

Analysis of Attributes in the Official Definitions for Learning Disability

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ABSTRACT

Background: The phenomenon of learning disability is increasingly occupying the centre stage all over the world. Still, there is no commonly agreed definition for the condition. **Method:** This study attempts a comparative analysis of the similarities or differences between 23 official definitions of learning disability derived from various sources. By using a quantitative-cum-qualitative systematic procedure of identification and listing the attributes, prioritizing and rank ordering them, assigning of appropriate weights before deducing their conceptual meaning, observations on the nomenclature and content characteristics of the definitions were created as basic data units to be undertaken in this analysis. **Results:** There is plurality of definitions amidst varying emphasis on nature or content of especially seven majorly identified attributes with little agreement on what qualities characterize the condition of learning disability. The implications of these findings are discussed in the context of the need for quantifying or establishing the empirical veracity of the identified attributes before explicating a cohesive or meaningful overall re-statement on definition of learning disabilities. The need for cross cultural and transnational research is highlighted.

Keywords: Learning Disability, Official Definition, Attributes, Dyslexia, Academic Failure

The definition of learning disability is continually evolving. Ever since the term was coined by Samuel Kirk as an official head of National Advisory Committee of Handicapped Children (NACHC; USOE, 1968, p. 34), there has been changes in its definition by National Joint Committee on Learning Disabilities (NJCLD, 1989), United States Office of Special Education Programs (2002) and others from time to time.

Espousing medical models, the tradition of International Classification of Diseases (WHO, 2008) and Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) view learning

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disability as ‘disorder’ resulting from a defective physical condition intrinsic to the individual (Al-Yagon et al., 2013; Gates, 2007; Ho, 2004). Based on lived experiences, social models define learning disability in terms of body functions (physiological systems), activities (execution of tasks and actions) and participation (involvement in life situations). As reflected in International Classification of Functioning, Disability, and Health-Children and Youth version (ICF-CY; WHO, 2007), contextual and personal factors like individual temperament and coping is taken into account along with ones surrounding physical, social and attitudinal environment. From this point of view, parents and teachers represent vital environmental factors (Riva & Antonietti, 2010; Boxall, 2002). Individual authors have now and again postulated their own definitions of learning disabilities (Lerner, 2002; Hammill, 1990; Larsen, Hammill, Leigh & Mc Nut, 1981; Bateman, 1965, p. 220; Kirk, 1962, p. 263).

Along different lines, the definition for learning disability has changed regularly owing to government involvement and legislation across nations. For example, Task Force I and II definitions in early 1960’s used the term ‘minimal brain dysfunction’ to attribute neurological causes to learning disabilities (Clements, 1966, pp. 9-10; Haring & Bateman, 1969, pp. 2-3). This was followed by NACHC definition (USOE, 1968, p. 34) and the original version of Education of the Handicapped Act passed in 1966 without including learning disabilities as one of the categories eligible for special education assistance. The first official inclusion of learning disability happened in Public Law 94-142 in 1975, wherein the NACHC definition was invoked. Another competing definition was offered by National Joint Commission on Learning Disabilities (NJCLD; Hammill, Leigh, McNutt & Larsen, 1981, p. 336) by purposefully excluding any mention of psychological processes which was an integral part of the earlier NACHC definition. Most of these definitions were not explicit about how to identify students as learning disabled. An early operational definition proposed severe discrepancy as ‘when achievement in one or more of the areas falls at or below 50% of the child’s expected achievement level, when age and previous educational experiences are taken into account’ (USOE, 1976, p. 52405). The most recent statutory definition is outlined in Individuals with Disabilities Education Act (IDEA; Apling & Jones, 2005; 2004-P.L. 108-466, Sec. 602).

