Chapter 1

Introduction and Related Studies
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INTRODUCTION AND RELATED STUDIES

The field of learning disabilities has experienced the fastest growth and expansion within special education. Professionals from every sector of special education—general educators, physical educators, neurologists, ophthalmologists, optometrists, pediatricians, physical therapists, psychologists, and a host of others have all taken an active interest in the ‘learning disabilities explosion’. Numerous terms have been used to describe the same child. Within the literature and within the field, “learning disabilities”, “minimal brain injury”, “minimal brain dysfunction”, “specific learning disabilities”, “psychoneurological learning disabilities”, “perceptual disabilities”, “educational handicaps”, “reading disabilities”, “underachievement”, and at least a dozen other labels have been used synonymously.

This failure to achieve consensus about the proper response to the seemingly straightforward question, “What is LD?” has been a long-standing source of controversy, conflict, and crisis (Kavale & Forness, 2000). Although LD has experienced unprecedented growth and has had significant impact on special education, it remains among the most problematic classifications because of the vagaries and antagonisms surrounding definition (Mather & Roberts, 1994).

Over time, a number of LD definitions have been proposed, but none emerged as an unequivocal favorite (e.g., Tucker, Stevens, & Ysseldyke, 1983). Presently, the two definitions enjoying the greatest support are the legislative definition found in the Individuals with Disabilities Education Act (IDEA) and the one proposed by the National Joint Committee on Learning Disabilities (NJCLD), a consortium of representatives from organizations interested in LD. Although similar in depicting LD, the two definitions represent compromise positions about the nature of LD appropriate for a federal mandate (i.e., IDEA) and a consensus view of professionals and parents (i.e., NJCLD). They have not, however, brought closure to the issue of definition.
LD definitions appear to be subjected to more generalized criticisms. The critiques are often so pervasive (e.g., Reger, 1979; Senf, 1977; Siegel, 1968) that they lead to the suggestion that LD does not exist as an independent entity and the depiction of LD as myth (McKnight, 1982), questionable construct (Klatt, 1991), or imaginary disease (Finlan, 1993). LD has seen almost constant debate about definition, which has deflected attention away from equally important issues and has made it the “phantom category” in special education (Keogh, 1987a).

THE PROBLEM OF DEFINITION

A definition should describe the parameters of the condition in question, but from the outset, the LD definition did not provide a precise and unencumbered statement delineating characteristics. The basic problem is the failure of LD definitions to provide significant insight into the nature of the condition. For example, the most widely used definition of LD is the one found in IDEA that was actually formalized about 20 years ago by the U.S. Office of Education (1977). The IDEA definition reads as follows:

The term “specific learning disability” means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (IDEA amendments of 1997, P.L. 105-17, June 4, 1997, 11 Stat 37 [20 USC 1401 (26)])

This definition, with relatively minor modification, has been the basis for policy (Mercer, Jordan, Allsopp, & Mercer, 1996). After reading the statement, however, it is not at all clear that one could answer the question: What is LD? Rather than a description of the specific condition promised, a more generic concept is outlined.
The most concrete aspect is an indication about process disorders, specifically in the language area, that interfere with basic academic achievement. The difficulty, however, is that the descriptions and relationships are vague, and no explicit conceptualization emerges. There is a statement likening LD to other known conditions, but this definition by analogy strategy introduces imprecision because indications about how similar and how different they are from LD are not present. There is also a perspicuous statement about what LD is not (i.e., what conditions are excluded from LD consideration), but the difficulty is that such a statement is not equivalent to stating what LD is. The primary problem is no sense of LD emerging beyond that of a generalized and indistinct learning problem. Even though outlining the form of a “specific learning disability” the definition is a rather nonspecific description of the elements contributing to LD (Adelman, 1971).

**Early Definitions of LD**

Kirk (1962) offered the first formal definition in the text Educating Exceptional Children, which was disseminated further by Kirk and Batemen (1962). The definition reads as follows:

A learning disability refers to a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subjects resulting from a psychological handicap caused by a possible cerebral dysfunction and / or emotional or behavioral disturbances. It is not the result of mental retardation, sensory deprivation, or cultural and instructional factors. (Kirk, 1962, p. 263)

This definition was the first to introduce the notion of psychological process disorders; the focus was on processing problems and how they interfered with academic performance. The actual problem might be either a retardation, disorder, or delay, but the differences among these possibilities was not specified. With respect to etiology, CNS dysfunction was affirmed, but some confusion was introduced by suggesting that LD might be caused by emotional or behavioral disturbances. The
definition also introduced the exclusion clause as a definitional component by emphasizing that LD cannot be due primarily to some other condition. Although useful in providing a separate identity, exclusion is not a positive criterion for explicating what characteristics are represented in the LD concept. This definition, however, served as the foundation for later efforts when Kirk (1975) described the LD concept at a meeting of concerned parents and professionals who readily embraced the idea of a new category.

**Legislative Definitions of LD**

With the recognition of LD by the federal government, it was necessary to provide a definition for legislation establishing the new special education category. The definition offered by the National Advisory Committee on Handicapped Children (NACHC) (1968) provided the basis for the legislative definition and is as follows:

Children with special (specific) learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken and written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems that are due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage. (p. 34)

The NACHC, chaired by Kirk, emphasized the notion of specific LD; the learning failure was not a generalized problem like MR but rather one predicated on the possession of only a discrete number of deficits. The specific notion appears to be undermined, however, by the phrase “one or more”; because left unanswered is specification about the point where, in terms of the number of problems, a disorder is no longer specific. The definition also appears to introduce a hierarchy of processes, with language, spoken and written, being most prominent. The range of potential manifestations emanating from the underlying process deficits was expanded to
include “thinking disorders”; LD could also be related to cognitive deficits in addition to basic academic skill problems. Such thinking disorders would probably be considered in the realm of metacognition today. Although not explicit with respect to CNS dysfunction, the assumption that LD is similar to conditions emanating from neurological impairments is indicated, but this definition by analogy strategy again produces an inherent vagueness. Additionally, the definition offers no statement about requisite severity levels. An exclusion clause was included that suggests it had become an integral component in defining LD.

In an effort to enhance the LD definition, the U.S. Office of Education funded an institute whose charge was to resolve perceived difficulties in the existing definition and provide a more educational focus. Kass and Myklebust (1969) reported the following definition:

- Learning disability refers to one or more significant deficits in essential learning processes requiring special education techniques for remediation.

- Children with learning disability generally demonstrate a discrepancy between expected and actual achievement in one or more areas such as spoken, read, or written language, mathematics, and spatial orientation.

- The learning disability referred to is not primarily the result of sensory, motor, intellectual, or emotional handicap, or lack of opportunity to learn.

- Significant deficits are defined in terms of accepted diagnostic procedures in education and psychology.

- Essential learning processes are those currently referred to in behavioral science as involving perception, integration, and expression, either verbal or nonverbal.

- Special education techniques for remediation refer to educational planning based on the diagnostic procedures and results.

The definition affirmed LD as a condition emanating from process deficits that were deemed “essential” for learning. Although statements defining “essential learning
processes” and “significant deficits” were included, they were predicated on the assumptions that they are known from “accepted diagnostic procedures” and the way they are “currently referred to in behavioral science”. The unarticulated nature of these statements, both then and now, make it difficult to conceptualize a clear and unencumbered picture of LD.

**Committee Definitions of LD**

As part of the National Project on the Classification of Exceptional Children, Wepman, Cruickshank, Deutsch, Morency, and Strother (1975) proposed the following definition:

Learning disability refers to those children of any age who demonstrate a substantial deficiency in a particular aspect of academic achievement because of perceptual or perceptual-motor handicaps, regardless of etiology or other contributing factors. The term perceptual as used here relates to those mental (neurological) processes through which the child acquires his basic alphabets of sounds and forms.

The notion of specificity was affirmed by limiting LD to perceptual process-based academic failure. The focus solely on perceptual or perceptual-motor deficits was introduced because of a concern that too many diverse types of learning failure were being subsumed under the LD rubric. A more restrictive definition was thus offered but, in all likelihood, would have been too limiting because of the emphasis on only a single process area. Severity level was not specified but ensconced in the context of “substantial.” The definition also did not include either an etiological statement or an exclusion clause.

The NJCLD was formed by representatives from eight major organizations that had an interest in LD (Abrams, 1987). Although endorsing the federal definition, it was believed that it could be improved with the following modifications: (a) reinforcing the idea that LD can exist at all ages, (b) deleting the contentious notion of basic psychological processes, (c) eliminating spelling as a specific disorder and subsuming it under writing, (d) eliminating the list of analogous conditions, and (e) modifying
the “exclusion clauses” to indicate that LD may coexist with other handicapping conditions. The resulting definition first proposed in 1981 reads as follows:

Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient or inappropriate instruction, psychogenic factors), it is not the direct result of those conditions or influences.

