
Due to errors in citation, this manuscript, which originally appeared in Volume 28, Issue 1, of the Learning Disability Quarterly (pp. 2-16) is published here in its corrected version. References to and citations of the earlier publication should be updated to the present version.

RESPONSIVENESS TO INTERVENTION AND THE IDENTIFICATION OF SPECIFIC LEARNING DISABILITY: A CRITIQUE AND ALTERNATIVE PROPOSAL

Kenneth A. Kavale, James A. Holdnack, and Mark P. Mostert

Abstract. Responsiveness to intervention (RTI) is being proposed as an alternative model for making decisions about the presence or absence of specific learning disability. We argue that many questions about RTI remain unanswered, and that radical changes in the proposed regulations are not warranted at this time. Since many fundamental issues related to RTI have not been resolved, a better strategy may be to more rigorously implement existing identification criteria (e.g., discrepancy and psychological processing deficits) in a structured psychometric framework. Suggestions for how to modify present procedures are provided.

KENNETH A. KAVALE, Ph.D., is professor, Regent University.

JAMES A. HOLDNACK, Ph.D., is senior research director, Harcourt Assessment, Inc.

MARK P. MOSTERT, Ph.D., is professor, Regent University.

Identification of a "specific learning disability" (SLD) has been a long-standing issue for special education. The problem centers around the lack of consensus about the best way to operationalize the formal definition articulated in the Individuals with Disabilities Education Act (IDEA). To provide assistance, the then U.S. Office of Education (1977) issued rules and regulations formalizing discrepancy as the primary criterion for SLD identification (Mercer, Jordan, Alsopp, & Mercer, 1996).

The use of discrepancy as the primary (and sole) criterion for SLD identification created a number of

problems, however. One was the consequent over identification of SLD. Specifically, the SLD population has increased by about 150% to the point where it represents over 50% of the special education population and over 5% of all students in school. These increases are unparalleled and unwarranted, especially when viewed in relation to other high-incidence mild disabilities (i.e., mental retardation [MR] and emotional disturbance [ED]). For example, MacMillan, Siperstein, and Gresham (1996) suggested that the mild MR numbers have declined significantly primarily because of the misclassification of students as LD who might previously have

been classified as MR. Additionally, Wong (1996) suggested that teachers may have overgeneralized the SLD concept in an effort to provide special education services for a greater number of students experiencing school difficulties.

Besides overidentification, another problem is found in the very different numbers of students with SLD identified across settings. The significant variability is seen, for example, across states where prevalence rates have been found to range from 2% to 7% (Coutinho, 1995). There is little reason for such different rates, and it appears that they may primarily reflect a lack of consistency in the identification procedures used (Lester & Kelman, 1997). Forness (1985) demonstrated how policy changes in California led to a 156% gain in SLD with concomitant losses in the MR and ED populations. In contrast, far greater consistency in prevalence rates have been found for categories like hearing impairment and physical/multiple disability (Singer, Palfrey, Butter, & Walker, 1989).

The overgeneralization of the SLD concept and inconsistency in applying the discrepancy criterion has led to a confounding of SLD vs. low achievement (LA). Over time, a conventional wisdom has emerged suggesting that there were few psychometric differences between students with SLD and students with LA. The idea of limited SLD-LA differences was based primarily on a study by Ysseldyke, Algozzine, Shinn, and McGue (1982), who found a large number of identical scores between SLD and LA subjects as well as a high percentage of overlap between scores. In a meta-analysis of the original study data, however, Kavale, Fuchs, and Scruggs (1994) found that "the lower achievement scores of the LD group are of a magnitude that distinguishes them from their LA counterparts" (pp. 74-75). Algozzine, Ysseldyke, and McGue (1995) disagreed, suggesting that "because students with LD may be the lowest of a school's low achievers, they necessarily represent a group of people with qualitatively different needs . . ." (pp. 143-144). What Algozzine et al. failed to consider were findings showing minimal group differences in cognitive ability, which mean that, when compared, the SLD and LA groups "represent two distinct populations . . . defined by an ability-achievement distinction represented in a different achievement distribution but not in a different ability distribution" (Kavale, 1995, p. 146). Similarly, Fuchs, Fuchs, Mathes, Lipsey, and Roberts (2002) concluded that SLD-LA differences in reading were substantive and reliable. Thus, although there were large numbers of students with SLD, questions about their "real" identity continued to surface.

The problems associated with SLD identification led to questions about the usefulness of discrepancy as the primary identification criterion for SLD. As part of the

OSEP-sponsored Learning Disabilities Summit (see Bradley, Danielson, & Hallahan, 2002), a majority opinion emerged suggesting that, "IQ/achievement discrepancy is neither necessary nor sufficient for identifying individuals with SLD" (p. 796). To replace the discrepancy model, a responsiveness-to-intervention (RTI) model was endorsed by several of research and professional organizations. In the RTI model, SLD would be redefined as inadequate response to intervention (Vaughn & Fuchs, 2003). The process would proceed roughly as follows: (a) students are provided with empirically validated instruction, (b) progress is monitored, (c) students who do not respond receive either more intensive or different instruction, (d) progress continues to be monitored, and (e) failure to respond may qualify a student for special education (see Fuchs, Moch, Morgan, & Young, 2003). Gresham (2002) argued that "children who fail to respond to empirically validated treatments implemented with integrity might be identified as LD" (p. 499). Thus, the RTI seeks to replace traditional psychometric methods of identification with a method that helps "close the gap between identification and treatment" (Bradley et al., 2002, p. 798). The emphasis is on "treatment validity" (Fuchs & Fuchs, 1998), which moves the identification process away from diagnosing deficits to examining student outcomes.

The RTI approach to SLD identification was one of the major outcomes of the LD Summit (Elksnin, Gartland, King-Sears, Bryant, Rosenberg, Scanlon, et al., 2001). In the proposed reauthorization of IDEA, discrepancy was no longer required and, in its place, a process that determines if a child responds to scientific research-based intervention was added. Additionally, the National Research Center on Learning Disabilities was created to assist in developing and implementing the RTI process. Thus, RTI may be seen as a radical departure from traditional means of determining special education eligibility. However, is implementation of RTI justified? Is RTI the answer to the perceived problems with the discrepancy model? Will RTI resolve the perceived problems in SLD identification?

Defining SLD

The most fundamental problem facing SLD remains definition, not identification. The formal SLD definition continues to be contentious because of its failure to provide closure on "two critical elements: understanding – a clear and unobscured sense of LD – and explanation – a rational exposition of the reasons why a particular student is LD" (Kavale & Forness, 2000, p. 240). Although a number of alternative SLD definitions have been proposed, none has been universally accepted, meaning there is no single statement describ-

ing the SLD condition. The present SLD definition has always been too broad to be wrong and too vague to be complete.

One purpose of the RTI model is allegedly to "redefine" SLD. But, in reality, SLD is only being re-operationalized. Since the pending reauthorization of IDEA does not include any change in the formal SLD definition, there is technically no "redefining." Instead, RTI is best viewed as a new operational definition that will supplant the "discrepancy" criterion.

The reluctance to change the SLD definition seems curious in light of 35 years of debate about its merits. In a scientific sense, formal definition changes must precede and be the foundation for operational clarifications. Consequently, a rationale for not changing the formal definition seems necessary. The fields of MR and ED provide precedence for changing formal definitions. Therefore, it seems indefensible not to change the SLD definition in the face of profound changes being proposed for practice. If the definition of SLD is not to change, closer adherence to what is actually stipulated in the definition seems warranted.

