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An Impairment Model of Learning Disability Diagnosis

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This review of the literature and available evidence attempts to clarify the debate surrounding the learning disability (LD) diagnosis by offering a diagnostic model based on the principles of academic and functional impairment. The authors briefly review the strengths and weaknesses of current LD diagnostic approaches. Next, they propose a method for diagnosing LD that presumes core symptoms of below average academic achievement and associated impairment in other domains of functioning, including behavior and emotion, interpersonal relations, and self-care and fulfillment, which is modeled on the successful decades old approach to mental retardation diagnosis. The authors contend that this approach may help ameliorate the diagnostic problems plaguing the LD field. Finally, they present a rationale for future research efforts aimed at determining a level of low achievement that is associated with functional impairment.

Keywords: learning disabilities, low achievement, functional impairment, diagnosis

Accurate diagnosis is prerequisite for improving science and practice, yet a consensual model of learning disability (LD) diagnosis continues to elude both scientists and practitioners (Dombrowski, Ambrose, & Clinton, 2007; Stanovich, 2005). Unfortunately, recent educational legislation does not portend to significantly improve this diagnostic dilemma. The 2004 reauthorization of the Individuals With Disabilities Education Act (now the Individuals With Disabilities Education Improvement Act [IDEIA]), in fact, permits state education agencies to choose between the standard intelligence–achievement discrepancy diagnostic method and a response to research-based interventions model to classify students as having LDs. This approach will undoubtedly result in differing diagnostic practices, prevalence rates, and symptom constellations across geographic locations (Dombrowski et al., 2006).

Diagnosis of LD, as is the case with all disorders, is a form of classification that serves five primary purposes: communication, information retrieval, description, prediction, and theory formulation (Blashfield, 1998). In the case of LD, the lack of a common definition has impeded information organization, thus stalling research efforts and progress toward prevention, identification, and remediation. The magnitude of the LD diagnostic problem was documented long ago in a large-scale study by Shepard, Smith, and Vojir (1983), who found that fewer than half of the students in a large previously identified LD sample met any known diagnostic criteria for LD as defined in federal law or the professional literature. A diagnostic breakthrough in diagnosing LD is needed; thus, we offer a proposal that is based on the long history of LD diagnostic research findings and existing principles of educational classification and psychological and psychiatric diagnosis. We describe our model as a model of *academic impairment* because it requires both significantly below average academic achievement test scores and impaired adaptive functioning. However, before we introduce the model, some background must be presented.

We begin with the premise that LDs are intrinsic to individuals, as cited in some of the earliest case studies of word blindness, aphasias, dysgraphias, and the like, and that they merit accurate diagnosis in order to promote research that leads to prevention and intervention practices. We propose further that a more direct method for diagnosing LD that is based on low academic achievement test scores as the core deficit or symptom may help ameliorate the diagnostic problems plaguing the LD field. To avoid the arbitrariness associated with cut scores for such methods, we suggest determining a level of academic achievement that is associated with significant functional impairment. By using low

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achievement test scores associated with functional impairment, only students with significantly impaired functioning will be classified as having an LD, thus reducing the variability and overuse of the diagnosis by reserving it for children with demonstrated need.

It is far easier to criticize than to propose solutions. The criticisms of various LD diagnostic methods are well-documented elsewhere, making it possible to briefly summarize some of the issues herein. Before proposing a theory of LD classification, we first briefly review currently used LD diagnostic approaches (i.e., discrepancy, cognitive processing, and response to treatment diagnostic models).

A Brief History of LD Diagnosis

The LD field has remained remarkably resistant to change and diagnostic innovation (Stanovich, 2005). Current diagnostic criteria remain eerily similar to Kirk's (1963) definition focusing on exclusions and Bateman's (1965) discrepancy formula (Dombrowski, Kamphaus, & Reynolds, 2004), with the new IDEIA diagnostic regulations threatening to leave the LD field further adrift without a consistent approach. In a historical context, current LD diagnostic criteria represent the equivalent of the original *Diagnostic and Statistical Manual of Mental Disorders (DSM*; American Psychiatric Association, 1952), a manual that bears few similarities to the standards and procedures in the classification system of the fourth edition, text revision, of the *DSM* (*DSM–IV–TR*; American Psychiatric Association, 2000).