The NJCLD definition appears to be the antithesis of earlier federal definitions describing “specific” LD. Instead, LD is now described as a general (i.e., generic) term that is quite likely to manifest a variety of symptoms (i.e., heterogeneous). The notion of discrepancy, and hence LD as underachievement, is not stated explicitly, and level of severity is only indicated by “significant.” The notion of CNS dysfunction was affirmed as the primary etiology with the assumption that the disorder emanates within the individual. Unlike earlier definitions where process deficits were the most direct manifestation of CNS dysfunction, no such relationship is specified, and it is not clear what the presumed neurological impairments “cause.” The “intrinsic” notion also appears to minimize the possibility of LD being related to social or educational influences; complex environmental interactions and transactions that may shape the disorder appear not to be recognized. The “exclusion clause” is now modified to move away from an “either-or” dichotomy to one where LD may coexist with other conditions. Although LD is assumed primary, the lack of specification makes it difficult to precisely determine the nature of the relationships with these other conditions.

The similarity between the NJCLD and IDEA definition was suggested as evidence for an emerging consensus about definition where, “This is what we mean when we
say learning disabilities” (Hammill, 1990). The evolution of LD definitions appears to have converged on the following ideas: LD is marked by heterogeneity; LD is probably the result of CNS dysfunction; LD involves psychological process disorders; LD is associated with underachievement; LD can be manifested in spoken language academic, or thinking disorders; LD occurs across the life span; LD does not result from other conditions. Consensus, however, should not be construed as closure for the problem of definition; the agreement has not produced a crystallized rendering of LD. The fact remains: LD has not been defined with much exactitude. In reality, the consensus definition achieved provides only a generalized picture of a portion of the school population experiencing academic difficulties. The accord about definition does not imply uniform interpretation, and any variation is likely to prevent precision in describing the nature of LD. The consequences are found in the lack of an equable perspective; LD is viewed differently in different contexts (Kavale & Forness, 2000).

**Operational Definitions of LD**

For practical purposes like diagnosis and classification, a stipulated definition needs to be operationalized. The widely used IDEA definition has undergone relatively little change since it was introduced in 1968 (NACHC) and reauthorized in 1990. It was decided as far back as 1975 that no substantive change in definition would be appropriate until more definitive and agreed upon LD parameters were forthcoming. There was, however, a call for assistance, and in response, the U.S. Office of Education (USOE; 1976), issued the following operational definition of LD:

A specific learning disability may be found if a child has a severe discrepancy between achievement and intellectual ability in one or more of several areas: oral expression, written expression, listening comprehension or reading comprehension, basic reading skills, mathematics calculation, mathematics reasoning, or spelling. A “severe discrepancy” is defined to exist 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 consideration.
Although appearing to be a useful guide for practice, the operational definition suffered from a fundamental flaw: It bears little resemblance to what was stipulated in the formal definition. The proposed operations in any operational definition must possess a logical and rational relationship to elements stipulated in the formal definition in order to avoid potentially meaningless and insignificant procedures (Deese, 1972). The USOE operational definition focuses on discrepancy, but there is no statement about discrepancy in the formal definition. Conversely, the formal definition talks about psychological process deficits and CNS dysfunction, but these ideas were not included in the operational definition. Additionally, while stipulated in the formal definition, the exclusion clause is given no specification in the operational definition. Although the vagueness associated with the phrase “one or more” is not clarified in the operational definition, severity level is the single factor better delineated by the specification of a 50% figure for defining “severe discrepancy.” The lack of correspondence between the formal and operational definition of LD means that two distinct and independent views of LD are being presented. Ideally, the procedures stated in an operational definition would be used to validate the elements stipulated in the formal definition. When there is no correspondence between formal and operational definitions, theoretical verification of the formal definition is not possible, and the operational definition simply represents a low grade of psychometric engineering.

**Prospects for LD Definition**

Kavale and Forness (1995) provided an example of what an operational interpretation of LD might look like. Although attempts have been made to operationalize the LD definition (e.g., Chalfant & King, 1976; Shaw, Cullen, McGuire, & Brinckerhoff, 1995), these efforts were limited by the fact that only elements from existing stipulative definitions were operationalized. Since a stipulative definition may be right or wrong, any operational definition based on it may also be right or wrong. For this reason, it is first necessary to use the foundation principles in guiding the selection of elements that explicate the nature of LD. The process involves the synthesis of what is
known about LD into a comprehensive and unified scheme outlining its “shared attributes” (Keogh, 1987b). The scheme is best represented in a hierarchical arrangement where each level depicts a decision point in the determination of LD (Keogh, 1994). The Kavale and Forness (1995) scheme is shown in Figure 1.1. The example shows the process through which a student may be identified as LD but also provides insight into the nature of LD. The first level documents the presence or absence of underachievement, and the second through fourth levels unravel the complex and multivariate nature of LD. The final level establishes LD as a discrete and independent condition.

At Level I, the process begins by documenting an ability-achievement discrepancy. Because underachievement is viewed as integral to the LD concept, it becomes a necessary but not sufficient criterion for LD identification. Although, there is debate about the best method for operationalizing a discrepancy (e.g., Reynolds, 1992; Schuerholtz et al., 1995), what appears necessary, however, is that the documentation of discrepancy be based on the most reliable total IQ and total standardized achievement test scores available in order to avoid a narrowly focused discrepancy that would not be properly termed underachievement. For example, a single discrepancy found between Performance IQ and a Social Studies subtest of an achievement measure would not be meaningful. This idea is reinforced at Level 2 where LD should be associated with pervasive deficits in basic skill areas. Consequently, analysis of standardized achievement test scores should focus on the four major academic areas outlined in Level II. The primary reason is to avoid the dilemma created by documenting a discrepancy based on, for example, a low score in the science subtest while there is near-average performance in reading.

Level III focuses on learning efficiency; strategy, the ability to organize and structure learning tasks; and rate, speed of information acquisition. For example, LD has been associated with inactive or passive learning where learning is inefficient and disorganized (e.g., Torgesen, 1977, 1980). It is, therefore, necessary to examine elements of the actual learning process rather than only associated deficits; in other
words, a shift is necessary from the disability part of LD to the learning part in order to determine awareness about learning and whether tasks are being analyzed efficiently and efforts being consistently sustained. Additionally, Scruggs (1988) showed, for example, the complex relationship among types of learning (e.g., concept, associative, rule, procedural) and how they may be deficient even in the absence of obvious correlative deficits. Thus, Level III focuses on learning, and low particular deficiencies may be integral in determining the presence or absence of LD.

Level IV attempts to capitalize on the historical association between LD and psychological process deficits; they remain a key element in the diagnosis of LD (e.g., Reynolds, 1992). A primary issue surrounds the question about what processes to include in the identification process. Although a myriad number of processes are available, a limited number have received substantial research support and, thus, represent validated deficits associated with LD. Processes like attention and memory provide examples of processes with established empirical evidence making them prime LD correlates. By using valid and reliable assessments, processes can be successfully operationalized and included in a comprehensive scheme for LD identification.

The final stage, Level V, represents the exclusion clause historically found in formal definitions of LD. The goal is to eliminate each listed condition from consideration, which ultimately leaves LD as the sole designation. By operationalizing who is not LD, a final feature establishing an unconfounded identity for LD is achieved.
The designation of LD is predicated on a student successfully proceeding through each level in the operational definition. The identification process ceases if the student cannot meet the requisite criterion at any level. By meeting all five operational interpretations, the proposed operational definitions should provide greater confidence in answering the question, “Who is LD?” Consider that in present practice, the identification process typically begins and ends at Level I, which essentially makes LD and underachievement equivalent. By expanding the scheme to include elements
garnered from history and research, a more comprehensive view of LD is achieved. As far as a formal definition of LD, it is, in many respects, a straightforward and simple process; a formal definition need only be a descriptive rendering of the elements included in the operational definition. In this way, the abstract concept is articulated but with the advantage of being built on a concrete foundation.

The procedures outlined represent a radical departure from the way LD definitions have been developed in the past. This seems absolutely necessary if any substantive change is to be accomplished. Historically, LD came into the special education scene as a full blown entity and almost immediately became a popular designation. The popularization resulted in much unsubstantiated “conventional wisdom” rather than reasoned, albeit slower, scientific wisdom providing the foundation for definitions. The result was increased vagueness in definitions of LD with change difficult to achieve and almost endless semantic wrangling. A new perspective is required if there is to be any hope of resolving a longstanding and vexing problem.

ETIOLOGY

In most cases the cause of a child's learning disabilities remains a mystery. The major causes of learning problems are (1) Organic and biological (2) Genetic (3) Environmental or sociological (Hallahan & Kauffman, 1986, p. 98). The physiological causes that can most easily be identified are the neurological dysfunctions. It has been mentioned already that some believe that brain injury is at the root of learning disabilities. Because the learning problems were not severe and because the neurological evidence was far from convincing, affected children were frequently referred to as "minimally brain injured, "minimally brain damaged" or "minimal brain dysfunction". While these terms are still used today, particularly within the medical profession, special educators have protested strongly against their use. They have pointed out, for example, that the term "minimal" is quite misleading. Parents and teachers can attest to the fact that the problem presented by these children is far from small. In addition, the label of brain injury often carries with it a note of finality, and its behavioral consequences are frequently viewed as irreversible. It is
Chapter 1

not known how often teaches have used the label of brain injury as a reason not to teach a child. Besides these criticisms based on subjective reactions to the label, there is a more objective rationale for questioning the use of any label denoting brain damage or dysfunction, and that there is simply no certain scientific evidence that the typical learning-disabled child has an injured or malfunctioning brain. In the majority of cases the evidence is equivocal at best.