One concept clearly articulated in the SLD definition is the presence of "a disorder in one or more of the basic psychological processes." Although a critical feature of the SLD concept, process deficits have been generally ignored in the identification process (Torgesen, 1979). At best, the RTI model can only infer that a process deficit exists and, without direct assessment, there is no way to determine if a student may possess SLD as currently conceptualized (Torgesen, 2002). With modern theories about the importance of processing skills replacing the outdated processing views (e.g., perceptual-motor deficits) that were associated with the SLD concept when first proposed, it becomes critical to reemphasize process deficits in an operational definition of SLD (e.g., Hoskyn & Swanson, 2000; Swanson & Alexander, 1997).

SLD Parameters

A definition delineates the nature and limits of a phenomenon, but the present SLD definition does not adequately circumscribe the condition; therefore, its interpretation for practical purposes (i.e., operationalization) is suspect (Kavale, Forness, & Lorschach, 1991). For example, "discrepancy" is not specifically articulated in the SLD definition but has been the primary criterion used for SLD identification. The disconnect between the formal definition and its operational consequences demonstrates the impossibility of the theoretical being accurately represented in the operational and vice versa. Discrepancy alone is too disconnected from what the formal definition stipulated to meet the criteria of significance and meaningfulness necessary for

a valid operational definition (Bergmann, 1961). As a category of special education defined in the law, SLD should represent a particular disability class (Kavale & Forness, 1985a). For linguistic reasons, however, it has been easier to use the plural term "learning disabilities," which has eroded the notion of SLD as a discrete and independent condition different from other more generalized learning deficiencies.

Predictably, the meaning of SLD has also been diluted by a conventional wisdom suggesting that "there are many types of learning disability," thereby extending its boundaries to the point that SLD is no longer a distinct classification. Thus, in practical terms, SLD has moved in a direction that makes it increasingly unrecognizable (Kavale & Forness, 2003). The logical relation shifts from *All students with SLD have learning problems* to *All students with learning problems have SLD*, which is patently not true if SLD is properly viewed as a categorical designation (Kavale & Forness, 1985b). No other category in special education has demonstrated similar confounding resulting in the very existence of SLD being called into question by being referred to by such terms as "myth" (McKnight, 1982), "questionable construct" (Klatt, 1991), or "imaginary disease" (Finlan, 1993).

SLD should reclaim its position as a legitimate category for students experiencing particular types of learning difficulties. A good place to start is with a new formal definition that articulates strict parameters for the condition. Simply tinkering with a new operational definition will not achieve this goal.

SLD and Reading Disability (RD)

The RTI model appears to have increased the confounding between SLD and RD by focusing exclusively on reading achievement. The problem is that SLD may not be solely a reading achievement problem. Although a large proportion of students with SLD manifest difficulties in reading, other academic areas may be deficient, especially math (Kavale & Nye, 1985-1986). The RTI emphasis on reading raises questions about the equivalence of SLD and RD. Are the two concepts equivalent?

The early days of SLD witnessed heated debate about the distinction between SLD and RD (e.g., Artley & Hardin, 1976; Hartman & Hartman, 1973; Lerner, 1975). In reality, the discussions really involved questions about territorial responsibilities rather than conceptual equivalence (Gaskins, 1982). Apparently, supporters of RTI view SLD and RD as equivalent as reflected in a willingness to designate students who demonstrate RD as SLD. The problem with this position is that RD is itself a legitimate concept and, while present in many students with SLD, it is not what makes

SLD what it is. If SLD and RD are viewed as equivalent, then both are not necessary. Logically, the emphasis on reading suggests that RD would be the only concept necessary, but then pragmatic problems arise about how to provide special education services to students with RD. The SLD designation provides the only entry to special education, but, in doing so, it loses its integrity and becomes a special education category of "convenience" for students who cannot read (Kavale & Forness, 1998).

SLD and Discrepancy

According to Vaughn and Fuchs (2003), "At the heart of the controversy about [SLD] identification is the use of the IQ-achievement discrepancy" (p. 137). This is true only because RTI supporters appear to have exaggerated the deficiencies presumed to be associated with discrepancy. For example, one objection suggests that the degree of discrepancy does not relate to severity level. This objection is rendered immaterial, however, if discrepancy is properly viewed as a threshold concept documenting the presence or absence of underachievement, a necessary but not sufficient criterion for SLD identification. Discrepancy need not be related to severity to be useful in the identification process (Kavale, 1987).

Another objection suggests that the academic performance of students with a discrepancy does not differ from that of students without a discrepancy. This objection is based on the incorrect assumption that discrepancy has a bearing on academic performance. Students who may or may not demonstrate a discrepancy could possess the same level of low achievement and thus similar academic performance levels. In a *relative* sense, both groups would appear to be "disabled" since both exhibit functional impairments in academic development. Keogh (1994) suggested that unexpected low achievement relative to ability is one of the basic elements defining SLD. The student demonstrating a discrepancy is different because that student may be properly termed as an underachiever and thus possess a primary feature of SLD.

If a student is not an underachiever, the possibility exists that he will fall into the category of "slow learner" (i.e., students with IQs from 70-85). About 14% of the school population falls in this IQ range, which has never been a special education category and probably never should. A slow learner does not demonstrate unexpected low achievement, but rather an achievement level consonant with her IQ level (Gresham, MacMillan, & Bocian, 1996). Although such low achievement is problematic when there is a desire that "no child be left behind," it nevertheless reflects a true state of affairs. What should *not* happen is a designation of SLD for a slow learner; the SLD concept should not

be sacrificed to resolve a long-standing school problem.

The value of discrepancy lies in its ability to document the unexpected nature of the learning problem. Everything else being equal, there was little reason to believe that the particular student would experience learning difficulties. The discrepancy criterion indicates the presence of underachievement but only the *possibility* of a disability. Discrepancy should thus represent the "first gate to learning disabilities identification" (Speece, Case, & Molloy, 2003, p. 147). Although the discrepancy concept is valid across IQ ranges, SLD should be associated only with significantly below-average achievement levels. For example, Siegel (2003) was distressed by the fact that a student with an IQ of 130 and reading achievement score of 110 would be considered RD according to the discrepancy model. Such an argument is specious because students should be referred only if they are exhibiting signs of academic difficulty (i.e., below-average achievement). Gordon, Lewandowski, and Keiser (1999) warned against the use of the SLD label for "relatively well-functioning" students. Few, if any, school districts test *all* students and provide special services for a student with only a significant IQ-achievement discrepancy. Special education should be provided when there is significant academic difficulty (i.e., below-average achievement) *and* the criteria for particular special education classification are met. If the student described by Siegel was struggling educationally, then consideration might be given to other potential diagnoses such as attention deficit disorder or mood disorder rather than blindly assuming an RD diagnosis. Conversely, it would be equally absurd to diagnose a child with an IQ of 50 and a reading score of 75 as RD and not MR.

Discrepancy models for SLD identification have also been criticized for presumably not yielding reliable information, but such an argument appears a bit contrived. The properties of various discrepancy models have been thoroughly evaluated, and a consensus has emerged that standard-score regression methods are psychometrically defensible (Shepard, 1980; Wilson & Cone, 1984). Because students were often required only to meet the discrepancy criterion for SLD classification, anybody who did were, in fact, identified with a sound statistical procedure that provided *reliable* information (Reynolds, 1985). The real problem comes from large-scale studies showing that sometimes up to 50% of any SLD population may not meet the stipulated discrepancy criterion (e.g., Kavale & Reese, 1992; Norman & Zigmond, 1980; Shepard & Smith, 1983). This raises the question: Why were students who did not meet the discrepancy criterion identified as SLD? If a student does not meet a reliable criterion, the resulting classification cannot be reliable. In other words, the problem has not

been the reliability of the discrepancy criterion but the lack of rigor with which it is implemented: "public school practices for diagnosing children with LD bear little resemblance to what is prescribed in federal and state regulations (i.e., administrative definitions) defining LD" (MacMillan, Gresham, & Bocian, 1998, p. 323).