Many eminent LD researchers have pointed out problems with the standard discrepancy approach, which requires a minimum standard score difference between an individual's achievement and intelligence test scores, and these researchers have called for new diagnostic methods (Dombrowski et al., 2004; Francis et al., 2005). Some of the most widely cited shortcomings of the discrepancy model are its lack of reliability and validity, its lack of relevance to treatment (Vellutino et al., 1996), and its inability to identify children who are in need of remediation versus those who are not (Stanovich, 2005). Additionally, it is associated with delayed access to intervention (Stuebing et al., 2002) and the Matthew effect, whereby deficient reading skills result in depressed IQ test scores, thus reducing the likelihood of the child experiencing a discrepancy and therefore receiving an LD classification (Stanovich, 1986).

Partly in response to the problems of the discrepancy approach, some experts in the area of LDs have suggested that diagnosticians should directly assess the cognitive processes (e.g., short-term memory, spatial processing, auditory processing, etc.) referred to in the definition in order to make the LD diagnosis (Kavale, Holdnack, & Mostert, 2005). Critics of the processing approach have argued that research does not support the validity of assessing processes to identify students, that process training efforts do not effectively remediate academic weaknesses, and that federal LD classification criteria have never required cognitive processing assessment (Reschly & Wilson, 1990). Long ago, Mann (1979) summed up the seductiveness and central flaws of processing models when he wrote, "The problem is, as far as I am concerned, that when I am training the mind and its parts, I am not sure of exactly what I am training. And I am always in danger of believing what I do" (p. 540). This multidecade history of blind alleys and lack of scientific progress has left open the opportunity for other diagnostic models to emerge.

Response to intervention (RTI) has been offered by several researchers and new IDEIA regulations as an alternative approach that can overcome the shortfalls of other diagnostic methods. RTI typically assesses academic performance, individual performance, and responsiveness to intervention of individuals performing below classroom expectations (to rule out poor instruction). Proponents note that RTI emphasizes early intervention, does not use IQ as a determinant, and has the ability to discriminate between poor instruction and individual learning (L. S. Fuchs, Fuchs, & Speece, 2002). Although RTI is promising as an early intervention tool for academic difficulties, it has several problems and leaves several questions unanswered, including whether to use general education intervention (e.g., L. S. Fuchs et al., 2002) or intensive individual interventions (e.g., Vellutino et al., 1996), how to define and measure responsiveness, and whether gains will be maintained after return to the regular classroom (Vaughn, Linan-Thompson, & Hickman, 2003). The use of different methods can lead to different prevalence rates and different children being identified (D. Fuchs, Fuchs, & Compton, 2004). In addition, the entire model often rests on the collection of local norms and comparisons with those norms, thus again making the diagnosis ungeneralizable across municipalities.

In addition to variability in application and methodological confusion, there is concern that RTI will transform LDs into a general learning problem with little diagnostic distinctiveness, potentially including all children with below average achievement, thus making the LD category untenable (Kavale et al., 2005). Even in the best case scenario, RTI may cause the LD field to remain stagnant because its implementation has not been carefully controlled. Consider, for example, that students whose response is slower than expected will be deemed to have an LD (Vaughn et al., 2003). The expected response is based on other students' level and growth, boiling down to another version of a discrepancy formula with all of the problems of its predecessor. Given all of these issues and the lack of available research addressing best practices (Burns & Senesac, 2005), it is readily apparent that more research is necessary before RTI is routinely used as a diagnostic method.