Although the term “dysfunction” is now used rather than “injury” or “damage”, the label “minimal brain dysfunction” carries with it some of the same problems as “minimal brain injury” or “minimal brain damage”. There is no solid evidence to indicate that all, or even most, learning-disabled children have malfunctioning brains. Similar to the claim that learning-disabled children suffer from a malfunctioning brain is the notion that they exhibit a minimal brain dysfunction syndrome. Proponents of this position claim that a variety of behavioral (poor visual – motor coordination, hyperactivity) and neurological (abnormal EEG) indicators tend to cluster in these children (Hallahan & Kauffman, 1986). There is no evidence to support this claim and the research data that are available indicate that a syndrome of minimal brain dysfunction does not exist (Routh and Roberts, 1972).

Some evidence suggests biological factors as causal agents in some learning-disabled children. Waldrop and Halverson (1971) have reported a series of studies that link the presence of minor physical anomalies with hyperactivity in children ranging in age from preschool to early elementary years.

The second factor is the genetic factor. It has been acknowledged that learning disabilities tend to "run in families" (Owen, Adams, Forrest, Stolz, and Fisher, 1971; Walker and Cole, 1965). Hereditary factors or similar learning environments is a matter to be resolved by further research (Hallahan and Kauffman, 1986). Nearly 20% of hyperactive children had one parent hyperactive. Children with Turner’s syndrome have higher incidence of learning disabilities (Panda, 1997).
The third factor, environmental factors are difficult to document. Much evidence shows that environmentally disadvantaged children are more prone to exhibit learning problems. It is still not certain if this is due to inadequate learning experiences or to biological factors such as brain damage or nutritional deprivation (Cravioto and DeLicardie, 1975; Hallahan and Cruickshank, 1973). Malnutrition has been known for a long time to impair mental development; but physicians, psychologists, teachers, and parents rarely have any instruction in the relation between nutrition and mental development (Gaddes, 1980). Ross and Ross (1976) have drawn attention to the possible relation between maternal drug consumption, smoking and drinking to later obstetrical complications and hyperactive behaviour in the child. Since any harmful influence on fetal development may have ill effects later, learning disabilities may be one of these (Gaddes, 1980). Glasser (1969) has stressed the need for love, self-worth, and successful achievement for competent learning, and the large-scale Isle of Wight study carried out in England has shown the important relationships between education and good physical and mental health (Rutter et al.;., 1970). Another factor that has been named as a possible – environmental cause of learning disabilities is poor teaching (Engelmann, 1977; Lovitt, 1977). Engelmann, in fact, has estimated that perhaps as many, as 90 percent of learning-disabled students are so identified because they have been mistaught. But poor living conditions, malnutrition and poor teaching results not from a chronic neurological structural or functional abnormality and many of these children respond to remedial teaching programs that include strong emotional support and academic skill training. Therefore cases where the basic cause can be altered are referred to as "learning problems" rather than "learning disabilities" (Frostig, Personal Communication, 1978; Gaddes, 1978a). Many believe that if teachers were better prepared to handle the special learning problems of children in the early school years, many learning disabilities could be avoided.

**EPIDEMIOLOGY**

Estimates of the prevalence of learning disabilities have varied widely, from as low as 1 percent to as high as 30 percent. This is understandable in view of the confusion
regarding definition. For many years the federal estimate of learning disabilities in the school-age population hovered around 2-3 percent. In the late 1970s and early 1980s, however, there was a rapid growth in the number of students being identified as learning disabled. In 1984 the U.S. Department of Education's Annual Report to Congress noted that 4.4 percent of the school-age population was receiving services designated for the learning disabled. Debate abounds about whether this dramatic increase in identification of the learning disabled is entirely warranted or whether it reflects poor diagnostic practices (Algozzine and Ysseldyke, 1983). Concern has been expressed, especially by officials in the federal government (General Accounting Office, 1981; Report on Education Research, 1983) that the learning disabilities category has grown larger than it should. Many believe that the field of learning disabilities is now at a crossroads over the issue of who does and does not get identified as learning disabled. They fear that continued expansion of the learning disabilities category will seriously erode federal and public support of educational services for the learning disabled. (Hallahan and Kauffman, 1986). It should be kept in mind that the most accepted estimates are based on a definition of learning disabilities that excludes children who would also be classified as emotionally disturbed, educable mentally retarded, or economically disadvantaged. According to DSM-IV-TR (2000), estimates of the prevalence of Learning Disorders range from 2% to 10% depending on the nature of ascertainment and the definitions applied. Approximately 5% of students in public schools in the United States are identified as having a Learning disorders.

**Prevalence of Learning Disabilities in Iran**

A study was conducted by Winter (2006) to make an estimate of the prevalence of LD in elementary school children in Iran. Several studies with large sample size have been done earlier, however, for this study, meta-analysis was used to estimate the prevalence of LD. The data based documents and seven research articles from Iran were used for this purpose. The results of meta-analysis showed that overall
prevalence of LD was 4.58% in the primary schools. Further, the prevalence in case of boys was higher by 1.1 to 2 percent than in case of girls.

CHARACTERISTICS OF LEARNING-DISABLED CHILDREN

A variety of characteristics have been attributed to learning disabled children. A national task force, recognizing the proliferation of terms and labels in this area, found ninety-nine characteristics reported in the literature (Clements, 1966). The ten most frequently found symptoms where these:

1) Hyperactivity
2) Perceptual- Motor impairments
3) Emotional lability (frequent shifts in emotional mood)
4) General co-ordination deficits
5) Disorders of attention (Short attention span, distractibility, perseveration
6) Impulsivity
7) Disorders of memory and thinking
8) Specific academic problems (reading, arithmetic, writing, spelling)
9) Disorders of speech and learning
10) Equivocal neurological signs and electroencephalographic (EEG) irregularities

Tarver and Hallahan (1976) have noted that very little experimental research has been done on some of these characteristics. And it would be certainly misleading to state that all of them are found in every learning-disabled child. Demoralization, low self-esteem, and deficits in social skills may also be associated with learning disorder. Many individuals with Conduct Disorder, Oppositional Defiant Disorder, Major Depressive Disorder, or Disthemic Disorder also have learning disorders. Learning Disorders may also be associated with a higher rate of Developmental Coordination Disorder. There
may be underlying abnormalities in cognitive processing, e.g., deficits in visual perception, linguistic processes, attention, or memory, or a combination of these) that often precede or are associated with Learning Disorders. A variety of statistical approaches can be used to establish that a discrepancy is significant. A smaller discrepancy between achievement and IQ (i.e., between 1 and 2 standard deviations) is sometimes used, especially in cases where an individual's performance or an IQ test may have been compromised by an associated disorder in cognitive processing, a comorbid mental disorder or general medical condition, or the individuals’ ethnic and cultural background. But standardized tests to measure these processes are generally less reliable than other psycho-educational tests (DSM-IV-TR, 2000).

**DIAGNOSTIC FEATURES**

Learning disorders are diagnosed when the individual’s achievement on individually administered, standardized tests in reading, Mathematics, or written expression is substantially below that expected for age, schooling, and level of intelligence. The learning problems significantly interfere with academic achievement or activities of daily living that require reading, mathematical, or writing skills. A variety of statistical approaches can be used to establish that a discrepancy is significant. ‘Substantially below’ is usually defined as a discrepancy of more than 2 standard deviations between achievement and IQ. A smaller discrepancy between achievement and IQ (i.e. between 1 and 2 standard deviations) is sometimes used, especially in cases where an individual’s performance on an IQ test may have been compromised by an associated disorder in cognitive processing, a comorbid mental disorder or general medical condition, or the individuals’ ethnic or cultural background. If a sensory deficit is present, the learning difficulties must be in excess of those usually associated with the deficit. Learning Disorders may persist into adulthood (DSM-IV-TR, 2000).
Chapter 1

APPROACHES FOR THE IDENTIFICATION OF LEARNING DISABILITIES

The use of test scores and cut-points is an inherent component of most identification procedures for LD, even though the Individuals with Disabilities Education Act (IDEA) indicates that test scores should not be the only determinant of eligibility for any special education category (MacMillan & Siperstein, 2002). Unfortunately, there are psychometric problems with models that attempt to identify students with LD based on an assessment at a single testing point, which Fletcher, Denton, and Francis (2005) have termed a “status model.” These problems result from the dimensional nature of LD and are products of the measurement error of the tests as well as the use of a cutpoint to form a dichotomous class on an otherwise continuous and normal distribution.

