame the responses to these frequently asked questions a current, research-based, national definition of LD¹ is used. This definition, which underlines the capacity of those with learning disabilities to be successful in their elementary, secondary and post-secondary studies, makes evident the measures needed to support secondary graduation and options at the post-secondary level.

The definition targets the following fundamental parameters:

- Learning disabilities are distinct from global intellectual deficiency
- Learning disabilities result from impairments in one or more processes related to perceiving, thinking, remembering or learning
- Learning disabilities range in severity and may affect any or several areas of life
- Learning disabilities are life long
- Learning disabilities are neurobiological and/or genetic in origin

It is important to understand what is meant by each of the statements and what such impairments look like and to recognize that each presents serious implications for educational practices and policies.

Learning disabilities are distinct from global intellectual deficiency

This distinction is important. As such, learning disabilities refer "to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning,"² In order for students with LD to be able to benefit and learn from the whole educational experience, instructional interventions must be appropriately balanced between general education and remediation. The question remains as to how best to do this.

Ministries of Education/Learning have generally opted for a controversial policy of full inclusion.³ Within this approach, the integration of remedial specialists within the general classroom is one model used to address the balance of remediation and education. This model may be more or less successful in providing support for students with LD depending on a number of factors: qualifications of the teacher and specialist, frequency and amount of time allotted per week, time for planning, and curriculum constraints. However, even under the best conditions, there is not enough time or support given to teachers to help them provide the same students (if needed) with materials in alternate format, or in a media, other than print, for the essential concepts of social studies, biology, history and geography. This implies that a number of students with LD miss out on broader learning opportunities, because they cannot easily and meaningfully access the same information as their peers.

Given both remediation and a solid general education, elementary students with LD can learn to the same levels as their peers and make relatively smooth transitions to middle or secondary school. In turn, secondary schools must maintain remedial services, while providing accommodations⁴ for poor reading and writing skills. By addressing students' specific learning needs, schools can foster students' engagement, and willingness to take risks and responsibility for learning. Such motivation promotes the completion of secondary studies and, thereby, creates openings to further educational options. At the present time, only a few school districts and provincial/territorial educational authorities offer this balance.

Learning disabilities result from impairments in one or more processes related to perceiving, thinking, remembering or learning

For the most part, school related information enters through the eyes (visual perception) and through the ears (auditory perception). Almost simultaneously, such information is 'processed' by different parts of the brain. Examples of these processes are "language processing; phonological processing; visual spatial processing; processing speed; memory and attention; and executive functions (e.g. planning and decision-making)."5 The following table provides some examples of how these cognitive impairments are manifested.

Table 1: Examples of some cognitive manifestations of learning disabilities

Impairments in processes related to:	Perceiving	Thinking	Remembering	Learning
Language Processing	Difficulties in processing sarcasm or understanding when someone is joking Difficulty taking another's perspective	Difficulties in understanding: long or complex sentence structure; and with figures of speech	Difficulties with: retrieving vocabulary words; orally presented task demands	Difficulties with new vocabulary and responses to teacher-directed questions
Phonological processing	Sounds in words (e.g. bat/bag) are confused; poor sound sequencing in words; limited automaticity in decoding	Difficulty with comprehension of content caused by lack of fluency in decoding	Difficulty retaining sound/symbol correspondence	Difficulty extracting essential concepts due to focus on decoding
Visual spatial processing	Difficulty with oral or written directions for an activity; perceiving organization of ideas in a text	Difficulty identifying main ideas in a text	Difficulty with left/right; north south, hierarchical structures	Poor integration of sequential information (days of the week, recipe)
Processing speed	Poor social interactions; does not keep up with fast-paced lessons	Few connections between isolated bits of information in texts	Slow linking of new with previously learned information	Less material covered or takes extra time and much effort to cover material
Memory	Few strategies when trying to remember content or concepts	Difficulty writing since spelling may not be automatic	Difficulty retrieving previously learned information	Forgets spelling words after test; difficulty recalling significant events in history; any new learning is difficult
Attention	Difficulty knowing when to pay attention Poor reading of social situations; impulsive	Poor concentration when putting ideas together	Little effort expended for remembering	Work may be disorganized; goes off on tangents,