Low Achievement Definition of LD

Over a decade and a half ago, the eminent measurement scientist Lori Shepard said it elegantly, "If LD is an inexplicable inability to learn, an effective assessment strategy is to start with the evidence of inadequate learning and test for other explanations for the problem" (Shepard, 1989, p. 559). This insightful statement predicted many subsequent findings and trends in LD diagnosis. Evidence mounted, for example, to show that all children with reading disabilities, regardless of their measured intelligence, possessed the same core deficit in word reading (Stanovich, 2005; Stuebing et al., 2002). Numerous investigations began to use Shepard's model of using below average reading scores to diagnose children in need of reading intervention (Vellutino et al., 1996).

Low achievement approaches in practice typically require that students score below a certain cutpoint (e.g., 25th percentile) on an individually administered, norm-referenced academic achievement measure and that they have cognitive scores somewhere above the mental retardation (MR) range (i.e., IQ $>$ 70). The actual cut

scores are arbitrarily chosen by independent researchers or are based on social policy issues, such as resource allocation. Several researchers support this type of method for LD diagnosis because it is parsimonious and may be reliably applied across school districts. More salient, though, are findings that groups identified with low achievement and IQ-discrepant definitions do not significantly differ on cognitive characteristics, RTI, and other outcomes (Stanovich, 1999; Stuebing et al., 2002).

Opponents of low achievement test score methods argue that the use of a cutpoint for determining LD lacks research support (Stuebing et al., 2002). It has been further argued that any cutpoints used for LD diagnosis would have to be arbitrary because academic achievement scores are normally distributed in the population. Furthermore, it is correct to say that because there is no natural breaking point in the achievement test score distribution, setting a cutpoint to distinguish between underachievers and individuals with LD is not a straightforward matter (Francis et al., 2005). To some, it seems unlikely that a single test score can accurately determine how much of a latent construct, LD, that an individual actually possesses (Fletcher et al., 2005). On the other hand, cut scores are a necessity. They are used for diagnosing MR and high blood pressure, defining blindness, classifying the severity of hurricanes with wind speed, classifying drought by inadequate rainfall levels, among innumerable other examples in medicine, meteorology, psychiatry, psychology (e.g., $p < .05$), and other fields. Cut scores are currently used in LD diagnosis and always will be, because failure to classify is failure to define, which is in this case the LD syndrome.

It is similarly asserted that a low achievement definition of LD is questionable because it depends on a single indicator, an achievement score. This argument holds that a single test score cannot "capture perfectly a student's ability on an imperfectly measured latent variable" (Fletcher et al., 2005, p. 510). Francis et al. (2005) demonstrated that repeated testing resulted in fluctuations around a cut score because measurement error resulted in 32% of students in their sample being classified as having a disability at Time 1 but not at Time 2 (i.e., potential false positives). Furthermore, it is believed that more information is necessary to validly infer a latent construct such as LD (Fletcher et al., 2005) and that academic achievement is influenced by several factors that may be cognitive, behavioral, and social (Francis et al., 2005). Thus, a single test of academic achievement cannot assess all of these factors. The single indicator problem can, however, be remedied by using multiple indicators, in the form of two or three measures of the same academic construct, to increase reliability and validity.

Despite these problems, there is evidence for the validity of low achievement markers for identifying students as having an LD. As noted previously, studies have shown that IQ-discrepant and low achieving poor readers do not differ from one another on many outcomes of interest. This finding suggests that the low achievement group shares the characteristics of individuals with LDs thought to be captured by the discrepancy approach. In addition, the low achievement method does not discriminate against individuals whose ability level is below the mean and who are therefore less likely to be identified by other approaches. A low achievement definition of LDs, in fact, does not require any comparison within individuals but simply bases decision making on comparison with a national norm accompanied by evidence of functional impairment as we point out later.

The use of low achievement scores may be roughly equivalent to the use of RTI. Research has demonstrated that groups formed on the basis of exclusion of MR cases and low achievement scores below the 25th percentile rank result in subgroups of underachievers that can be validly differentiated from typical achievers on the basis of neurological markers and other external variables (Fletcher et al., 2005). For instance, studies by Vellutino and colleagues (Vellutino et al., 1996; Vellutino, Scanlon, & Lyon, 2000) have demonstrated that level of reading achievement predicts RTI, with those children who are lowest achieving being the slowest responders. It logically follows that students who have received adequate instruction and yet remain well below average academically are the students with the greatest learning difficulties and thus the most in need of special services. These students could be reliably identified through the implementation of low achievement criteria.