The nomenclature and definition of learning disability also vary across nations. For example, New Zealand (LDANZ, 2016; Speld.nz, 2016) and Canadian (LDAC, 2015) definitions of learning disability follow the US traditions. The British definition of learning disability is an equivalent of intellectual disability (Emerson & Heslop, 2010). The term ‘learning difficulty’ includes people with ‘specific learning difficulties’ like ‘dyslexia’ without any significant general impairment of intelligence in Australia and United Kingdom (Graham & Bailey, 2007). Some authors prefer ‘learning difficulty’ instead of ‘learning disability’ to avoid the emphasis on the neurological basis in the latter term and their relative resistance to teaching interventions (Thomas & Whitten, 2012; Thapa, 2008). Discussions on learning disability, although a relatively upcoming concept in India (PRS-India, 2016) and despite the blatant absence of any

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official definition, are ‘largely based on findings and observations of children studying in English-medium schools’ (Karanth, 2003, p. 134).

Regardless of the unsettled issue on definition, several university based research projects and programs all over the world have attempted to identify specific characteristics of such children. For example, deficits in meta-cognition, psycholinguistic and perceptual process, attention problems, information processing difficulties, poor social competence, affected decision making process or lifelong nature of the condition, deficiencies in study skills, learning strategies and social skills have been studied. Another strand of research seeks to unravel biological causes of the condition through post-mortem studies, neuroimaging, genotyping, etc.

Against this rather evolving scenario, this study is undertaken with the generic aim of attempting a comparative analysis of similarities and differences between attributes in an identified list of official definitions of learning disability drawn from various sources across time and countries. The specific objectives of the enquiry were:

1. To enlist official definitions of learning disability from various sources across countries;
2. To identify, list and prepare a glossary of the attributes embedded in the official definitions of learning disability enlisted from various sources;
3. To weigh, prioritize and prepare a rank order of the attributes embedded in the official definitions of learning disability enlisted from various sources;
4. To determine the frequency counts of the attributes in the official definitions of learning disability enlisted from various sources; and,
5. To attempt an analysis of the attributes by content in the official definitions of learning disability enlisted from various sources.

METHOD

This study employs a cross national-cum-historical comparative design to evaluate the similarities and/or differences between attributes within the analytical frame of a purposively selected sample of 23 official definitions of learning disability as proposed by individual authors, international disease classification systems, and/or governments across nations over time.

Key Terms

‘Official definition’ is the key term used in this study. It refers to formal statement carrying a clear, concise, exact and detailed descriptive meaning for a word that denotes a thing, event or phenomenon by using other words. It is a measure that forms part of data collection (Robinson, 1972). Definitions can be usefully thought of as human made ‘ideas’ about the ‘objects’ of our world that we share for various social purposes (Schiappa, 2003; Robinson, 1972). When data is collected, it must be clear about what, where, when or how it is to be collected. The specific way by which a variable is measured in a particular study is called ‘operational definition’. It lends

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clarity to the variable under study and ensures replication or reproducibility of results between similar studies. Identifying and defining variables is a critical step in a research study and will impact its validity and reliability (Creswell, 2013).

Tools & Techniques

Attributes are salient characteristics or features that make a product, procedure or process unique for whatever it is. A product, for example, may carry attributes related to its size, shape, color, content, flavor, price, presentation, or package. In the context of learning disability, it refers to a collection of signs and symptom attributes that form the basis for defining it (Swanson, Harris & Graham, 2013, p. 34; Maynard, 2004). The recognition and listing of attributes leading to their logical groupings or re-arrangements in a given order leads to the development of a concept and eventually its definition. The emergence or introduction of a novel attribute to any pre-existing concept lead to concept modification (Estes & Ward, 2002) and further refinement in their definitions. Analysis of attributes in the identified or enlisted official definitions was the mainstay technique in this enquiry. It simply refers to the systematic process of breaking down a definition into its component characteristic parts and then thinking about them rather than about the definition by itself. This technique typically evaluates repeatability, reproducibility, replication and overall accuracy of characteristics within the definitions of a given phenomenon (Salzberger, 2013).