Arguably, the presence of measurement error in discrepancy model increases the risk of false negatives as well as some false positives. But measurement error only has an impact when there is *rigid* adherence to a single cut-point without further investigation of competing diagnostic hypotheses. For instance, if a discrepancy criterion of 20 points is used and a student has a 19-point discrepancy, that student may still be SLD just as a student with a 21-point discrepancy should not automatically become SLD. Best practice would dictate that scores within a range of discrepancy, for example, between 15 and 25, be evaluated more thoroughly for other indicators of learning impairment such as family history, impaired phonemic awareness or phonological processing, slow or error-filled rapid automatic naming, poor vocabulary development, or limited working memory capacity. Such an evaluation would increase diagnostic accuracy and provide a convergence of evidence for one diagnosis versus competing diagnostic hypotheses.

Objections to discrepancy models for SLD identification have also included the criticism that they do not inform instruction. This suggestion appears to miss the point that the real task is to first achieve a reliable and valid classification. Discrepancy is best viewed as an *identification* criterion, so there would be little reason to expect it to have any bearing on instructional decisions. Creating effective instruction can become the primary focus when identification procedures provide confidence that the student is "truly" SLD. It is unfortunate that special education has come to deemphasize classification, thus creating a mindset that cares little about whether or not a student is "truly" SLD so long as effective instruction can be provided. Although effective instruction is the *raison d'être* of special education, the system should ensure that special education is provided only to those who require it. Unchecked advocacy will inexorably undermine the integrity of the SLD category (Kavale & Forness, 1998).

SLD and Intelligence

For some time, there has been the suggestion that IQ is not necessary in defining SLD (Siegel, 1989; Stanovich, 1991). This objection seems unwarranted because IQ indeed plays a critical role in SLD identification. First, without IQ, it would be impossible to determine an expected achievement level, a necessary part of the discrepancy criterion. Second, determination of

intellectual ability is necessary in light of findings revealing, for example, that one empirically validated reading instruction method (i.e., systematic phonics) is not effective for cognitively limited children IQ (Ehri, Nunes, Stahl, & Willows, 2001). Special education has unfortunately come to deemphasize the value of intellectual assessments (Morison, White, & Fever, 1996).

Some of the persisting negative perception of intellectual assessment stems from the fact that in the past IQ tests were developed under the strong influence of the concept of "g," the assumption that there is one primary cognitive ability (Buckhalt, 2002). For this reason, attempts to find diagnostic profiles based on scatter, recategorizations, patterns, or factor scores based on the Wechsler scales were not successful (Kavale & Forness, 1984). Over time, however, cognitive ability tests have moved away from "g," and there are now well-normed, well-validated, theory-based tests of cognitive processes that measure multiple and complex processes or abilities (Kaufman & Kaufman, 2001). The value of IQ tests, therefore, lies in their ability to identify individual differences in cognitive functioning and the possibility of providing insight to better understand the nature of underlying process deficits (Kaplan, Fein, Kramer, Delis, & Morris, 1999). In turn, the enhanced understanding of cognitive processes will result in better *individualized* interventions (Naglieri, 2003).

In reality, IQ tests have only modest influence on the special education process, and it is not true that IQ testing is an impediment to obtaining special education services (Fletcher et al., 1998). The 150% increase in students classified as SLD attests to the absurdity of this charge. The use of IQ tests is vilified because it includes the term "intelligence," which may create positive or negative impressions about a student. For example, special education eligibility with an SLD designation is viewed as positive and an entitlement whereas eligibility based on an MR or ED classification is viewed negatively and potentially punitive. Some classifications are associated with significant negative perceptions, and these perceptions are what make IQ tests appear villainous since they provide the basis for the subsequent labels (MacMillan, Gresham, Bocian, & Lambros, 1998).

The use of IQ tests in documenting discrepancy does not appear to restrict access to special education. In fact, if the discrepancy model was implemented more rigorously, the SLD classification rate would probably become fairly constant. But the discrepancy model is not implemented rigorously, as shown by Gottlieb, Alter, Gottlieb, and Wisher (1994), who suggested that "the discrepancy that should be studied most intensively is between the definition of learning disability mandated by regulation and the definition employed on a day-to-day basis in urban schools" (p. 455). Similarly,

MacMillan et al. (1998) remarked that, "We did not anticipate the extent to which the process would yield children certified as LD who failed to meet the discrepancy required by the education code" (p. 322).

This lack of rigor has resulted in two alternative (but inappropriate) discrepancy models: a *relative* discrepancy model whereby SLD determination depends on the level of individual student performance as compared to other students in a particular school (Peterson & Shinn, 2002) and an *absolute* low-achievement model whereby below-average academic performance, irrespective of IQ level, leads to an SLD designation. These alternative discrepancy models exist because the individual school setting (i.e., context) becomes the primary influence on the way the presence or absence of a disability is determined. For example, if the average reading ability in a particular classroom is 90, a student with an IQ of 110 and a reading score of 85 would not appear out of the ordinary in terms of reading achievement and may not be identified, but a student with an 80 IQ and a 75 reading score may appear to have a disability in that context.

The lack of attention to context and the implementation of alternative discrepancy models means that IQ-achievement differences are often not provided the opportunity to identify underachievers, a necessary component of SLD identification (MacMillan & Siperstein, 2002). Besides context, perceptions about disability also play a significant role (Lovitt & Cushing, 1999). The positive connotation associated with SLD makes it the disability category of choice and provides an easy way for schools to placate parents who are less willing to accept an MR or ED classification for their child.

SLD and Unexpected School Failure

The RTI approach to SLD identification essentially eliminates the notion of SLD as unexpected learning failure in the presence of average or above cognitive ability. Without an assessment of general cognitive ability, the "unexpected" notion would be impossible to document. Although underachievement operationally defined by discrepancy appears integral to the SLD concept, the field appears to be moving away from the idea of unexpected learning failure with the mantra that IQ is not necessary in the identification of SLD. This suggestion is reinforced by the idea that there is no need to distinguish between high ability in low-achieving versus low ability in low-achieving students because of small differences between high- and low-ability groups on measures related to reading and behavior (Vellutino, Scanlon, & Lyon, 2000). But it would be illogical to assume that students with low ability (meaning they tend to score low on nearly every assessment) would

outperform students with SLD (i.e., high ability) on all measures of reading and behavior. An SLD group, by definition, does not function in the low-average to borderline IQ range. For example, if an IQ cut-off score is set too low, there are difficulties in distinguishing IQ-discrepant from non-discrepant students. For example, Stuebing et al. (2002) showed a modest difference ($ES = .30$) in general cognitive ability between IQ-discrepant and low-ability groups primarily because they were not really identifying different groups.

The demonization of IQ has led to the suggestion that IQ is unrelated to academic achievement. This is patently not the case (Nagleri, 2001), and it has been clear for a long time that intelligence tests are more highly correlated with scores on achievement tests than with grades given by teachers (Donahue, Coombs, & Travers, 1949). For example, Siegel (2003), believing that IQ was not related to reading, chose a specific measure of intelligence that had previously been found to be *not* related to reading. Not surprisingly, this investigation found no relationship between IQ and reading. Siegel had earlier rejected a measure like verbal intelligence because of its overlapping variance with reading even though Konold (1999) showed that the best predictors of reading achievement were the Verbal Comprehension and Freedom from Distractibility factor scores from the WISC-III. In yet another study aimed at proving the absence of a relationship between IQ and reading, D'Angiulli and Siegel (2003) used an outdated version of an IQ test (i.e., WISC-R), suggesting that the desire to prove IQ irrelevant for SLD identification far outweighed the tenets of sound experimental design.

When placed in proper perspective, it is possible to conclude that discrepancy is not problematic and may be validly included as a factor in making eligibility decisions about SLD (Kavale, 2002). When additional factors are included in the eligibility decision, the number of false negative and false positive diagnoses would be greatly reduced. Also, eliminating IQ-achievement discrepancy would result in a significant number of students with SLD *not* being identified when using only a relative discrepancy or low achievement model for determining eligibility. Thus, discrepancy remains useful as a fundamental element in SLD identification, and discussions about its demise are simply unwarranted (see Aaron, 1997).