A recent review of various diagnostic methods also concluded that the low achievement model is more reliable and possesses better validity evidence than aptitude–achievement and intraindividual difference models (Fletcher et al., 2005). Fletcher et al. (2005) suggested that a combination of RTI to rule out alternative causes (e.g., poor instruction) and low achievement test score criteria could identify a reliable and unique group of underachievers. We similarly assert that a low achievement cut score with exclusionary criteria could provide a parsimonious and reliable method of identifying individuals who display impairing learning difficulties.

MR as Metaphor for LD

The idea of impairment associated with true disorder is not a new one and has been identified as one of several areas that should be considered before determining *caseness,* or in other words, determining whether an individual has a particular disorder (Bird, 1999). These considerations include criteria for classification, such as *DSM–IV–TR* (American Psychiatric Association, 2000) or IDEIA requirements, distress associated with the condition, and the aforementioned presence of impairment assessed independently of the core symptoms. This last requirement, functional impairment, has been defined as specific deficits in multiple domains of functioning that develop after the onset of a disorder. Functional impairment includes the concept of adaptive functioning, or adjustment to life's demands across multiple domains (Winters, Collett, & Myers, 2005).

Several researchers have demonstrated a relationship between intelligence test scores in the MR range (i.e., below the cut score of 70) and high rates of emotional and behavioral disorders, with comorbidity estimates ranging from 10% to 50% (see Hodapp & Dykens, 2003). Such elevated rates of dual diagnosis indicate that the cutpoint used to diagnose MR does indeed identify individuals who suffer from greater impairment than individuals with average and above average intelligence. It is reasonable to assume that identifying children as having an LD on the basis of a meaningful level of low achievement scores and functional impairment would result in identification as accurate as current identification of MR.

On the surface, functional impairment may appear analogous to severity; however, they are two distinct concepts. Severity indi-

cates the extent to which the disorder is manifested or the seriousness of the disorder itself. Thus, severity can be measured by considering the quality and quantity of the symptoms, by making severity a characteristic of the disorder, or in the case of LD, by testing the "severity" of the child's percentile rank on an accepted norm-referenced academic achievement measure individually administered by a trained professional. Functional impairment, on the other hand, is a more global construct and a characteristic of the individual (Bird, 1999). It is much broader and can be conceptualized as poor outcomes that may have been avoided if the individual did not suffer from a particular disorder. In the case of LD, functional impairment may be hypothesized to include poor developmental outcomes that may be attributable to the presence of the disorder, such as deficits in adaptive and school behavior. In fact, below normative mean scores on adaptive skills measures have been found for LD clinical samples (Reynolds & Kamphaus, 2004).

Traditionally, LD diagnosis has not incorporated functional impairment into its diagnostic standards, yet the field of psychiatry has placed increasing importance on its presence in determining psychopathology and developing cutpoints for the number of symptoms needed to make a diagnosis. The *DSM–IV–TR*'s inclusion of distress or impairment and the Global Assessment of Functioning is probably the most salient evidence of this trend of distinguishing between symptom severity and level of functioning (American Psychiatric Association, 2000). This assessment of impairment is also a better fit with clinicians' inclination to evaluate and make treatment decisions in a dimensional rather than a categorical manner (Bird, 1999).

The Children's Global Assessment Scale (Shaffer et al., 1983) provides an example of how functional impairment can be determined. It is a "single unidimensional global measure" of severity of a disorder as well as social functioning (Shaffer et al., 1983, p. 1228). It is completed in the context of a broader evaluation of a child, taking clinical information, history, symptoms, behavior, and social relations into account with all of these inputs synthesized into a single meaningful index. Ratings on the Children's Global Assessment Scale range from 1 to 100 with lower numbers representing poorer functioning and a description corresponding to each decile (Bird, 1999). The use of this scale as a measure of functional impairment has also been shown to improve the ability to determine whether a child has responded to treatment (Shaffer et al., 1983).