If it is assumed that academic skills are normally distributed, an assumption supported by most population-based studies (e.g., Shaywitz, Escobar, Shaywitz, Fletcher, & Makuch, 1992; Silva, McGee, & Williams, 1985), there are inherent psychometric problems involved in identifying individuals as members of a group by simple reference to their position relative to some cut-point on a normally distributed trait (Francis et al., in press; Stuebing et al., 2002). An approach to measurement and identification based on a status model with one or two observable measures possesses insufficient information about the underlying construct to allow for reliable classifications of individuals into what are essentially unobservable categories. Like IQ or achievement, LD is a latent construct that is not directly observed, but is inferred from directly observable relations (e.g., test scores on IQ and achievement tests). When the latent variable (i.e., status on the categorical latent dimension) is under identified, one solution is to increase the number of observed relations used in the measurement model.

Even when additional criteria are added, other problems involve the use of cut-points based on a norm-referenced test where the score distributions have been smoothed to create normality. A small amount of measurement error on the tests used for identification will lead to instability in the identification of class members because
observed test scores will fluctuate around the cut-point with repeated testing or use of an alternative measure of the same construct (e.g., two reading tests). This fluctuation is not just a problem of correlated tests, nor is it simply a matter of setting better cut scores or developing better tests (Fletcher, 2005). Rather, imperfections in measurement prevent an observed score from a single test, or even scores from multiple tests at a single time point, from capturing perfectly a student’s ability on a latent variable. The fluctuation in identifications will vary across different tests, depending in part on the measurement error. In both real and simulated data sets, fluctuations in up to 35% of cases are found when a single test with conventionally high reliability is used to identify a cut-point (Francis et al., 2005). More significant problems can emerge when discrepancies involving more than one test are used if the tests are used to form multiple, individual discrepancies, because measurement error accumulates across multiple tests and there will be unreliability in each of the computed difference scores (Francis et al., in press; Shaywitz et al., 1992).

This problem is less of an issue in research projects, which rarely depend on the validity of individual identifications. Persons around the cut-point who fluctuate in and out of the class of interest with repeated testing are not significantly different. However, the problems for an individual who is being considered for special education placement are significant (Fletcher et al., 2005). If a person’s position on an imperfectly measured latent variable that is normally distributed cannot be reliably assessed with a single assessment, what is the justification for deciding eligibility at one point in development? These problems clearly affect the validity of the first three models reviewed in the next section:

*Aptitude–Achievement Discrepancy Models*

The problems with models based on aptitude-achievement discrepancies are well-known. Two meta-analyses have shown that at best, aggregated effect sizes on measures of achievement and cognitive functions are in the negligible to small range for the comparison of groups formed on the basis of discrepancies between a composite (Full scale) IQ and reading achievement measure versus groups of poor
readers without an IQ-achievement discrepancy (Hoskyn & Swanson, 2000; Stuebing et al., 2002). Moreover, other validity studies have not found that groups of poor readers formed on the basis of the presence or absence of composite IQ-achievement discrepancies differ in long-term prognosis (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Silva et al., 1985) or response to instruction (See Fletcher et al., 2002; Jimenez et al., 2003; Stage, Abbott, Jenkins, & Berninger, 2003; Vellutino, Scanlon, & Jaccard, 2003). Neuro-imaging studies are based on low achievement models (Lyon, Fletcher, & Barners, 2003) although shaywitz et al. (2003) found differences in groups varying in IQ (but not defined by IQ discrepancy). Heritability studies observe negligible to small differences between IQ-discrepant and low achieving poor readers that may reflect regression to the mean (Pennington, Gilger, Olson, & De Fries, 1992; Wadworth, Olson, Pennington, & De Fries, 2002). Similar empirical evidence can be cited for different discrepancy-based classifications of LD and oral language (Fletcher et al., 2002; Mazzocco & Myers, in Press) which is consistent with limited reliability related to the underlying psychometric model. Despite the evidence showing weak validity for comparisons of low achievers with IQ discrepancy versus low achievers with no discrepancy, discrepancy models continue to be proposed.

**Low Achievement Models**

Models based on the use of achievement markers can be shown to have a great deal of validity (Fletcher et al., 2002; Fletcher, Morris, & Lyon, 2003; Siegel, 1992). If groups are formed such that the participants do not meet criteria for mental retardation and have achievement scores below the 25th Percentile, a variety of comparisons show that the subgroups of low achievers that emerge can be validly differentiated on external variables and help demonstrate the viability of the construct of LD. In addition, neurobiological studies show that these groups differ in the neural correlates of reading and math performance as well as the heritability of reading and math disorders (Lyon et al., 2003). These achievement subgroups, which typically include students who meet either low achievement or IQ-discrepancy criteria, also differ in response to instruction, which provides strong evidence for "aptitude by treatment"
interactions. Despite this evidence for their validity, definitions of LD based solely on low achievement models remain controversial. Finally, as Francis et al. (2005) demonstrated, major problems affect the reliability of individual student identifications with low achievement models, particularly when they are based on a single assessment.

**Intraindividual Differences Models**

A commonly proposed alternative to models based on aptitude-achievement discrepancies or low achievement involves an examination of individual differences on measures of cognitive function. An important assumption of this model is that identification based on performance profiles will lead to enhanced treatment of individuals with LD. This assumption is not supported, as there is little evidence that instruction addressing strengths and weaknesses in cognitive skills is related to intervention outcomes (Flectcher et al., 2003). The scaling issues for the intraindividual model are significant. If administration of IQ and achievement tests as part of a search for a two-test discrepancy is inconsistently implemented (Mac Millan & Siperstein, 2002), how well can a multi-test discrepancy model be implemented (Mac Milan & Siperstein, 2002), how well can a multi-test discrepancy model be implemented? This approach to identification assumes that flatness in a profile is unrelated to LD. Infact, the severity of an achievement problem is correlated with profile flatness due to the lack of independence of different tests used to constraint the profile (Morris, Fletcher, & Francis, 1993). Intraindividuals with increasingly severe academic problems will show increasingly flat profiles or cognitive tasks (and achievement measures) in direct correspondence to severity. The intraindividual differences model focuses on behaviors that are not directly related to instruction such as processing skills (Torgesen, 2002). Thus, the model has the most validity at the level of achievement markers but simply collapses into a low achievement model in the absence of processing measures.
Models Incorporating Response to Instruction

All of the approaches reviewed so far are based on assessments administered at a single time point. They become unwieldy and impractical if extended to multiple assessments. As Francis et al. (2005) showed, it would be difficult to implement this kind of model with adequate reliability when a single time point is used. The intraindividual differences approach attempts to avoid these difficulties by using multiple tests at the same time point, looking for recurrent discrepancies that might make up a profile. However, the measures used in this approach typically have reliabilities that are lower than those apparent for norm-referenced IQ and achievement tests, which magnifies the problem of reliably identifying profile variations.

In contrast, models incorporating response to instruction typically involve identification based in part on repeated curriculum-based assessments of the same core area, such as reading or math. The student is provided with instruction of sufficient quality and intensity that improved outcomes would be expected. By tying multiple assessments to specific attempts to intervene with the student, the construct of unexpected underachievement can be operationalized in part on the basis of a poorer response to instruction than would be expected from most other students (L. Fuchs & Fuchs, 1998; Gresham, 2002).

Such approaches do not eliminate the measurement issues involved in the assessment of discrepancy (Fletcher et al., 2003). In fact, discrepancy is still part of the model, but it is assessed relative to learning expectations based on multiple administrations of the same test over time as opposed to a comparison of two tests, or multiple different tests administered at the same time point. Issues involve the nature of the instruction and estimation of slope and intercept effects, as well as decisions that have to be made about cut-points that will differentiate responders and nonresponders (Gresham, 2002). For these reasons alone, response to instruction cannot be the sole criterion for identification, and flexibility in decision-making will be required.
According to Fletcher and colleagues (2005), there is little possibility that discrepancy models can yield unique subgroups of low achievers; secondly, low achievement models do not adequately assess the construct of unexpected underachievement; and finally, intraindividual differences models are essentially an expansion of discrepancy models, maintaining the historical emphasis on the “LD test battery.” It is time for change. Such approaches to identification have not been effective, and psychometric and logistical issues make these models difficult to implement.

It is useful to conceptualize models that incorporate response to instruction as extensions of low achievement models. The construct of LD begins with underachievement, and the task is to define “unexpectedness.” A hybrid model in which low achievement is used as one of several criteria (along with the exclusions) and response to instruction has considerable potential and was recommended by a consensus group after a national conference on the identification of LD (Bradley, Danielson, & Hallahan, 2002). In this respect, no assessment should ever be the sole criterion for establishing eligibility for special education. It is one thing to specify identification criteria in a research study, but another to make a complex judgment about eligibility and services. However, previously utilized classification models do not have adequate reliability or strong validity. Models incorporating response to instruction have the promise of meaningfully operationalizing the concept of unexpected underachievement as the inability to learn from instruction that is effective for most students, indicating a demonstrated need for instruction of a different type or of greater intensity or longer duration. Students who are so classified do appear to differ from students with other forms of low achievement.