SLD Diagnosis

By eliminating IQ testing as part of the special education process, RTI introduces what may be termed an "outcomes-based" model. Students are initially selected because of below-average reading achievement and are provided with an empirically validated intervention. If reading ability improves, the "special" intervention is

no longer necessary, and the student would return to the standard reading curriculum. If the student does not respond, then more intensive intervention would be in order. If the student fails to respond to the more intensive intervention, then a diagnosis of SLD would eventually follow and even more intensive remedial services would be required. The nature of these services remains a moot point but, if the student continues to struggle, perhaps the SLD diagnosis would, at some point, be transformed into an MR designation with a different set of special education services provided.

To see the inefficiency of such a system, consider the example of a student who demonstrates an inability to remain seated during classroom instruction and continually interrupts others in addition to demonstrating increasingly poor academic performance. Such a student would soon come to the attention of the classroom teacher and be referred for evaluation with a high probability of receiving some form of behavioral intervention for the primary symptom. If the student remains unresponsive, a more intensive behavioral intervention may be implemented but may still not significantly reduce the target behavior. Failure to respond to this more intensive intervention may then lead to a diagnosis of attention-deficit-hyperactivity disorder (ADHD) and pharmacological intervention. Even then, medication may initially have limited positive effects and may be changed several times with no significant effects. Since there is again a failure to respond, a diagnosis of oppositional defiant disorder (ODD) may now be considered, and interventions consistent with ODD behaviors implemented.

It is important to note that throughout this scenario the student would continue to experience reading difficulties. Yet, these reading problems take a secondary position until the confounding caused by the comorbidity among behavioral disorders is unraveled. The co-occurring difficulties suggest that reading problems may simply be part of a larger syndrome. Clearly, it would be far more efficient if appropriate assessments to establish the existence and parameters of particular problems be done in the first place (Lopez, Forness, MacMillan, Bocian, & Gresham, 1998).

Vaughn and Fuchs (2003) suggested that current SLD identification is flawed because it is predicated on a "wait to fail" model. This criticism is based on the misperception that the RTI model is, in reality, different from present practice. Early identification, which has been a major focus for a number of years, suggests that schools do *not* wait for failure but attempt to find "at-risk" students as early as possible (Jenkins & O'Connor, 2002). The real question is, "at risk" for what? Usually, the efforts have been directed at RD rather than SLD *per se*.

The "wait to fail" notion also assumes that reading failure is, at least partially, the result of poor instruction. If poor instruction were a primary variable associated with difficulties in learning to read, the possibility exists that whole classrooms, or at least many students in a single classroom, would be referred simultaneously. In most cases, classroom teachers are aware of students experiencing difficulties, and those students are provided with accommodations and supports. This is essentially the prereferral process, which attempts to provide appropriate modifications before formal special education is initiated (Fuchs, Fuchs, Bahr, Fernstrom, & Stecker, 1990).

The RTI model appears to be prereferral writ large with greater specification about the types of reading interventions that should occur as well as the measures to be used to assess reading performance. This is a significant positive step because the resources used for preventive interventions ultimately benefit *all* students. Nevertheless, a number of unanswered questions remain. First and foremost, should the student who moves through the RTI model, which clearly establishes increasingly severe RD, now be designated SLD? Such a change in status does not appear justified, primarily because RD should not be equated with SLD. Further, on what basis is an SLD classification warranted? At this point, the conceptual leap from RD to SLD is too great. Thus, the RTI model appears better suited for prevention of RD than SLD classification.

Besides the theoretical disconnect from the SLD construct, the RTI model presents pragmatic difficulties about how to proceed. After a child advances through the RTI model and is ultimately found eligible for special education, how do we determine what he or she needs? It seems clear that students who fail to respond during the RTI process probably possess unique needs that can only be determined with a comprehensive evaluation of intellectual/cognitive, academic, and psychosocial functioning. Hale and Fiorello (2001) suggested that it is necessary to intervene to assess so the RTI model will have the positive effect of directing attention toward comprehensive interventions for students who truly need them. Without a comprehensive evaluation, it would be difficult to design interventions tailored to unique needs, a fundamental tenet of special education (Braden & Kratochwill, 1997).

SLD and Empirically Validated Interventions

A primary advantage of the RTI model over previous prereferral efforts is that students experiencing reading difficulty are assured of receiving interventions with *some* empirical validation. Many of these interventions were reported by the National Reading Panel (2000) but have not gone unchallenged (Troia, 1999). It is im-

portant to note that the power of specific interventions may have been somewhat overstated since, statistically, the actual effects can only be deemed moderate (see Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh, & Shanahan, 2001). Such interventions, therefore, are unlikely to result in a change in classification from, for example, poor to average reader. Practically, on standardized reading measures, the obtained effects would indicate that a student in the borderline range (i.e., standard score = 70) would move, at the end of intervention, to a standard score of 78; which remains in the borderline range. Does this level of improvement indicate a significant response? Would above-average effects resulting in a standard score of, for example, 83 be indicative of a positive response? Given the modest level of response, it seems reasonable to ask how a presumed failure to respond to a specific intervention can be confidently translated into a specific diagnosis. In a majority of cases, students with LA will probably not change status. More important, low achievement is *not* a diagnosis, and is best viewed as a symptom common to many disability conditions.

The use of an empirically validated intervention in the RTI model, although clearly an advantage, also becomes somewhat disadvantageous because of the narrow focus on phonological processing, particularly phonemic awareness at the word level. Pressley and Allington (1999) argued that reading research needs to consider a variety of conceptualizations about the nature of literacy (e.g., comprehension) that transcend the word reading level. Thus, the focus on phonological skills tends to obscure the fact that general language processes are also major contributors to reading success. Based upon findings from a meta-analysis investigating intervention research in SLD, Swanson (1999) concluded that the importance of phonological awareness training may have been overstated.

Contributing to this perception is the well-supported double-deficit theory whereby RD is based on deficits in phonological processing *and* rapid naming of letters and digits (Wolf & Bowers, 1999). Allor (2002) concluded that phonemic awareness and rapid naming each contributes *uniquely* to word reading ability. Additionally, Ackerman, Holloway, Youngdahl, and Dykman (2001) found that students with RD also differed on orthographic tasks, attention, arithmetic achievement, and WISC-III factors. Thus, an emphasis on phonological processing may be too narrowly focused and not account for all the possible factors contributing to RD. In an open letter to Reid Lyon about the NICHD (National Institute of Child Health and Human Development) reading research efforts, Strauss (2001) suggested that, "Your narrow definition of reading, your avoidance of important questions on literacy . . . obli-

gates us to question whether you really do welcome challenge . . . and to consider your statements with the same scientific skepticism that you purportedly advocate" (p. 32). Thus, RTI approaches generally deal with interventions that have received only modest validation and have focused on a single deficit in what may be best viewed as a multivariate problem.

SLD and Responsiveness

Although many parts of the RTI model are well specified and rigorous, there appears to be some vagueness about the meaning of a "successful response to instruction." Does a student need to show that he is reading at a level consonant with peers? Does a student merely have to read more regardless of whether she remains significantly behind her peers? What tests should be used to demonstrate improvement? How will measurement error associated with any criterion be addressed? Who decides when the level of failure warrants formal referral? How is *no* response to instruction differentiated from a marginal response to instruction?