Procedure

The following steps were followed for undertaking a systematic study of attributes in the official definitions of learning disability derived from various sources across countries:

1. Enlisting the official definitions;
2. Identifying, listing and preparing a glossary of the attributes;
3. Weighing, prioritizing and preparing a rank order of the attributes;
4. Determining the frequency counts of the identified attributes; and,
5. Attempting analysis based on content of the attributes.

Attributes of learning disability that appeared repeatedly were identified, coded, recorded and categorized as referring to: (a) Sub-average Achievement; (b) Individual Differences; (c) Processing Deficits; (d) CNS Dysfunction; (e) Discrepancy Criteria; (f) Exclusion Factors; (g) Life span Problem; (h) Average Intelligence; and, (i) Sub-average Intelligence respectively. Two independent coders not below the rank of post graduation in the field of clinical psychology perused the key attributes to categorize them before deriving their frequency counts and percentages from the given official definitions included in this study.

RESULTS

The results are presented as frequency counts of defining attributes in the official definitions of learning disabilities drawn from various sources across countries (Table 1). A glossary of defining attributes to clarify the meaning across definitions is given (Table 2).

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Table 1, Distribution of Defining Attributes across Definitions.

S. No.	Author/Source	Year	Nomenclature	SAA	ID	PD	CNS-D	DC	EF	LSP	AI	SAI
1	Kirk	1962	Learning Disability	•	•	•	•		•	•		
2	Bateman	1965	Learning Disability	•	•	•	•	•	•	•		
3	Hammill	1990	Learning Disability	•	•	•	•		•	•		
4	Lerner	2003	Learning Disability			•	•		•			
5	Clements	1966	Learning Disability			•	•				•	
6	Herring & Bateman	1969	Learning Disability	•		•	•	•	•			
7	NACHC	1968	Learning Disability	•	•	•			•	•		
8	94-142, USOE	1976	Learning Disability	•	•	•	•		•	•		
9	NJCLD	2016	Learning Disability	•	•	•	•		•			
10	LDECD-SA	2013	Learning Difficulty	•	•	•	•			•		
11	IDEA	2005	Learning Disability	•	•	•	•		•			
12	Speld-NZ	2016	Learning Disability			•	•					
13	LD-ANZ	2016	Learning Disability	•		•			•			
14	LD-AUSTRALIA	2013	Learning Difficulty								•	
15	LD-UK	2010	Learning Disability	•	•	•	•			•	•	•
16	LDA-CANADA	2015	Learning Disability			•					•	
17	ICD-10	2008	SDDSS									
18	ICD-CY	2007	ASD					•	•		•	
19	DSM-III & IIR	1980	ASD			•						
20	DSM-IV, 1V-TR	1987	ASD	•		•					•	
21	DSM5	2013	SLD			•	•					
22	INDIA	2016	Learning		•	•			•		•	

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S. No.	Author/Source	Year	Nomenclature	SAA	ID	PD	CNS-D	DC	EF	LSP	AI	SAI
			Disability									
23	NEPAL (Pandit)	2006	Learning Disability					•	•			
	TOTAL			12	10	19	13	4	13	7	7	1

[ACRONYMS: SA: Sub-average Achievement; ID: Individual Differences; PD: Process Deficits; CNS-D: CNS Dysfunction; DC: Discrepancy Criteria; EF: Exclusion Factors; LSP: Life Span Problem; AI: Average Intelligence; SAI: Sub-average Intelligence][SDDSS: Specific Developmental Disorder of Scholastic Skills; ASD: Academic Skills Disorder; SLD: Specific Learning Disorder]