More research is always needed, but the critical research issue is an evaluation of what happens when hybrid models are implemented on a wide scale. Without an attempt at implementation, it will be hard to determine the viability of this model.
Chapter 1

THEORETICAL FRAMEWORK TO STUDY THE EFFECTS OF LD ON TEACHER-STUDENT INTERACTION

Although individuals with learning disabilities (LD) have been part of our educational system since its inception, recognition and identification of the special learning needs of individuals with LD, now recognized as a worldwide condition (Gersons-Wolfensberger & Ruijssenaars, 1997), are relatively recent phenomena. Currently, more students are identified as having specific LD than any other type of disability (Vaughn & Fuchs, 2003). There are several possible explanations for this growth in identification of LD (MacMillan, Gresham, & Bocian, 1998). These include (1) recognition of the significant academic and social problems realized by individuals with LD, (2) greater social acceptance of LD over other categories of special education, and (3) increasing needs for literacy at home and work.

Growth in identification of individuals for special education is of concern to educators and policymakers largely because special education services are more costly than general education (Chambers, Parrish, & Harr, 2002). The cost per student for special education is nearly twice that for general education. Thus, accurate determination of which students qualify for special education is critical. Teachers are usually the first to notice child’s persistent difficulties in reading; writing, mathematics and teachers’ continuous and direct measurement of achievement are critical to identification procedures (Neuwirth, 1993).

A wealth of data exists documenting that children with learning disabilities have significant difficulties in both academic and social domains (Sridhar & Vaughn, 2001; Settle & Milich, 1999; Vaughn, Zaragoza, Hogan, & Walker, 1993; Chapman, 1988). Academically, they fail more subjects than their classmates and are more likely to be held back one or more times (Gans, Kenny, & Ghany, 2003; Tabassam & Grairger, 2002; Taylor, 1989; Chapman, 1988). Socially, they are more likely than comparison children to receive high rates of social rejection nominations and low rates of social acceptance (Kavale & Forness, 1996). Children who are repeatedly exposed to failure experiences are at risk for the development of a “learned helplessness” response style,
so that they are less likely to persist following challenging tasks. Thus, it is not surprising that children with learning disabilities show poor persistence following academic failure (Licht & Kistner, 1986). According to motivation researchers, failure and poor performance lead to doubts about general intellectual abilities, which in turn lead to reduced effort, further failure, and poor academic outcomes (Licht & Kistner, 1986). An important thread within the area of academic failure concerns the associations among chronic failure, attributions, and motivational deficits.

**ATTRIBUTION THEORY**

Attribution theory is the study of the process by which individuals make assessments of causality in response to the outcomes they observe. The growth of attribution theory has been a corresponding increment in attributional applications to everyday problems and concerns. Kurt Lewin is the starting point because of his known focus on theory utilization (action research), he pointed out the simultaneous thrust of theory and application. Lewin’s (1935, 1938) approach was so catholic that different aspects of his thinking were incorporated by different psychologists (Graham & Folkes, 1990). Lewin’s ideas require classification into two categories. First, he championed Expectancy – value theory, and illustrated the power of that conception in his explication of level of aspiration. Theorists like Julian Rotter (1954) and John Atkinson (1957, 1964) embraced expectancy – value theory and used level of aspiration, that is, the choice among tasks differing in difficulty. Secondly, Lewin clarified some of the determinants of object and person perception and expanded the knowledge of psychologists by pointing out the dynamics of part-whole relationships and force fields. These components of Lewin's thinking are reflected in Heider's (1958) elucidation of balanced states and attributions. Harold Kelley (1967) is a descendent of Heider in as much as the well-known "Kelley cube" is an in-depth examination of the covariation principle of causal inference, which was championed by Heider. Bernards Weiner's (Weiner & Kukla, 1970) contribution to attribution was to emphasize other dimensions or properties of causality in addition locus.
The guiding principle of attribution theory is that individuals search for understanding, seeking to discover why an event, such as an achievement-related success or failure, has occurred (Betancourt & Weiner, 1982). So fundamental is the process of asking and answering 'why' questions – trying to figure out what caused something else – that it has been characterized as a basic human activity (Heider, 1958). Attribution theory is based on Heider's notion that people have an inherent tendency to be “naive psychologists” that attempt to determine the causes of events that are important to them. Heider primarily proposed the concept of attribution during 1958. He thought that human would try to look for a reasonable explanation when an event or a behaviour was seen happening. It was called "situational attribution" or "external attribution" when the reason of behavioural result was attributed to environmental factors. If the reason was thought to come from the actor, himself or herself, it was "[ersonal attribution" or "internal attribution". According to the outlook of Heider's attribution, one got lower control level itself when the individual had external attribution.

There are a number of definitions for attributions, but a common way to define "attributions" is as the internal (thinking) and external (talking) process of interpreting and understanding what is behind our own and others’ behaviours. Thus, although, there are different types of Attribution Theory, they all are concerned with the "how" and the "what" by which people process information in attempting to understand events, judge those events, and act on those events which researchers believe is universal, pervasive and predictable (Manusov & Spitzberg, 2008). Weiner and colleagues (Joines et al., 1972; Weiner, 1974, 1986) developed a theoretical framework that has become a major research paradigm of social psychology. The search for causality is functional in that knowing why one has succeeded or failed might increase later chances of success by instigating appropriate instrumental action. Hence, attribution theory is part of the broader study of cognitive functionalism Beginning with a search for the cause of the outcome, this process normally leads to an attribution of causality, which, in turn, influences, emotion and has important consequences for motivation and action. A three-stage process underlies an attribution (1) the person must perceive or observe the
behaviour (2) the person must believe that the behaviour was intentionally performed
(3) behaviour is attributed to internal or external causes.

Weiner (1974) focused his attribution theory on achievement. He identified ability,
effort, task difficulty, and luck as the most important factors affecting attributions for
achievement. The theory indicates that behaviour is determined by a combination of
internal factors (e.g. ability or effort) and external factors (e.g. luck or task difficulty).
Attributions are classified along three causal dimensions: (1) locus, (2) stability, (3)
controllability.

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<th>Internal</th>
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The locus of control dimension has two poles: internal versus external locus of
control. The stability dimension captures whether causes change over time or not. For
instance, ability can be classified as a stable, internal cause, and effort classified as unstable and internal. Controllability contrasts causes one can control, such as skill/efficacy, from causes one cannot control, such as aptitude, mood, other's actions and luck. Causes such as intelligence are assumed to be relatively stable while causes such as effort are more variable.

Weiner's theory has been widely applied in education, law, clinical psychology, and the mental health domain. There is a strong relationship between self-concept and achievement. Weiner (1980) says that causal attributions determine affective reactions to success and failure. Weiner (1985) noted that attributions are related to affective outcomes. More specifically, emotions are considered reactions to the causal evaluations individuals make in response to outcomes (Weiner, Graham & Chandler, 1982). The perceived stability of a cause influences the subjective probability of success following a previous success or failure; causes perceived as enduring increase the certainty that the prior outcome will be repeated in the future. And all the causal dimensions, as well as the outcome of an activity and specific causes, influence the emotions experienced after attainment or nonattainment of a goal (Weiner 1986).


The perceived stability of causes can affect emotional responses, given their impact or individuals' expectations for future outcomes (Weiner, 1985). In case of negative outcomes, stable attributions can exacerbate the negative effect of internal attributions on emotions. This is because the cause of the negative outcome is not only thought to be the self, but also unchangeable, meaning that the same negative outcome is likely to occur again in the future. Conversely, unstable attributions for negative outcomes are likely to alternate the negative effect of internal or external attributions on emotions because the perceived cause (e.g., level of effort) may not be present in future attempts at completing the task (Martinko, 2002). Expectancy shifts are determined by causal stability rather than causal locus (Weiner 1985, 1986). For
example, failure because of lack of ability produces lower expectancy of success than failure perceived as due to lack of effort, although both are internal determinants of behaviour. Furthermore, failure because of low ability and failure due to an objectively difficult task may produce the same expectancy decrements, although ability is an internal determinant and task difficulty an external determinant of behaviour (Weiner, 1990).

Weiner and his associates (Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971) suggested the four attribution categories (ability, task difficulty, effort, and luck) are "the more common and general of the perceived causes of success and failure (Weiner 1977, p. 506). Two dimensions were said to underlie these categories: internal (ability, effort) versus external (task, luck) and stable (ability, task) versus unstable (effort, luck). Weiner, et al. (1971) labeled the property distinguishing ability from effort as "causal stability." Stability refers to the lability of a cause over time. Ability was considered to be rather fixed, whereas effort was conceived as variable, subject to fluctuation over short periods.