At this point, there are few established criteria for making such determinations, indicating a likely reliance on somewhat vague "clinical" (i.e., teacher) judgments about the level of response. The associated vagueness suggests that extraneous factors such as teacher expectations may unduly influence perceptions about student performance (Brophy & Good, 1974). Additionally, stereotypes have been shown to bias decisions about special education eligibility (Algozzine & Ysseldyke, 1980). For example, in a study about judgments under uncertainty, Ysseldyke, Algozzine, and Richey (1982) concluded that, "We have demonstrated that decision makers not only hold inordinately high estimates of the numbers of handicapped students, but that their estimates vary for different kinds of students" (p. 533). With the meaning of a positive response to instruction remaining vague, teacher expectations and perceptions rather than tangible criteria may be the primary influence on judgments that define a student as a non-responder and ultimately SLD. Under such indefinite circumstances, it is difficult to argue against the fact that "statistical" (i.e., test) results provide for more rigorous, consistent, and systematic decisions about an individual student (Meehl, 1954).

The use of narrowly focused interventions in the RTI model cannot account for the fact that these programs work for some students but not necessarily all students. This fact assumes greater importance when improved outcomes in reading for students with SLD have also been shown to be associated with, for example, instruction directed at higher-order processing, reading comprehension, and written expression (Vaughn, Gersten, & Chard, 2000). The "one size fits all" intervention

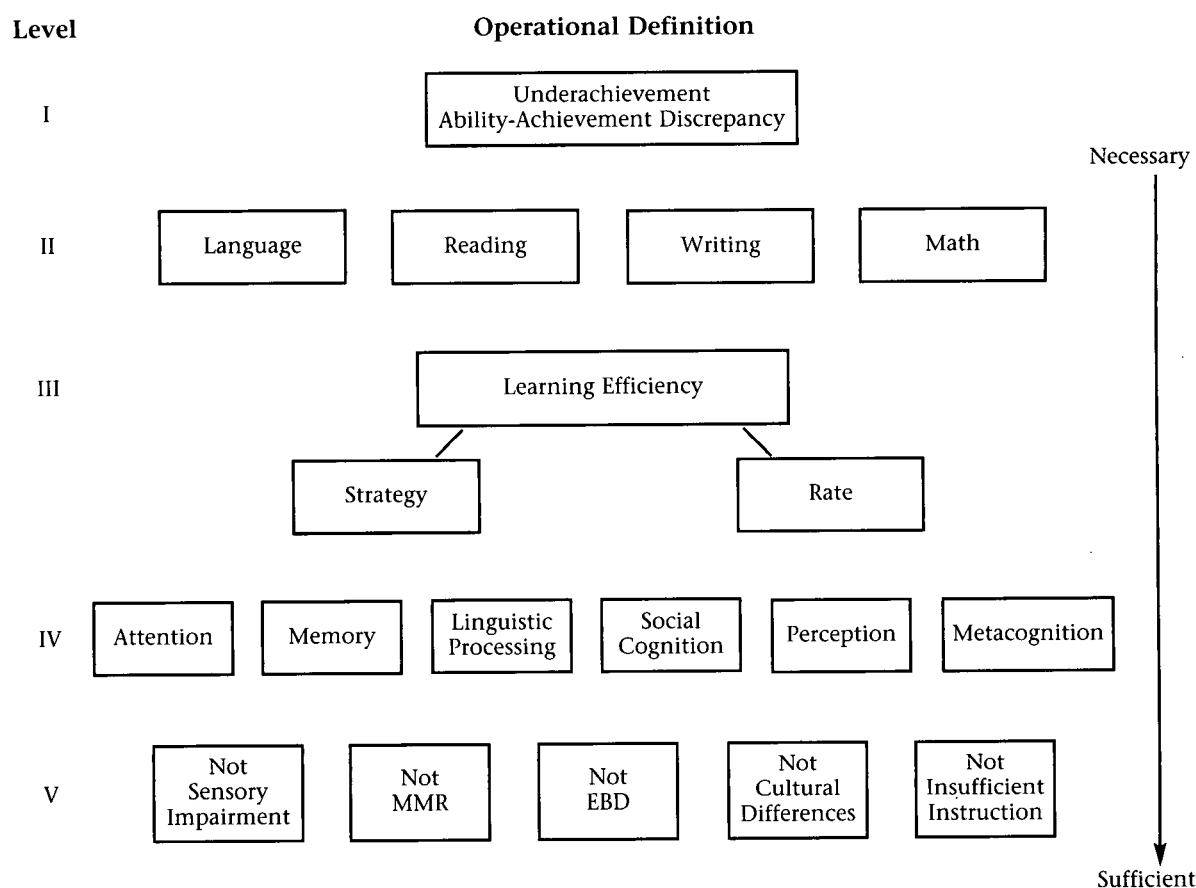
approach associated with RTI also fails to take into account the well-known heterogeneity of students with SLD (Kavale & Nye, 1991). Therefore, it is virtually impossible to make either a valid diagnosis or an individualized intervention program without test data gleaned from a comprehensive evaluation that elucidates individual strengths and weaknesses.

RTI and SLD Classification

The RTI model appears to be an appropriate first step in the SLD identification process. At the end of the RTI process, a student is known to possess significant reading difficulties that have not responded positively to

validated interventions. This appears to be the only proper conclusion, because nonresponsiveness should not be viewed as a diagnostic criterion. Non-responsiveness is an outcome that may or may not be caused by SLD. Thus, the RTI model cannot stand alone as the primary means of identifying SLD. Even though multifaceted, the RTI model still represents a single criterion (i.e., non-responsiveness), which was a criticism leveled against discrepancy models. The advantage of discrepancy over RTI is that it documents the presence or absence of underachievement, which is integral to the SLD construct. RTI, on the other hand, can only document low achievement in reading. If the identified

Figure 1. Example of an operational definition of learning disability by Kavale and Forness (2000).



Note. Adapted from Kavale, K. A., & Forness, S. R. (2000). What definitions of learning disability say and don't say: A critical analysis. *Journal of Learning Disabilities*, 33, 239-256. Used with permission.

Table 1
Comprehensive Framework for LD Determination

Level	Component	Outcome
I-A	Inter-Individual Academic Ability Analysis	Document specific academic skill or knowledge deficits
I-B	Evaluation of Exclusionary Factors	Identify alternative explanation for learning difficulties
II-A	Inter-Individual Cognitive Ability Analysis	Document specific cognitive deficits
II-B	Reevaluation of Exclusionary Factors	Identify alternative explanation for cognitive difficulties
III	Integrated Ability Analysis – Evaluation of Underachievement	Document that identified academic deficits are empirically or logically related
IV	Evaluation of Interference with Functioning	Document the degree to which identified deficits interfere with functioning
	Related Considerations	Identify other limitations in areas of social skills, motor abilities, vision and hearing abilities
	Eligibility Recommendation	Determine eligibility for SLD classification

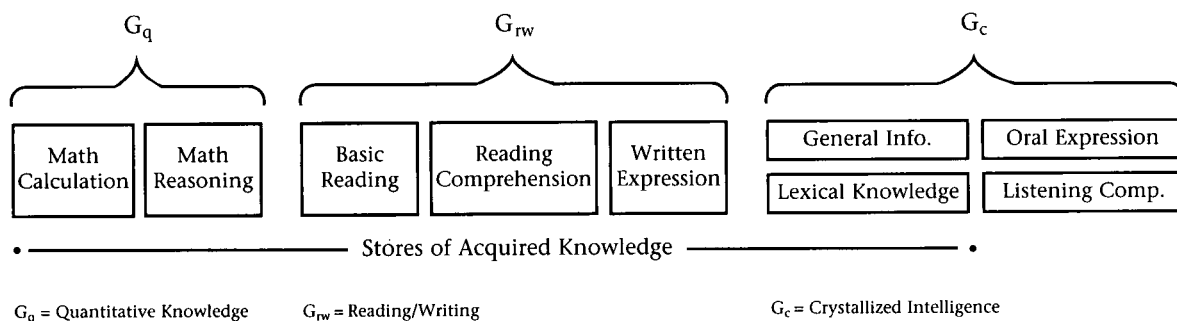
Note. Adapted from Flanagan, D. P., Ortiz, S. O., Alfonso, V. C., & Mascolo, J. T. (2002). *The achievement test desk reference (ATDR): Comprehensive assessment and learning disabilities*. Boston: Allyn & Bacon. Used with permission.

underachievement is properly viewed as a necessary but not sufficient criterion for SLD classification, the diagnostic process could proceed to validate other stipulated criteria in an effort to gain confidence about the final SLD designation (Kavale & Forness, 1995).