Impairments in processes related to:	Perceiving	Thinking	Remembering	Learning
Executive functions (planning or decision making)	Poor recognition of value of planning; impulsive	Difficulty problem solving and understanding consequences of decisions	Difficulty in linking new with previously integrated knowledge; Few strategies	Difficulties in higher levels of learning, but has isolated pieces of knowledge

As implied, the impairments “may interfere with the acquisition and use of one or more of the following:

- oral language (e.g. listening, speaking, understanding);
- reading (e.g. decoding, phonetic knowledge, word recognition, comprehension);
- written language (e.g. spelling and written expression); and
- mathematics (e.g. computation, problem solving).”⁶

Learning disabilities range in severity and may affect any or several areas of life

Learning disabilities are identified along a continuum from mild to severe. How an individual’s learning disabilities are classified relates to how significantly they interfere with current learning and with the individual’s ability to function in society. For the most part, persons think of LD as related to academic problems. However, poor organizational skills, poor ability to ‘read’ social situations and to take another’s perspective have significant impact on social interactions within schools, the family, significant relationships, and recreational activities.

In addition, even though students pass their academic courses, the effort required to do this or the ‘just passing’ results may indicate the presence of learning disabilities. (See Table 2.)

Table 2: Examples of general manifestations of learning disabilities

Learning disabilities are suggested by:	Examples of some manifestations of the presence of learning disabilities
Unexpected underachievement	<ul style="list-style-type: none"> • Talks well on self-selected topics, but difficulty answering a teacher-directed question • Exhibits knowledge of concepts taught when tested orally, but written test responses are short and do not exhibit same level of understanding • Strengths in reasoning, but weak reading skills
Unusually high levels of effort and support	<ul style="list-style-type: none"> • Homework completion is very slow when compared to other children • At the college, university level, student asks to reduce course load in order to give extra time to completing work requirements • Individual receives tutoring 3/ 4 hours (or more) per week over several years or in several subjects to keep up with peers

The range of severity and the variety of academic and social/familial areas in which learning disabilities are manifested implies intervention as soon as the disability becomes apparent, whether in kindergarten, late elementary or secondary school. Intervention should initially consist of pre-referral information from the student’s current teacher and a timely and specialized assessment process. Referrals may be recommended when the students are having difficulties in any of the academic areas or when the performance is inconsistent or effortful.

What does such an assessment mean for educators at the primary, secondary and postsecondary level? It implies explicit teaching of specific skills, strategies and the use of tools that are recognized in the current research literature as being part of ‘best practices’ for this population.⁷ The consequence of an assessment requires interventions that involve the family, the school, the community and the workplace, depending on the needs of the individual.

Learning disabilities are life long

Learning disabilities influence the lives of children, adolescents, young adults and adults. However, the “way in which they (learning disabilities) are expressed may vary over an

individual's lifetime, depending on the interaction between the demands of the environment and the individual's strengths and needs."⁸ Instructional intervention decision-making must take into account what the individual needs in order to be able to function in a society of the future. Within all levels of schooling, students need to know how to explain their learning disabilities and what accommodations support learning and task completion. Without this self-awareness and ability to appropriately self-advocate, persons with learning disabilities are less likely to participate in successful post-secondary studies.

Learning disabilities are neurobiological and/or genetic in origin

What are the causes of learning disabilities? How are they different from other disorders of learning? In general, it is now recognized that:

Learning disabilities are due to genetic and/or neurobiological factors or injury that alters brain functioning in a manner, which affects one or more processes related to learning.⁹

The neuro-biological basis of LD is supported by current reviews of the literature in the United States¹⁰ and Canada.¹¹ Such a basis does not imply that such students cannot learn. Taking the three first processes discussed earlier, it becomes apparent how the difficulties present themselves throughout the academic career of the students with LD.