Attributional thinking to achievement strivings documented by Weiner & Kukla (1970) says that evaluation is particularly influenced by perceived effort expenditure. High effort is rewarded in achievement settings while low effort tends to be punished. The successful student who tries hard is maximally praised or rewarded whereas the failing student who puts forth little effort elicits the moist blame or punishment. Thus, praise and blame from others can make inferences about effort as a cause for success and failure (Graham, 1990). In both success and failure, the higher one's effort, the lower one's perceived ability and vice versa. Thus if two students achieve the same outcome, often the one who tried harder is judged as lower in ability. Similarly, the one who is higher in ability is often perceived to have tried less hard than his or her equally successful counterpart. Applied to the cue value of praise and blame, these two attribution principles, suggest the following: praise, relative to neutral feedback, leads to the inference of high effort, and the higher one's perceived effort, the lower one's perceived ability. In contrast, blame relative to neutral feedback, leads to the inference
of low effort, and the lower one's perceived effort, the higher one's perceived ability (Graham, 1990). Weiner and Kukla (1970) found out that positive outcomes are rewarded more (punished less) than negative outcomes. Of greater importance in the present context, high effort or motivation is rewarded more for success and punished less, given failures, than is lack of effort or motivation. Failure accompanied by high ability and lack of effort elicits the greatest punishment, whereas success accompanied by lack of ability and high effort results in the moist reward.

The attributional cue value of pity and anger are among a prevalent set of human emotions that share in common that they are preceded and determined by causal thoughts. Thoughts determine feelings is a fundamental principle of attribution theory (Weiner, 1985, 1986). In the case of pity and anger, these thoughts relate to the perceived controllability of causes. Pity is elicited when another's failure is perceived as caused by uncontrollable causes, such as low ability. In contrast, anger is aroused when another's failure is attributed to controllable factors, such as lack of effort. These linkages are not confined to the achievement domain. For example, we pity the disabled but feel anger towards the able bodied who are unwilling to work because they are perceived as responsible for their plight. Anger is thus an "ought" emotion that often accompanies the belief that the target of anger is capable of changing his or her behaviour. In contrast, pity has been conceptualized as a more positive emotional reaction to those whose negative state is viewed as both chronic and not subject to personal influence (Graham, 1990).

In the area of attribution, the major paradigm employed to explore the issues of academic difficulties and response to failure falls under the “learned helplessness” rubric (Abramson, Seligman, & Teasdale, 1978). Although there are some inconsistencies in the attribution literature, it generally has been found that children’s causal attributions for failure are among the best predictors of how they will perform when faced with subsequent failure (Dweck, Davidson, Nelson & Enna, 1978; Licht & Kistner, 1986). High-achieving children tend to take more personal responsibility for their successes and less responsibility for their failures than low-achieving
children (Frieze & Snyder, 1980). Children who attribute their failures to insufficient effort are more likely to maintain high expectations for future success (Johnson, 1981; Klein, Fencil-Morse, & Seligman, 1976); They are also more likely to respond with increased effort when faced with subsequent difficulties, which increases their chances of success (Diener & Dweck, 1978; Licht & Dweck, 1984). In contrast, children who attribute their failures to stable or uncontrollable factors, such as lack of ability, are likely to lower their expectations for future success and respond to failure with a decrease in effort.

In attribution theory, the actor-observer perspective bias refers to different attributions for actions made by observers and participants (Pintrich & Schunk, 2002). Most previous quantitative research has suggested that children with LD attribute their academic performance to lack of ability (Ayres, Cooley, & Dunn, 1990; Frederickson & Jacobs, 2001) or external factors (Lewis & Lawrence-Patterson, 1989; Ring & Reetz, 2000). An individual’s interpretation of the stability aspect of an attribution is most closely linked to the expectancy of success (Weiner, 1985, 1986, 2005). If students with LD attribute their lack of success to a stable, uncontrollable deficit, such as LD, then it would be predicted that these students would have a low expectancy for success and a pessimistic view of future performance (Klassen & Lynch, 2007).

**Social Aspects in the Context of Children with Learning Disabilities**

Research has shown that children with learning disabilities are more likely than comparison children to exhibit a learned helplessness response style. They are more likely to attribute their academic difficulties to insufficient ability and less likely to attribute difficulties to insufficient effort (Butkowsky & Willows, 1980; Jacobsen, Lowery, & Ducette, 1986; Licht et al., 1985; Pearl, 1982; Pearl, Bryan & Donahue, 1980). Not surprisingly, children with LD also seem to have lower expectations for their future academic performance than normally achieving children (Boersma & Chapman, 1981; Rogers & Saklofske, 1985). It has been proposed that, because of repeated failure experiences, children with LD lose confidence in their intellectual abilities and begin to believe that their efforts will not have a positive effect on their
academic endeavors (Johnson, 1981; Klein et al., 1976; Licht et al., 1985; Tennen & Eller, 1977; Wortman, Panciera, Shusterman, & Hibscher, 1976). Thus, a vicious cycle develops, in which these children’s beliefs cause them to become frustrated and give up easily, which leads to further failure and reinforces their feelings of helplessness. Conversely, when these children do succeed, those experiences are likely to be interpreted as indications that they were lucky, that success would have been impossible without the teacher’s help, or that the task was particularly easy (Boersma & Chapman, 1981; Licht & Kistner, 1986). In the light of such attribution styles of children with LD, their teachers’ role, i.e., their attitude, expectations etc. cannot be underestimated.

Teacher beliefs influence teaching practice and have an impact on students’ educational experiences (Beach, 1994; Brantlinger, 1996; Brophy & Good, 1974; Gutierrez 1994; Stanovich & Jordan, 1998; Vaughen & Schumm, 1996). For most teachers, beliefs are formed early, remain highly durable, and acquire emotional dimensions (Pajares, 1992). Teaching, once considered a routine job, has become increasingly complex over the last decade. Present day accountability, fast changing roles, and increasingly diverse responsibilities are only some of the variables that make teaching at least somewhat stressful (Fimian, Pierson, McHardy, 1986). The demands on regular classroom teachers to meet the challenges of diverse student groups in their classrooms have heightened during the past decade. The influx of students representing a broad range of cultural groups, linguistic backgrounds and educational handicaps has resulted in many classroom teachers’ questioning their knowledge and skills for adequately planning and instructing students with special learning needs (Schumm & Vaughon, 1992). The mainstreaming of special education has contributed to heterogeneity in the regular classroom. The largest subgroup of mainstreamed students has been identified as students with learning disabilities (LD). The burden for providing an appropriate education for students with LD in the general education classroom is on general education teachers (Vaugh, S., Schumm, J.S., Kouzikanani, K. 1993).
The study of teachers’ knowledge continues to be a topic of interest to educational researchers (Ethell & McMenman, 2000; Freeman, 2002; Grossman, 1990; Hiebert, Gallimore, & Stigler, 2002; Putnam & Borko, 2000; Shulman, 2000). Although it is important that classroom teachers have a general knowledge about learning and a general understanding of learning difficulties, more specific knowledge about the classroom context, which includes knowledge of individual students in the class – has particular relevance to the education of students with learning difficulties (Paterson, 2007). In recent years, a large number of youngsters with learning or behavior problems, or both, have been assigned labels such as learning disabled (LD), emotionally disturbed (ED), educationally handicapped (EH), and culturally disadvantaged. As more and more youngsters have been so labelled, there has been an increasing demand for teachers who have the knowledge and skills to cope positively with the problems manifested by these pupils (Adelman, 1972). Teachers’ attitudes and expectations for children’s performance have long been of concern to educators (Brophy & Good, 1974; Finn 1976). Previous research has suggested that special education categories (e.g., mental retardation, emotional disturbance, learning disabilities) serve as labels and subsequently have significant impact on teacher expectations and teacher-child interactions. Children with lower academic performance continue to be the recipients of more negative interactions with teachers (Rist, 1970) and are provided with fewer response opportunities than their higher achieving peers (Brophy & Good, 1970). Bryan and Sharman (1980) report that children labelled learning disabled are held in relatively low esteem and are likely to be rejected by both their peers and adults who work with them in classrooms. Therefore, it becomes important to examine the nature of teachers’ attitudes towards the LD child and the performance expectations that may be generated by such attitudes. Teachers’ predictions of and expectations for the future performance of children have been shown to be influenced by a variety of factors. (Algozzine and Mercer, 1983). Brophy and Good (1974) report that the observation that a child is a low-achiever may result in different teacher-pupil interactions than the observation that a child is a high achiever. Such observations may result in biased interactions and
subsequently result in different performance outcomes for some children (Willis & Brophy, 1974).

General education teachers who work in inclusive settings need to demonstrate beliefs and skills that will allow them to address the diverse needs of their students with learning disabilities (Vaughn & Schumm, 1995). Teachers may encounter contradictory perspectives in teacher education programs on what research supports (e.g., whole language vs. direct instruction), and journal articles may not provide enough information for teachers to be able to apply research findings directly in classrooms (Scruggs & Mastropieri, 2004).

As the movement towards more inclusive settings for children with disabilities gains strength, it becomes increasingly important to understand how general education teachers perceive the academic outcomes of these children. The largest group of children with disabilities in special education programs are those with learning disabilities. Many of these children are placed in the general education classroom for the majority of their instructional day, often with ancillary support services from special education personnel. Thus, the way in which general education teachers perceive the achievement of children with learning disabilities in comparison to that of their nondisabled peers is of great significance (Clark, 1997).