Kavale and Forness (2000) offered such a scheme that combined components from federal regulations into an operational definition that attempted to capture the complex and multivariate nature of SLD. The components included (a) a severe discrepancy between ability and achievement; (b) learning difficulties in language, reading, writing, or mathematics that require special education; (c) psychological processing deficits that are associated with academic learning problems; and (d) exclusionary criteria indicating factors that make the learning failure not unexpected. A five-level

hierarchical model defined the identification process as follows: (a) underachievement defined by an ability-achievement discrepancy; (b) significant deficits in basic skill areas (i.e., reading, writing, language, or math); (c) deficits in learning efficiency based on assessments of strategy use and learning rate; (d) psychological process deficits that include (but are not limited to) linguistic processing, attention, memory, perception, metacognition, and social cognition; and (e) exclusion of students whose learning failure is not unexpected because it is primarily the result of MR, ED, sensory impairment, or inadequate instruction. A schematic representation of the operational definition is shown in Figure 1. Each level represents a necessary but not sufficient condition, and SLD identification is achieved only when *all* five criteria are met.

Figure 2. Level I-A: Measurement of specific academic skills and acquired knowledge – inter-academic ability analysis.



Note. Adapted from Flanagan, D. P., Ortiz, S. O., Alfonso, V. C., & Mascolo, J. T. (2002). *The achievement test desk reference (ATDR): Comprehensive assessment and learning disabilities*. Boston: Allyn & Bacon. Used with permission.

Flanagan, Ortiz, Alfonso, and Mascolo (2002) deemed the Kavale and Forness (2000) operational definition “an important new direction for current practice” (p. 346), but noted that the model “did not directly incorporate a well-validated theoretical paradigm and there was no specific guidance given on what methods might be used to accomplish effective measurement of LD” (p. 346). To extend the Kavale and Forness model, Flanagan et al. used the Cattell-Horn-Carroll (CHC) theory of cognitive abilities as the framework for understanding the nature of both cognitive and academic abilities. An operational definition of SLD was proposed that incorporated what is termed CHC Cross-Battery assessment (Flanagan & Ortiz, 2001), a guide to the selection and interpretation of both intelligence and achievement tests. The operational definition of SLD proceeds through the components shown in Table 1.

After learning difficulties are documented through informal methods (e.g., classroom observation, work samples) and prereferral activities have not been successful, a comprehensive assessment is initiated, based on CHC theory. For example, Level I-A would include assessments of the academic skills shown in Figure 2.

The next step is to assess each academic skill. For example, Basic Reading would be assessed by the CHC abilities shown in Table 2.

The final step is to choose specific tests. For example, assessments of Reading Speed (RS) may be chosen from among the following: Gray Oral Reading Tests (GORT-4), Test of Word Reading Efficiency (TOWRE), or

Woodcock-Johnson Test of Achievement (WJIII). In place of the hierarchical approach of the Kavale and Forness model, the Flanagan et al. model uses a more recursive and iterative process because “information generated and evaluated at one level may inform decisions made at other levels and that a return to prior levels could well be warranted depending on the unique circumstances of the case” (Flanagan et al., 2002, p. 348).

The two models demonstrate the possibility of using a theoretically and psychometrically defensible approach to SLD identification. It is thus possible to integrate accepted concepts about SLD with theories about cognitive and academic functioning to create a comprehensive and systematic framework for making a definitive diagnosis of SLD. These operational definitions provide an inherently practical method for SLD identification that carries the potential for increased agreement about the validity of SLD classification.

Ultimately, an expert system model that applies findings from research to provide a diagnostic process will bring about more confident identification of students with SLD. In-depth evaluation of academic and cognitive skills also offers the advantage of identifying factors that are impeding student progress. By identifying specific targets for remediation, the possibilities for truly individualized intervention are increased significantly. Even if a student never enters the special education system, the general education teacher, the student’s parents, and the student him- or herself would receive

valuable information regarding why there was such a struggle in acquiring academic content, to the point of possibly needing special education.

In contrast, what can be said about a student who does not respond to instruction? Given the structure of the RTI model, it seems that the only legitimate conclusion is that the student possesses significant reading difficulties. What cannot be concluded is that the student now fits the parameters of SLD. What is the basis for the SLD designation? In reality, there is none, unless there is some legerdemain whereby all RD magically transforms itself into SLD. The real problem with the RTI model lies not in the procedures themselves but in the leap of faith necessary for non-responsiveness to become SLD. The history of SLD shows that the original concept evolved from much more than a reading problem that resists treatment (Hallahan & Mercer, 2002).

CONCLUSION

In an insightful analysis of problems associated with SLD identification, Scruggs and Mastropieri (2002) offered criteria required for identification procedures to be deemed valid. These included (a) Does the identification procedure address the multifaceted nature of SLD?; (b) Can the procedure be applied across the age spectrum of students with SLD?; (c) Can the procedure be applied with measures demonstrating technical adequacy?; (d) Will the procedure reduce overidentification of SLD?; (e) Will the procedure reduce inappropriate variability in identification rates across state and local educational authorities?; and (f) Will the procedure be more likely than current procedures to identify students who meet present conceptualizations of SLD?

Clearly, the RTI model does not yet meet these criteria. For example, the emphasis on phonological pro-

Table 2
Basic Reading Skills Assessment

Corresponding CHC Ability	Definition
Reading Decoding (RD)	Ability to recognize and decode words or pseudowords in reading.
Verbal (printed) Language Comprehension (V)	General development, or the understanding of words, sentences, and paragraphs in native language, as measured by <i>reading</i> vocabulary and <i>reading</i> comprehension tests.
Reading Speed (RS)	Time required to silently read a passage or series of sentences as quickly as possible.
Phonetic Coding: Analysis (PC:A)	Ability to segment larger units of speech sounds into smaller units of speech sounds.
Phonetic Coding: Synthesis (PC:S)	Ability to blend smaller units of speech together into larger units of speech.

Note. Adapted from Flanagan, D. P., Oritz, S. O., Alfonso, V. C., & Mascolo, J. T. (2002). *The achievement test desk reference (ATDR): Comprehensive assessment and learning disabilities*. Boston: Allyn & Bacon. Used with permission.

cessing and the decoding aspect of reading fails to consider math, writing, or even reading comprehension deficits. The RTI emphasis on early identification and the avoidance of a "wait to fail" model would not appear to cross the age spectrum. Many measures associated with the RTI model are best viewed as "experimental" because their technical adequacy has not yet been established. The problem of overidentification will be difficult to resolve when the initial pool of students represents the lowest 25% in reading achievement in a kindergarten or first-grade population. Across settings, the lowest 25% of the school population will likely show very different achievement distributions that are likely to produce very different nonresponsiveness profiles. These different nonresponsiveness rates will do little to reduce the problem of variability across settings. Finally, many years of SLD research have contributed to the development of the SLD construct, but the proposed RTI model captures only a single basic psychological processing deficit (i.e., phonological processing deficits). Within the context of SLD identification, the possibility of a single processing deficit is too arcane, and it would take a significant conceptual leap to generalize this particular form of RD into SLD.