Most definitions enlisted in this study recognize ‘*processing deficits*’ as the foremost feature of children with learning disabilities (N: 19/23; 82.6%). Such listed deficits in basic psychological processes of the affected children are: difficulties in listening, understanding or processing language, spoken, spelling, reading or written, and undertaking mathematical calculations. Learning disability is recognized as a diagnostic condition by exclusion (Niedecken, 2003; Rudel, 1980). While ‘*exclusion factors*’ are recognized as important ingredient in about half the official definition of learning disability (N: 13/23; 56.5%), their specifics vary in each definition. Among the stated exclusion attributes are: absence of sensory impairments (poor hearing or vision), lack of opportunity to learn, poor or absent schooling, deprived or impoverished environments, intellectual disability, and/or any form of acquired brain trauma or disease. However, no mention is made about certain exclusion variables, such as, being first generation learner, change of curriculum or medium of instruction, fear of teachers, chronic or intermittent health problems, frequently missed schooling, defective study habits, poor examination taking skills, disproportionate teacher-pupil ratios at school, and/or absence of text books are missed (Venkatesan, 2012). An equal number of definitions (N: 13/23; 56.5%) recognize that learning disability has ‘*organic neuro-developmental involvement*’. Such definitions implicate Central Nervous System (CNS) damage or injury as biological causes, correlates or basis for the condition.

That children with learning disabilities have characteristically ‘*below or poor school achievement in academic subjects expected for age, schooling and level of intelligence*’ (N: 12/23; 52.2%) is recognized by half of the definitions. This is followed by their statement that this population of affected children form a ‘*heterogeneous group with intra-individual and inter-individual diversity*’ (N: 10/23; 43.5%). The quality of having ‘*average or above average levels of general intelligence as pre-requisite for diagnosis*’ of learning disability as measured by an individual, standardized, culturally appropriate IQ test and that it is a ‘*lifelong lasting condition*’ is accepted only by few of the official definitions (N: 7/23; 30.4%). The ‘*discrepancy criteria*’ which was a characteristic attribute of earlier definitions by individual authors appears to be no more invoked by many of the contemporary definitions of learning disability (N: 4/23; 17.4%).

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Table 2, Glossary of Defining Attributes across Definitions.

Attribute	Acronym	Description
Sub-Average Achievement	SAA	Refer to substantially below or poor school achievement in academic subjects expected for age, schooling and level of intelligence;
Individual Differences	ID	Refer to the intra-individual and inter-individual diversity within the person identified as learning disability. It is not to be confused by the term learning differences-not a diagnostic term, which hints how learners vary in the manner of how or what they learn.
Process Deficits	PD	Refer to deficit in one or more of the basic psychological processes involved in understanding or processing language, spoken or written, that may manifest itself as a difficulty to listen, comprehend, speak, read, write, spell, or to do mathematical calculations including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia;
CNS Dysfunction	CNS-D	Refer to organic neuro-developmental involvement of certain areas of brain and spinal cord owing to damage or injury thereby hinting at the biological cause, correlate or basis for the condition.
Discrepancy Criteria	DC	Refer to the divergence between ability and academic achievement on individually administered culturally and linguistically appropriate standardized tests on reading, mathematics and written expression;
Exclusion Factors	EF	Refer to variety of elimination factors that needs to ruled out before making a diagnosis of the condition. The list of such factors are absence of sensory impairments (poor hearing or vision), lack of opportunity to learn, poor or absent schooling, deprived or impoverished environments, it is not the result of being first generation learner, change of curriculum or medium of instruction, due to intellectual disability, and/or due to any form of acquired brain trauma or disease;
Life Span Problem	LSP	Refer to the understanding that the condition is likely to be chronic indefinitely beginning at anytime during the development process including conception, birth and growth before lasting throughout an individual's life time.
Average Intelligence	AI	Refer to the pre-requisite that the affected person with learning disability has average to above average levels of general intelligence as measured by an individual, standardized, culturally appropriate IQ test. Low intelligence is neither the cause or consequence for the child's current condition of learning disability.
Sub-Average Intelligence	SAI	Refer to two standard deviations below the man or average IQ which is a or below 70 on a standardized intelligence test such as Wechsler's Intelligence Scale.