Another example of functional impairment requirements for diagnosis is the *DSM–IV–TR* and the American Association on Mental Retardation's criteria for MR. The *DSM–IV–TR* (American Psychiatric Association, 2000) requires subaverage intellectual functioning as illustrated by an IQ of about 70 or below with concurrent deficits in adaptive functioning in 2 out of 11 areas, with an onset prior to 18 years of age. The current American Association on Mental Retardation definition states that "mental retardation is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18" (American Association on Mental Retardation Ad Hoc Committee on Terminology and Classification, 2002, p. 1).

The incorporation of functional impairment in diagnostic decisions shows promise in identifying the students who are most in need of services. Many of the children who currently meet diagnostic criteria across all disorders are not severely impaired, and services are not deemed to be necessary (Bird, 1999). A related phenomenon in LD diagnosis is the growth in relative compared with absolute poor achievers allowing high-functioning students with achievement discrepancies to receive already scarce special education services (Gordon, Lewandowski, & Keiser, 1999). The Americans With Disabilities Act (1990) has already addressed this problem with the incorporation of the *average person standard*. According to this standard, individuals are disabled only if their functional impairment limits them relative to most people. Stanovich (1999) assailed the irrationality of the LD diagnosis for individuals with average achievement and high IQ scores as a peculiar practice that makes LD the only disorder where average persons can have a disability.

By including functional impairment with low achievement test performance in the diagnostic criteria for LD, we would be ensuring that the average person standard is met. According to Bird (1999), inclusion of impairment in such decisions results in two to three times fewer cases being identified compared with meeting the diagnostic criteria alone. Of course, the degree of impairment typically exhibited may differ according to the disorder in question.

Bird (1999) has identified three domains of functioning for individuals with mental health disorders. The first domain, interpersonal relations, includes how children relate to peers, family members, and other adults in their environment. The second domain, performance in school, refers to children's ability to perform comfortably and without undue anxiety at an expected level based on the child's potential. The third and final domain, self-care and fulfillment, assesses individuals' ability to enjoy life and use leisure time through different recreational activities, interests, or hobbies. The importance of functioning in school constitutes the core symptom of the disorder as highlighted by IDEIA's emphasis on significant interference with *educational* performance.

A low achievement and functional impairment approach to classification of children with LDs will prevent the LD category from becoming a meaningless repository for all struggling students, just as the requirement of adaptive functioning deficits in the diagnosis of MR prevents identification of the 6-hour retarded child. In the latter case, a child possesses the core symptoms of the disorder—far below average intelligence test scores that impair school functioning—but global impairment outside the school context is not present, thus making it difficult to infer that there is a disorder intrinsic to the child. To retain taxonomic significance, diagnostic criteria must effectively identify only those students who are truly deficient in an academic subject and suffering functional impairment.

Defining Functional Impairment

In trying to determine how functional impairment should be applied to LDs, we have reviewed the research regarding the behavioral and emotional functioning of children with LDs. Taken together, this research suggests that many, but not all, students currently diagnosed with LDs will exhibit behavioral and emotional problems, albeit often mild ones (Hallahan, Lloyd, Kauffman, Weiss, & Martinez, 2005), so defining impairment in this way would exclude individuals who may have LDs. In addition,

functional impairment is required for diagnosis across disorders, and the definition of functional impairment should not be greatly changed to accommodate certain disorders. In other words, if functional impairment consists of social–emotional impairment for LD diagnosis, it should consist of social–emotional impairment for attention-deficit/hyperactivity disorder, depression, anxiety, and other *DSM–IV–TR* disorders. This conception of functional impairment is unacceptable though, because social–emotional difficulties are explicit symptom requirements for depression and other disorders, thus preventing functional impairment so defined from being measured independently of the symptomatology of another disorder.