Research on the relationship between teacher’s perceptions of children’s school performance and their subsequent responses to high-and low-achieving students may offer the basis for predicting how primary school teachers will respond to the instructional outcomes of their students with learning disabilities. Teacher attribution research is supported by a wealth of empirical evidence, most of which has been generated in the United States (Clark, 2000). This knowledge base suggests that teachers, as naive scientists, seek to explain the negative or unexpected achievement outcomes of their students by intuitively examining such potential causes as students’ prior achievement, difficulty of the task assigned, or effort expended to predict the cause of an outcome (Weiner, 1986).
Attribution theory (Graham, 1990, 1991; Weiner, 1979, 1985, 1986) offers a useful framework for exploring teachers’ responses to children’s academic outcomes such as success or failure in the general education classroom. Although the attributional process was initially presented as a theoretical one, a body of empirical research now exist that supports its principles. Attribution researchers (Frieze, 1976; Freize & Synder, 1980; Weiner, 1985) have identified ability and effort as the principle perceived causes of individual success or failure. In its most adaptive state, success is seen as the result of personal competence, whereas failure can be overcome by effort. Ability, in an academic context, can be characterized as consisting of aptitude and learned skills, whereas effort is the level of exertion applied to a situation, either temporarily or over time (Weiner, 1979). Attributional principles can be applied in contexts that are either self-directed, as when we attempt to understand our own behaviour, or other-directed, such as when a teacher attempts to analyze a student’s classroom performance in order to increase his or her academic success (Graham, 1990, 1991; Weiner, 1979, 1986).

Negative or unexpected student outcomes, such as test failure, commonly result in an attributional search by classroom teachers. Teachers may use causal attributions to answer the question, “why did my student fail?” (Graham, 1990). A teacher reviews his or her prior knowledge about a student to determine the cause for failure (Kelley & Michaela, 1980). Among these causes can be the students’ ability, effort expended or mood, or the task’s difficulty (Burger, Cooper, & Good, 1982; Cooper & Burger, 1980). In most cases, teachers view a student’s level of ability and effort expended as the most powerful of these causes (Graham, 1990, 1991).

Teachers’ emotional and behavioral reactions to their students’ academic outcomes have a direct impact on the behavior of their students, influencing children’s future actions and self-perceptions (Graham, 1990). For example, the pity felt by a teacher might prompt his or her offering of a reward or unsolicited help, even when a student is engaged in an easy task. These teacher reactions might send low-ability cues to the student, which may result in the child forming a negative view of his or her own
competence as a student. Conversely, teacher anger and subsequent punishment following a negative outcome may be interpreted by the child as cues that he or she is in control of the academic outcome and, thereby, a competent student.

Empirical research has identified three properties, or dimensions, of causes that are influential in determining their impact. These dichotomous dimensions – locus of causality (internal / external), stability (Stable / unstable) and controllability (controllable / uncontrollable) – combine to provide the perceiver with information regarding an individual’s competence. Controllability is further seen to influence the way in which the perceiver assigns personal responsibility for outcomes when an individual is seen as being in control of an outcome, he or she is viewed as responsible, whereas an outcome outside the control of the individual is seen as one for which he or she is not responsible (Weiner, 1986). Ability is conceptualized as internal, unstable, and controllable. Thus, when failure is ascribed to low ability, it is seen as resulting from a fixed characteristic over which the individual does not have volitional control, whereas failure due to lack of effort is viewed as more changeable and thereby under the individual’s volitional control. Teachers’ perceptions of the causal properties of their students’ academic outcomes result in emotions, such as anger and pity (Graham & Weiner, 1986; Weiner, 1986), which in turn lead to action. Attribution researchers have identified a number of specific responses by teachers, and the causal properties that lead to them.

TEACHER RESPONSES TO STUDENT OUTCOMES

The work of Graham and Weiner (1986) established a linkage between anger/pity and rewards / punishment. They found that anger or pity is often teachers’ first responses following a negative classroom outcome; consequently, teachers are influenced by the degree to which they perceive their student as able to control particular events. Graham and Weiner concluded that classroom teachers may feel anger toward a child whom they perceive as having failed an important test due to a lack of effort, particularly if the child is of high ability, yet they feel pity toward a child who has failed because of his or her low ability. In the case of the child expending low effort,
the teacher views the child as being in control of the outcome, and thus feels anger, whereas the teacher perceives the child of low ability as being unable to control the outcome and thus feels pity. Consequently, the teacher will punish the low-effort child more and reward him or her less, but they will regard the low ability child more and punish him or her less.

Weiner and Kukla (1970) studied the way in which psychology students, assuming the role of teachers, distributed evaluative feedback to hypothetical students completing a test. College and high school student participants were provided with information about a series of hypothetical students’ ability (high or low), effort (termed motivation; high or low), and degree of success or failure on a classroom test, then were asked to assign reward or punishment appropriate to each students’ outcome. In this context, ability and effort act as determinants of success or failure, with outcomes the result of an interaction between the two. Overall, Weiner and Kukla found, participants were more inclined to reward than to punish, with both effort and ability affecting appraisal of achievement behaviours. Two distinct patterns emerged from the data. First, low-ability students expending low effort received less punishment than high-ability, low effort students. Second, and of particular importance to this discussion, low-ability, high-effort (motivation) students received more reward than high-ability, high-effort students. Weiner and Kukla attributed this finding to a “cultural belief ... that the individuals who is able to overcome personal handicaps and avoid failure is particularly worthy of praise.” (p. 3).

The stability of a cause is highly influential in determining teachers’ expectations that an outcome will recur (Weiner, 1985, 1986). Failure due to causes that are viewed as stable, such as low ability, will result in a high expectation that failure will recur whereas failure due to unstable causes, such as effort or task difficulty, will result in a low expectation of repeated failure. Further, this relationship is somewhat circular in nature: teachers’ prior expectations influence their determination of the cause of an outcome, thereby affecting future expectations (Graham, 1991, Weiner, 1985, 1986).

The role of student motivation, or effort, is pivotal in determining how teachers set
their levels of expectancy for student achievement. Tollefson, Melvin, and Thippavajjala (1990) found that teachers see low motivation (effort) as the principal reason for academic difficulty, with acquired characteristics, such as poor attitude and poor skills, also acting as significant contributors. Tollefson et al. suggested that perhaps teachers view effort in low achievers as relatively stable as compared to that in high achievers.

Equally important to our understanding of how teachers respond to the academic outcomes of their students is how students interpret the attributional feedback they receive from their teachers. These attributional messages are powerful sources of information upon which children base their perceptions of their competence as students (Graham, 1990).

ATTRIBUTION AND STUDENT PERFORMANCE

School children gain information about personal competence in part, from classroom cues. Often, they base their attributions for success and failure on those cues. Among the most potent of these sources of attributional information is the classroom teacher (Graham, 1990). In a series of developmental studies, Weiner, Graham, Stern and Lawson (1982) found that teachers’ interactions with students could affect the students’ perceptions of personal control over success and failure. Students perceive two causal antecedents that originate with teachers as indicators of their level of ability: Pity versus anger (emotion) and reward versus punishment (action). Weiner, Graham, Stern, and Lawson proposed the following sequence in response to these findings. A teacher may experience the emotions of anger or pity following student outcomes that are based on his or her expectancies for individual children. These emotions are conveyed to individual children, who may then interpret anger, which implies that the teacher views the child as being in control of the outcome, as a highly-ability cue and pity, which implies a child has no control over an outcome, as a low-ability cue. Similarly, students interpret rewards in the face of failure as a low ability cue, because a reward following failure implies that the teacher believes that the child can do no better and should not expect to improve. Punishment following
failure is, viewed as an indicator of high ability with the child perceiving the teachers’
punishment as an indication that he or she can control such outcomes and thereby is
expected to improve them. Weiner, Graham, Stern, and Lawson concluded that this
feedback, whether subtle or direct, serves to reinforce students’ perceptions of
themselves as competent learners when the feedback is positive, or, when it is
negative, as learners who cannot be successful. Teachers ascribe an outcome to a
cause and social emotions (anger and pity) follow, which are shaped by the properties
of that cause (Hunter & Barker, 1987; Rolison and Medway, 1985; Weiner, 1979,
1986). Evidence from both the attribution and the learning disability literature may
shed some light on how these attributional processes take place in the classroom and
this attributional process might tell us how classroom teachers might perceive
learning disability and thereby respond to it (Clark, 1997).

Consideration of the definition of learning disability in light of Weiner’s (1993)
discussion of “Sin Versus Sickness” offer some clues as to how teachers
conceptualize learning disability. Weiner identified certain causes of outcomes in life,
such as disability, as being sickness and others, such as drug abuse, as sins.
Sicknesses are conceptualized by most individuals as internal to the individual,
generally stable, and outside the control of the individual; therefore, they are seen as
worthy of high levels of pity and low levels of anger. Outcomes resulting from these
causes are rewarded at high levels and punished at low levels. Conversely, sins are
viewed as unstable and under the control of the individual, and thus they elicit more
anger and less pity (Weiner, Graham, & Chandler, 1982); they are viewed as worthy
of little reward but deserving of great punishment.