Scruggs and Mastropieri (2002) concluded their analysis by suggesting "that radically altering or eliminating the concept of learning disabilities because of problems with current identification procedures amounts to 'throwing the baby out with the bathwater'" (p. 165). The RTI model as presently described appears to radically alter the SLD concept and, consequently, cannot be endorsed; in fact, it will have the effect of eliminating much of what is known about SLD. At best, the RTI model identifies students who are at risk for reading failure and who require intensive intervention to achieve any success. The narrowly focused reading achievement problem, the single processing deficit, and the limited intervention options suggest that what is being identified is a far cry from SLD in any significant sense. The disconnect between the RTI model and the SLD construct creates the potential for diagnostic chaos. The number of false positives and false negatives may increase significantly because of a failure to know what a true positive should be. Such a scenario would do little to improve SLD identification.

REFERENCES

- Aaron, P. G. (1997). The impending demise of the discrepancy formula. *Review of Educational Research*, 67, 461-502.
- Ackerman, P. T., Holloway, C. A., Youngdahl, P. L., & Dykman, R. A. (2001). The double-deficit of reading disability does not fit all. *Learning Disabilities Research & Practice*, 16, 152-160.
- Algozzine, B., & Ysseldyke, J. E. (1980). Decision makers' prediction of students' academic difficulties as a function of referral information. *Journal of Educational Research*, 73, 145-150.
- Algozzine, R., Ysseldyke, J. E., & McGue, M. (1995). Differentiating low-achieving students: Thoughts on setting the record straight. *Learning Disabilities Research & Practice*, 10, 140-144.
- Allor, J. H. (2002). The relationship of phonemic awareness and rapid naming on reading development. *Learning Disability Quarterly*, 25, 47-57.
- Artley, A. S., & Hardin, V. L. (1976). A current dilemma: Reading disability or learning disability? *The Reading Teacher*, 29, 361-366.
- Bergmann, G. (1961). Sense and nonsense in operationism. In P. G. Frank (Ed.), *The validation of scientific theories* (pp. 45-56). New York: Collier.
- Braden, J. P., & Kratochwill, T. R. (1997). Treatment utility of assessment: Myths and realities. *School Psychology Review*, 26, 475-485.
- Bradley, R., Danielson, L., & Hallahan, D. P. (Eds.). (2002). *Identification of learning disabilities: Research to practice*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Brophy, J. E., & Good, T. L. (1974). *Teacher-student relationships: Causes and consequences*. New York: Holt, Rinehart, & Winston.
- Buckhalt, J. A. (2002). A short history of g: Psychometrics' most enduring and controversial construct. *Learning and Individual Differences*, 13, 101-114.
- Coutinho, M. (1995). Who will be learning disabled after the reauthorization of IDEA? Two very distinct perspectives. *Journal of Learning Disabilities*, 28, 664-668.
- D'Angiulli, A., & Siegel, L. S. (2003). Cognitive functioning as measured by the WISC-R: Do children with learning disabilities have distinctive patterns of performance? *Journal of Learning Disabilities*, 36, 48-58.
- Donahue, W. T., Coombs, C. H., & Travers, R. W. M. (1949). *The measurement of student adjustment and achievement*. Ann Arbor: University of Michigan Press.
- Ehri, L. C., Nunes, S. R., Stahl, S. R., & Willows, D. M. (2001). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research*, 71, 393-447.
- Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghoub-Zadeh, Z., & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the National Reading Panel's meta-analysis. *Reading Research Quarterly*, 36, 250-287.
- Elksnin, L. K., Gartland, D., King-Sears, M., Bryant, D. P., Rosenberg, M. S., Scanlon, D., et al. (2001). LD Summit: Important issues for the field of learning disabilities. *Learning Disability Quarterly*, 24, 297-305.
- Finlan, T. G. (1993). *Learning disability: The imaginary disease*. Westport, CT: Bergin & Garvey.
- Flanagan, D. P., & Ortiz, S. O. (2001). *Essentials of cross-battery assessment*. New York: Wiley.
- Flanagan, D. P., Ortiz, S. O., Alfonso, V. C., & Mascolo, J. T. (2002). *The achievement test desk reference (ATDR): Comprehensive assessment and learning disabilities*. Boston: Allyn & Bacon.
- Fletcher, J. M., Francis, D. J., Shaywitz, S. E., Lyon, G. R., Foorman, B. R., Stuebing, K. K., & Shaywitz, B. A. (1998). Intelligent testing and the discrepancy model for children with learning disabilities. *Learning Disabilities Research and Practice*, 13, 186-203.
- Forness, S. R. (1985). Effects of public policy at the state level: California's impact on MR, LD, and SED categories. *Remedial and Special Education*, 6, 36-43.
- Fuchs, D., Fuchs, L. S., Bahr, M. W., Fernstrom, P., & Stecker, P. M. (1990). Prereferral intervention: A prescriptive approach. *Exceptional Children*, 56, 493-513.
- Fuchs, D., Fuchs, L. S., Mathes, P. G., Lipsey, M. W., & Roberts, P. H. (2002). Is "learning disabilities" just a fancy term for low