Much of the research concerning functional impairment has been conducted in the area of attention-deficit/hyperactivity disorder. In an attempt to determine what is meant by *DSM–IV–TR*'s impairment requirement, Lewandowski, Lovett, Gordon, and Antshel (2006) reviewed various instruments used to measure impairment. Their review of seven measures suggested that functional impairment is actually roughly equivalent to adaptive behavior functioning, including areas such as academic and social functioning. For example, the Impairment Rating Scale (Fabiano et al., 2006), which correlated with other impairment ratings, consists of the following six domains: relationships with peers, relationships with teachers, academic progress, self-esteem, influence on classroom functioning, and overall impairment. On the basis of the accepted definition of functional impairment as adaptive functioning in the field of attention-deficit/hyperactivity disorder, where most impairment research has been conducted, it follows that impairment for other disorders, including LD, can reasonably be considered synonymous with adaptive skills. Of course, it would be desirable for future research to be conducted on functional impairment as it specifically relates to LD, as has been done for attention-deficit/hyperactivity disorder.

Renewing again the metaphor of MR, we do not expect a cut score of 2 standard deviations below the mean on an adaptive behavior scale to be a realistic cut score (or cut score range) for the diagnosis of LD. On the other hand, we expect future research to suggest that impairment occurs for cases of LD, and this impairment is at least about half a standard deviation below the normative mean for an adaptive skills measure as has been shown in some previous research (Reynolds & Kamphaus, 2004).

Defining Low Achievement

We propose documenting low achievement as the core deficit (symptom) of LD that retains the exclusionary clauses associated with prior definitions, such as low achievement attributed to a lack of educational opportunity or another disability. This type of approach has been advocated by Dombrowski et al. (2004), Siegel (1999), and Stanovich (1999). Each of these authors has suggested different arbitrary cutpoints, which, as mentioned previously, is one of the main arguments against this method.

Stanovich (1999) agreed that there is no magic point where one does or does not have a disability because the symptoms of most disorders (e.g., attention problems, depression, hyperactivity/impulsivity, etc.), including LD, appear to be normally or near normally distributed in the population. He suggested that a cutpoint reflecting social policy issues, such as the allocation of scarce resources, could prove useful. The use of the cutpoint does not necessarily mean that students scoring near but above that point should not receive services. Instead, it may be more reasonable for schools to provide accommodations on a continuum, so that students do not have to be labeled as having an LD to receive some type of specialized assistance. Regardless, the fact that academic achievement exists on a continuum should not prevent the field from providing a means for educators and clinicians to identify which students should receive the diagnosis, just as has always been the case for MR and other conditions.

The level of low achievement that is most associated with having an LD may be hypothesized on the basis of existing research. For instance, Siegel (1999) and Stanovich (1999) have each proposed that a percentile rank that scores below the 25th percentile and the 10th–15th percentiles, respectively, be used to identify students with LD because of research findings, observations, and resource availability. Vellutino et al.'s (2000) work revealed that standard scores below 80 to 85 (i.e., below about the 16th percentile rank) were associated with the lowest rates of reading growth for students receiving intensive intervention (mean word attack T scores = 77.5 and word identification T scores = 86.22 for their low-growth group). This work and other work indicate that a cutoff score at approximately the 15th percentile can be expected to reliably and validly identify students with LD and associated functional impairment.

Although we think that LD diagnostic criteria would benefit from our suggested revision, it is still necessary to retain the exclusionary clause (i.e., a student's disability may not be the result of visual, hearing, or motor disabilities and may not be the result of MR, emotional disturbance, or environmental, cultural, or economic disadvantage). Stanovich (1999) argued that intelligence should play no role in the diagnosis of LD, but it seems rational to assume that students classified as MR suffer from a general inability to learn, not a *specific* LD. Without the MR and other exclusions, students whose academic difficulties are the result of other causes may receive the LD label inappropriately, thus further stalling scientific progress.