Learning disability is rooted in the traditional medical model of disability, that is, it
can be seen as a condition, needing diagnosis, that is centered within the child rather
than in the educational environment (Doris, 1993). The federal definition of learning
disability (Federal Register, 1977) supports this view. It remains the dominant model
for identifying and remediating specific learning disabilities in the classroom (Wang,
Reynolds, & Walberg, 1987). It is reasonable, then, to propose that most teachers will
conceptualize specific learning disability as internal to the child, stable, and uncontrollable. Given the previously proposed causal properties of learning disability, teachers can be expected to assign low levels of personal responsibility to children with learning disabilities and thus will hold low expectancies for them. It then can be hypothesized that teachers’ anger towards children with learning abilities will be lower and pity higher than it will be for their nondisabled peers. Further, teachers will reward students with learning disabilities more highly than nondisabled children for success, a contention supported by Weiner and Kukla’s (1970) proposition that higher levels of reward accompany the overcoming of personal handicap. Similarly, it can be hypothesized that less punishment will be assigned to children with learning disabilities who fail in the face of low ability than to nondisabled children; the external stable, and uncontrollable nature of learning disability may, in fact, invoke a level of pity in teachers that will influence their reward and punishment behaviour. Finally, it is hypothesized that teachers will hold higher expectations for future failure by the children with learning disabilities than by their nondisabled peers.

According to Weiner (1986) attributing success to ability (Internal stable) increase one’s expectation of future success on a given task. Since, in this case, the actor considers the cause of his success to be a characteristic that will continue to affect his performance in the same way, his confidence in future task is high. For similar reasons, attributing failure to lack of ability lowers one’s confidence and expectations for success, since one then expects the failure – inducing cause to continue to have negative effects in future situations. Alternatively, he argues that attributing success to effort (internal unstable) does not increase one’s expectations for future successes. In this case, the actor considers the cause of his success to be a transient quality that may or may not affect him in the same way, i.e. that he will only do well in the future if puts enough effort into the task again. Similarly, attributing failure to lack of effort, does not lower one’s confidence or expectations for future success, since the cause of the negative results is not highly likely to present again in future situations. Consequently, Weiner argues that ability attributions for success generally increase task motivation.
and ability attributions for failure generally decrease task motivation but effort attributions for either success or failure have minimal motivational effects overall.

Kun and Weiner (1973) argue that ability and effort attributions have a compensatory relationship in academic achievement, i.e. those who have to exert a lot of effort to achieve on a tasks are perceived as having less ability than those who do not exert a lot of effort and achieve on a tasks. Diener and Dweck (1978) found evidence that shows children do spontaneously make causal attributions of ability and effort in achievement contexts, asking children to “think out loud” as they completed an experimental tasks in which they induced failure. And as might be expected given the attributional framework above, Schunk (1983) found that feedback attributing good performance to ability was more effective than attributing it to effort in improving subsequent task performance and self-competence measures. Barker and Graham (1987) found a developmental shift in children’s perceptions of these types of feedback. O’Brien (2004) found that teachers believed positive feedback to be significantly more beneficial than negative feedback. Teachers believed positive feedback improves students’ motivation to achieve more than their understanding of material.

Clark (1997) found out the moderating effect of learning disability on ability and effort. She sought to explore to what degree teachers’ knowledge of the presence or absence of a learning disability would influence (a) the level of reward or punishment they gave a hypothetical boy based on his ability and effort expended, (b) the pity and anger the teachers felt, and (c) the expectations the teachers held for the child’s future failure. The findings were consistent with past research (see Weiner, Graham & Chandler, 1982; Weiner and Kukla, 1970) showing that learning disability does influence teachers’ responses to a boy’s test failure. Further, these data support the predicted association between reward / punishment and anger or pity towards failing students: Teachers generally reward boys with learning disabilities more than their nondisabled peers, and feel less anger and more pity following test failure. This may be due to what Weiner (1986) called a “norm to be kind” (p.146) to those having limitations, such as disabilities. Expectations of future failure are higher for children
will learning disabilities. These findings lend support to the view of learning disability as internal, sable, and uncontrollable, which Weiner, Graham, and Chandler found was the combination of dimensions that elicited the greatest pity and the least anger. These findings appear to demonstrate the interrelationships among reward and punishment, anger, pity and expectancy of future failure. High effort, particularly in the face of low ability, is rewarded and elicits pity responses; overcoming an adversity such as a disability by hard work is particularly valued.

Figure 1.4 An attributional process depicting teacher behaviors that function as indirect causal cues (Weiner & Kukla, 1970)

The potential role of the classroom teacher in the identification of LD has been the focus of several studies. Gerber and Semmel (1984) argued that regular classroom teachers can be viewed as useful and defendable “tests” of academic achievement. As they point out, the typical tests of ability and achievement are based on analysis of only small samples of students’ behaviour, while teachers have available to them a far richer and varied sample of behavior, thus eliminating chance factor that may affect test results (Kenny & Chekaluk, 1993). Also, teacher ratings are based on the extended history with the child and on cumulative evidence, in contrast to the static measures of a child at one point in time, provided by standardized tests (Coleman & Dover, 1993, Mc Carney, 1996). The use of teacher rating scales is not, however, a
standard practice for the assessment of the academic performance and the identification of students with learning disabilities. One reason for this is that in the field of LD, there is a lack of a precise definition that would allow the identification of the different types of LD, through the use of a universally accepted test or standard (Lyon, 1996). Identification nowadays relies primarily on the exclusion of alternative diagnoses and on a discrepancy between the ability of a student, defined as the score on intelligence tests, and the scores on standardized tests that measure various aspects of achievement. The discrepancy method, however, has been questioned for its appropriateness to identify students with LD (e.g. Morgan, Singer-Harris, Berstein, & Weber, 2000; Siegel, 1999). Among the major concerns is the possibility for a reciprocal interaction between ability and achievement, the lack of specific cut-points to objectively evaluate this discrepancy the insufficiency of the method to inform instruction, the lack of technical adequacy, and the excessive cost of the instruments used (Aaron, 1995; Algozzine & Ysseldyke, 1986; Lyon, 1996; Stanovich, 1986). Also because large discrepancies are rarely found in young children, students with LD are often missed and are not referred for evaluation until they have been already exposed to years of academic failure and frustration. Among the consequences of this late identification are also the missed opportunities for the children to receive the appropriate interventions before their deficiencies become massive, very often resulting in low self-esteem, defined motivation and behavioral difficulties (Lyon, 1996; Satz & Fletcher, 1988; Taylor, 2000).

Gresham, Reschley, and Carey (1987) evaluated the accuracy of teachers' judgements in identifying students as learning disabled or handicapped, comparatively to standardized tests, and indicated that teachers could identify the students at a slightly higher level than the combination of intelligence and achievement tests. Given the overwhelming evidence on the validity of teacher judgements, Gresham et al. (1987) suggested that teachers' judgements should not be considered as only a predictor in the special education system but could be the criterion by which the presence or absence of a learning disability is judged, like a standardized test.
In addition to identifying current academic difficulties, a considerable number of studies show teachers can help successfully predict future academic problems, which makes them valuable in the early identification of LD (Coleman & Dover, 1993; Gijsel, Bosman, & Verhoeven, 2006; Gresham, Mac Milan, & Bocian 1997; Kenny & Chekaluk, 1993; Quay & Steele, 1998; Satz and Fletcher, 1988; Taylor et al. 2000; Teisl, Mazzoco, & Myers, 2001). This is very important, since interventions applied after some years of academic failure may be costly by LD ineffective (Lyon, 1996). According to Taylor et al. (2000), among the benefits of this teacher-based method is that it can target children for educational interventions prior to the development of severer difficulties, that it relies on what the teachers already know, and that ratings are linked to instructional objectives. Identified students could be referred for a more detailed assessment regarding their skills and weaknesses (Coleman & Dover, 1993). Teacher may encounter contradictory perspectives in teacher education programs on what research supports (e.g. whole language Vs. direct instruction) and journal articles may not provide enough information for teachers to be able to apply research findings directly in classrooms. However, the major problem may be the nature of teaching in schools. Scruggs & Mastropieri (2004) suggested that teaching can be likened to fields such as nursing and firefighting, where professionals must make immediate decisions under changing conditions. For these decisions, teachers must draw most heavily on their own experiences and the experiences of others.

Teaching is a complex activity, one that requires not only technical knowledge and skills but also the ability to reflect upon teaching and to make decisions based upon sound educational principles (Morine-Dershimer, 1985). Effective teachers are viewed as decision makers, that is, individuals who can analyze the effectiveness of educational decisions, based on their knowledge of theory, curriculum and instructional methods, and then make appropriate instructional decisions based on their analysis. Teachers should be provided with many guided experiences so they can enter the workforce with a variety of experiences reflecting scientific practices.