DISCUSSION

This study was undertaken with the generic aim of attempting a comparative analysis and evaluation of the similarities or differences between attributes in an identified list of official

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definitions of learning disability drawn from various sources across time and countries. It is apparent that there is minimal or no agreement in nomenclature, inclusion/exclusion criteria, content, characteristics or prognosis about the condition between the various definitions perused in this survey. For example, if Australia uses the term ‘learning difficulties’, Belgium uses the expression ‘instrumental disability’ (Gregoire, 2007; Oakland, Mpofu, Gregoire, & Faulkner, 2007). Although used interchangeably by some, others make distinctions between learning disability as ‘situated in the child’s own cognitive development whereas the cause of learning difficulty as situated outside the child or in another problem in the child’ (Dumont, 1994). There is overlap between the terms learning disabilities, disorders, difficulties and disadvantages across countries. Additional semantic confusion occurs when countries use the term learning disabilities to refer intellectual disabilities as in Ireland and the United Kingdom (Emerson & Heslop, 2010). This is further confounded by differences in the qualities or attributes to characterize learning disability across nations (Grunke & Cavendish, 2016). Zimbabwe, for example assumes that the condition is owing to inadequate instruction or that it may be corrected within months following quality instruction (Chimhenga, 2014). Definitions also vary according to their stated purposes, either for diagnosis, interventions or for proving benefits and concessions.

The seven defining characteristics of learning disability (although not in the same rank order of preferences or frequency counts as given below) are deduced from the analysis of attributes carried out in this study. Thus, learning disability is cumulatively referring to (i) heterogeneous; (ii) lifelong condition; (iii) of individuals with average or above average levels of general intelligence; (iv) with an organic-neurodevelopmental involvement; (v) having below or poor achievement in academic subjects expected for their age, schooling and level of intelligence; (vi) although this discrepancy; (vii) is not accounted or explained by a certain list of identifiable exclusion factors.

Going by their rank order, the attributes of definition related to ‘processing deficits’, ‘recognition of certain exclusion factors’ as well as ‘below or poor school achievement in academic subjects expected for their age, schooling and level of intelligence’ take precedence over identification that this population as ‘heterogeneous group with intra-individual and inter-individual diversity’. The attribute of having ‘average or above average levels of general intelligence as pre-requisite for diagnosis’ of learning disability, ‘discrepancy criteria’ or that it is ‘lifelong condition’ are accorded low priority in the definitions.

The presence of inchoate, confusing or conflicting attributes in the definitions or sometimes the absence of it is suggestive of a growing, as yet, puzzlingly unsettled concept of learning disability all over the world. The same term is used with varying defining attributes by different authorities. Scientific discourses based on ambiguous and amorphous concepts are likely to be unproductive and definitely not cumulative. It will lead to theoretical infertility, empirical arbitrariness, attract criticism, and end into invalid inferences.

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Research attempts need to be directed toward quantifying or establishing the empirical veracity of the identified attributes with individual case vignettes in large numbers. If certain attributes are missing, they must be augmented and added; or alternatively, if they are redundant, they could be simply reduced and eliminated. It is important to realize that concepts and their definitions are applicable in different contexts. They may have one or few central attributes and a number of non-central attributes. All this points toward the need for undertaking cross cultural research by transcending national borders to boost the conceptual definition of learning disability.

CONCLUSION

In sum, this study has compiled a list of official definitions on learning disability spread over time from various sources across countries. It has identified and prepared a commonly occurring exhaustive list of the attributes before weighing, prioritizing or rank ordering them based on frequency counts from the definitions and explicating a cohesive or meaningful overall re-statement on definition of learning disabilities. The implications for case validation and cross cultural as well as transnational studies are underlined.

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Conflict of Interests

The author declared no conflict of interests.

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