The use of low achievement scores for identifying the core deficit of LD precludes intelligence–achievement and achievement–achievement discrepancy analysis and increases the accuracy of LD diagnosis. This outcome is likely because difference scores are inherently less reliable than the individual obtained scores used to calculate the difference score (Kamphaus, in press). This method also provides a reliable identification procedure that is uniform across locations and serves the purposes of classification. Instead of a simple cutpoint, a confidence band around the selected score and the use of two or more achievement indicators of each latent construct would help to increase validity. An academic impairment diagnostic model is more complex than it first appears. Considerable clinical experience continues to be necessary to rule out mental health, speech–language, vision, hearing, and non-English fluency problems that may be alternative causes for the existence of LD in a given case.

Conclusions

An academic impairment model is consistent with the current definition of LD as stated in IDEIA (2004). This model does, however, suggest some revisions to the definition. A revised definition could be stated as follows (changes noted by italics):

> The term "specific learning disability" means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in *significantly below average academic achievement corresponding to a percentile rank of about 16 on at least two measures of* ability to listen, think, speak, read, write, spell, or do mathematical calculations. *Evidence of co-occurring functional impairment in adaptive functioning must also be present.* (B) Disorders included.—Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. (C) Disorders not included.—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. (IDEIA, 2004, § 602, paragraph 30)

These simple changes in the definition would be adequate for at least including the criteria of below average academic achievement as a core symptom and functional impairment as an additional part of the diagnostic rubric. Although clinical judgment is always an important factor in diagnosis, the core symptom, academic achievement, cutpoint (or cutpoints that may differ across academic construct area) should be based on a consistent set of research findings. Prior research findings suggest that a normalized standard score of about 85 might be promising. We have analyzed some large community-sample-based data sets that include multiple measures of functional impairment across numerous domains of functioning and nationally normed measures of academic achievement with good evidence of construct validity. Using latent class analyses, we found that an academic achievement cutoff near the 15th percentile for both reading and mathematics achievement test scores was associated with below average adaptive functioning in the first through third grades (Brueggemann, 2007), but that higher cut scores at about the 25th percentile may be more appropriate for the fourth and fifth grades.

In supporting the use of a low achievement test score based on functional impairment for the diagnosis of LD, we are not disparaging the use of response to intervention. On the contrary, we are supportive of its use for ruling out inadequate instruction and as a method of prereferral intervention. After a student is identified as having an LD, the curriculum-based measurement component of RTI may also be used for teachers and special educators to monitor treatment progress (Dombrowski, 2003; Dombrowski et al., 2004). RTI may eventually be found useful as a defining feature of LD. Our proposal for an academic impairment model of LD diagnosis should not be used to stifle innovation and refinement of LD diagnostic criteria. Rather it is intended to serve as a promising practice near term until more science is available. Besides, RTI appears to be ideal for prereferral intervention, hypothesis testing, and treatment monitoring.

Speece, Case, and Molloy (2003), in fact, have produced evidence in support of the use of RTI to identify *dually discrepant* children as LD, where a dual discrepancy is defined as below average academic achievement accompanied by failure to respond to intervention. They compared this approach to a low academic achievement approach and found that although there was overlap between the procedures, the low achievement method produced more false negatives, that is, children who scored above the achievement cut score but were dually discrepant according to curriculum-based measures. We could not find a direct comparison of the diagnostic coverage of dually discrepant and academic impairment (low achievement plus functional impairment) approaches to classification, which represents a logical next step.

In conclusion, in creating a diagnostic definition of LD, it is important to ensure that it serves the purposes of classification and represents a meaningful construct (Shepard, 1989). That is why we propose the use of below average achievement test scores and functional impairment assessment—an academic impairment approach that can be reliably applied across locations, providing both a common language for description and a more consistent diagnostic portrait (Blashfield, 1998). The incorporation of functional impairment, which Bird (1999) described as poor outcomes associated with a disorder, will increase the likelihood that identified students actually suffer from an intrinsic LD, thus allowing researchers to better study the etiology, prevention, remediation, and epidemiology of children who have such a disorder. Our emphasis on the documentation of subaverage academic achievement as the core symptom of LD is hardly new (see Shepard, 1989). In many respects, our diagnostic proposal simply augments the clear thinking offered by Shepard (1989) by including functional impairment criteria in the diagnostic criteria.

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