Table 3: Examples of manifestations of neurological basis of learning disabilities at different age levels

Impairments in processes related to:	Examples of some manifestations of the presence of learning disabilities in students at the		
	Elementary Level	Secondary Level	Post-secondary Level
Language Processing	<ul style="list-style-type: none"> • Difficulty with responding to oral task demands 	<ul style="list-style-type: none"> • Task demands no longer a problem, tasks seldom given only orally • Difficulty with learning new vocabulary in geography or history • May have few friends because misreads social interactions 	<ul style="list-style-type: none"> • Has learned some vocabulary in geography and history, but has difficulty in courses, which require learning specific vocabulary (e.g. geology, medicine) • Difficulty being a roommate
Phonological processing	<ul style="list-style-type: none"> • Difficulty learning to decode 	<ul style="list-style-type: none"> • Phonetically regular and frequently seen words are decoded, but difficulty with unfamiliar, multi-syllabic words • Difficulty learning to read a 2nd language • Tutors necessary to cover the content material 	<ul style="list-style-type: none"> • Difficulty fulfilling the language requirements • Unfamiliar words are skipped, so loses meaning in college level texts • Great effort must be exerted to access unfamiliar words while completing assignments
Visual spatial processing	<ul style="list-style-type: none"> • Difficulty with letter formation 	<ul style="list-style-type: none"> • Handwriting is barely legible • Difficulty with reading maps and understanding longitude and latitude 	<ul style="list-style-type: none"> • Uses word processing, so handwriting no longer a significant problem • Difficulty getting from one place to another on campus • Difficulty with organization of lab work

Educators recognize that students with learning disabilities can and do learn, but they must be prepared to review material frequently, to teach compensatory strategies (e.g. note taking skills for those with poor memory), and to present material to be learned in a variety of formats and media.

Conclusion

Knowledgeable persons with the field frequently criticize definitions of ‘learning disabilities’ for the choice of vocabulary, phrasing and implied ideas. Although there may never be a universally accepted definition, a definition that reflects current research is used here to make evident some of the cognitive and behavioral manifestations of learning disabilities. In turn, one hopes that a better understanding of LD will lead to more cohesion in educational approaches to these students. Canadian educational systems must begin to deal with issues of inadequate elementary and secondary programs for students with learning disabilities. The need for appropriate and timely assessment, remediation, education and accommodations is critical if these individuals are to participate fully in Canadian society.

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¹ The LDAC definition of Learning Disabilities (2002) can be found at the following address <http://www.ldac-taac.ca/> or can be requested by post from the Learning Disabilities Association of Canada (LDAC), 323 Chapel St, #2, Ottawa, ON, K1N 7Z2. (This definition has been adopted and endorsed by LDAC and its provincial affiliates, the Canadian Teachers Federation, National Education Association of Disabled Students, some provincial Ministries of Education, etc.)

² Ibid, para. 1.

³ Most definitions of full inclusion imply that the needs of students with learning disabilities are met within the context of a general class.

⁴ The term ‘accommodations’ refers to practices seen as supporting students with disabilities in learning content material. Examples are extra time for exams, oral exams, taped books, screen readers and voice activated writing tools. (Screen readers are software that reads aloud computer text and information on many websites. For examples see <http://www.kurzweiledu.com/> and <http://www.macspeech.com/>. For an example of a voice activated writing tools see <http://www.speakingsolutions.com/>)

⁵ LDAC definition of Learning Disabilities (2002), para. 2.

⁶ Ibid, para. 3

⁷ For a website that describes a number of instructional interventions, see <http://www.ldonline.org/>

⁸ LDAC definition of Learning Disabilities (2002), para. 4.

⁹ Ibid., para. 5.

¹⁰ L. Joseph, “The Neurobiological Basis of Reading,” *Journal of Learning Disabilities* 34 (6), 2001: 566-579

¹¹ C. Fiedorowicz, E. Benezra, W. MacDonald, B. McElgunn, A. Wilson and B. Kaplan, "Neurobiological Basis of Learning Disabilities: An Update," *Learning Disabilities: A Multidisciplinary Journal* 11 (2), 2001: 61-74.

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