- achievement? A meta-analysis of reading differences between low achievers with and without the label. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 737-762). Mahwah, NJ: Lawrence Erlbaum.
- Fuchs, L. S., & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research and Practice, 13*, 204-219.
- Fuchs, D., Mock, D., Morgan, P. L., & Young, C. L. (2003). Responsiveness-to-intervention: Definitions, evidence, and implications for the learning disabilities label. *Learning Disabilities Research and Practice, 18*(3), 157-171.
- Gaskins, L. W. (1982). Let's end the reading disabilities/learning disabilities debate. *Journal of Learning Disabilities, 15*, 81-83.
- Gordon, M., Lewandowski, L., & Keiser, S. (1999). The LD label for relatively well-functioning students: A critical analysis. *Journal of Learning Disabilities, 32*, 485-490.
- Gottlieb, J., Alter, M., Gottlieb, B. W., & Wishner, J. (1994). Special education in urban America: It's not justifiable for many. *Journal of Special Education, 27*, 453-465.
- Gresham, F. M. (2002). Responsiveness to intervention: An alternative approach to the identification of learning disabilities. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 467-519). Mahwah, NJ: Lawrence Erlbaum.
- Gresham, F. M., MacMillan, D. L., & Bocian, K. M. (1996). Learning disabilities, low achievement, and mild mental retardation: More alike than different? *Journal of Learning Disabilities, 29*, 570-581.
- Hale, J. B., & Fiorello, C. A. (2001). Beyond the academic rhetoric of g: Intelligence testing guidelines for practice. *The School Psychologist, 55*, 113-139.
- Hallahan, D. P., & Mercer, C. D. (2002). Learning disabilities: Historical perspectives. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 1-67). Mahwah, NJ: Lawrence Erlbaum.
- Hartman, N. C., & Hartman, R. K. (1973). Perceptual handicap or reading disability? *The Reading Teacher, 26*, 684-695.
- Hoskyn, M., & Swanson, H. L. (2000). Cognitive processing of low achievers and children with reading disabilities: A selective meta-analytic review of the published literature. *School Psychology Review, 29*, 102-119.
- Jenkins, J. R., & O'Connor, R. E. (2002). Early identification and intervention for young children with reading/learning disabilities. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 99-149). Mahwah, NJ: Lawrence Erlbaum.
- Kaplan, E., Fein, D., Kramer, J., Delis, D., & Morris, R. (1999). *The WISC-III as a process instrument*. San Antonio, TX: The Psychological Corporation.
- Kaufman, A. S., & Kaufman, N. L. (Eds.). (2001). *Specific learning disabilities and difficulties in children and adolescents: Psychological assessment and evaluation*. Cambridge, England: Cambridge University Press.
- Kavale, K. A. (1987). Theoretical issues surrounding severe discrepancy. *Learning Disabilities Research, 3*, 12-20.
- Kavale, K. A. (1995). Setting the record straight on learning disabilities and low achievement: The tortuous path of ideology. *Learning Disabilities Research & Practice, 10*, 145-152.
- Kavale, K. A. (2002). Discrepancy models in the identification of learning disability. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 369-426). Mahwah, NJ: Lawrence Erlbaum.
- Kavale, K. A., & Forness, S. R. (1984). A meta-analysis of the validity of Wechsler Scale profiles and recategorizations: Patterns or parodies? *Learning Disability Quarterly, 7*, 136-156.
- Kavale, K. A., & Forness, S. R. (1985a). Learning disability and the history of science: Paradigm or paradox? *Remedial and Special Education, 6*, 12-23.
- Kavale, K. A., & Forness, S. R. (1985b). *The science of learning disabilities*. San Diego, CA: College-Hill Press.
- Kavale, K. A., & Forness, S. R. (1995). *The nature of learning disabilities: Critical elements of diagnosis and classification*. Mahwah, NJ: Lawrence Erlbaum.
- Kavale, K. A., & Forness, S. R. (1998). The politics of learning disabilities. *Learning Disability Quarterly, 21*, 245-273.
- Kavale, K. A., & Forness, S. R. (2000). What definitions of learning disability say and don't say: A critical analysis. *Journal of Learning Disabilities, 33*, 239-256.
- Kavale, K. A., & Forness, S. R. (2003). Learning disability as a discipline. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of learning disabilities* (pp. 76-93). New York: Guilford Press.
- Kavale, K. A., & Nye, C. (1985-1986). Parameters of learning disabilities in achievement, linguistic, neuropsychological, and social/behavioral domains. *Journal of Special Education, 19*, 443-458.
- Kavale, K. A., & Nye, C. (1991). The structure of learning disabilities. *Exceptionality, 2*, 141-156.
- Kavale, K. A., Forness, S. R., & Lorschach, T. C. (1991). Definition for definitions of learning disabilities. *Learning Disability Quarterly, 14*, 257-266.
- Kavale, K. A., Fuchs, D., & Scruggs, T. E. (1994). Setting the record straight on learning disabilities and low achievement. *Learning Disabilities Research & Practice, 9*, 70-77.
- Kavale, K. A., & Reese, J. H. (1992). The character of learning disabilities: An Iowa profile. *Learning Disability Quarterly, 15*, 74-94.
- Keogh, B. K. (1994). A matrix of decision points in the measurement of learning disabilities. In G. R. Lyon (Ed.), *Frames of reference for the assessment of learning disabilities: New views on assessment issues* (pp. 15-26). Baltimore: Brookes.
- Klatt, H. J. (1991). Learning disabilities: A questionable construct. *Educational Theory, 41*, 47-60.
- Konold, T. R. (1999). Evaluating discrepancy analyses with the WISC-III and WIAT. *Journal of Psychoeducational Assessment, 17*, 24-35.
- Lerner, J. W. (1975). Remedial reading and learning disabilities: Are they the same or different? *Journal of Special Education, 9*, 119-131.
- Lester, G., & Kelman, M. (1997). State disparities in the diagnosis and placement of pupils with learning disabilities. *Journal of Learning Disabilities, 30*, 599-607.
- Lopez, M. F., Forness, S. R., MacMillan, D. L., Bocian, K. M., & Gresham, F. M. (1998). Children with attention deficit hyperactivity disorder and emotional or behavioral disorders in primary grades: Inappropriate placement in the learning disorder category. *Education and Treatment of Children, 19*, 286-299.
- Lovitt, T. C., & Cushing, S. (1999). Parents of youth with disabilities: Their perceptions of school programs. *Remedial and Special Education, 20*, 134-142.
- MacMillan, D. L., Gresham, F. M., & Bocian, K. M. (1998). Discrepancy between definitions of learning disabilities and school practices: An empirical investigation. *Journal of Learning Disabilities, 31*, 314-326.
- MacMillan, D. L., Gresham, F. M., Bocian, K. M., & Lambros, K. M. (1998). Current plight of borderline students: Where do they belong? *Education and Training in Mental Retardation and Developmental Disabilities, 33*, 83-94.

- MacMillan, D. L., & Siperstein, G. N. (2002). Learning disabilities as operationally defined by schools. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 287-333). Mahwah, NJ: Lawrence Erlbaum.
- MacMillan, D. L., Siperstein, G. N., & Gresham, F. M. (1996). A challenge to the viability of mild mental retardation as a diagnostic category. *Exceptional Children*, 62, 356-371.
- McKnight, R. T. (1982). The learning disability myth in American education. *Journal of Education*, 164, 351-359.
- Meehl, P. E. (1954). *Clinical versus statistical prediction: A theoretical analysis and a review of the evidence*. Minneapolis: University of Minnesota Press.
- Mercer, C. D., Jordan, L., Allsopp, D. H., & Mercer, A. R. (1996). Learning disabilities definitions and criteria used by state education departments. *Journal of Learning Disabilities*, 19, 217-232.
- Morison, P., White, S. H., & Fever, M. J. (Eds.). (1996). *The use of IQ tests in special education decision making and planning*. Washington, DC: National Academy Press.
- Naglieri, J. (2001). Do ability and reading achievement correlate? *Journal of Learning Disabilities*, 34, 304-306.
- Naglieri, J. A. (2003). Current advances in assessment and intervention for children with learning disabilities. In T. E. Scruggs & M. A. Mastropieri (Eds.), *Advances in learning and behavioral disabilities: Identification and assessment* (Vol. 16, pp. 163-190). Oxford, England: Elsevier Science.
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4754). Washington, DC: National Institute of Child Health and Human Development.
- Norman, C. A., & Zigmond, N. (1980). Characteristics of children labeled and served as learning disabled in school systems affiliated with Child Service Demonstration Centers. *Journal of Learning Disabilities*, 13, 542-547.
- Peterson, K.M.H., & Shinn, M. R. (2002). Sever discrepancy models: Which best explains school identification practices for learning disabilities? *School Psychology Review*, 31(4), 459-476.
- Pressley, M., & Allington, R. (1999). What should reading instructional research be the research of? *Issues in Education: Contributions from Educational Psychology*, 5, 1-35.
- Reynolds, C. R. (1985). Measuring the aptitude-achievement discrepancy in learning disability diagnosis. *Remedial and Special Education*, 6, 37-55.
- Scruggs, T. E., & Mastropieri, M. A. (2002). On babies and bathwater: Addressing the problems of identification of learning disabilities. *Learning Disability Quarterly*, 25, 155-168.
- Shepard, L. A. (1980). An evaluation of the regression discrepancy method for identifying children with learning disabilities. *Journal of Special Education*, 14, 79-91.
- Shepard, L. A., & Smith, M. L. (1983). An evaluation of the identification of learning disabled students in Colorado. *Learning Disability Quarterly*, 6, 115-127.
- Siegel, L. S. (1989). IQ is irrelevant to the definition of learning disabilities. *Journal of Learning Disabilities*, 22, 469-478, 486.
- Siegel, L. S. (2003). IQ-discrepancy definitions and the diagnosis of LD: Introduction to the special issue. *Journal of Learning Disabilities*, 36, 2-3.
- Singer, J., Palfrey, J., Butter, J., & Walker, D. (1989). Variation in special education classification across school districts: How does where you live affect what you are labeled? *American Educational Research Journal*, 26, 261-281.
- Speece, D. L., Case, L. P., & Molloy, D. E. (2003). Responsiveness to general education instruction as the first gate to learning disabilities identification. *Learning Disabilities Research and Practice*, 18, 147-156.
- Stanovich, K. E. (1991). Discrepancy definitions of reading disability: Has intelligence led us astray? *Reading Research Quarterly*, 26, 7-29.
- Strauss, S. L. (2001). An open letter to Reid Lyon. *Educational Researcher*, 30, 26-33.
- Stuebing, K. K., Fletcher, J. M., LeDoux, J. M., Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2002). Validity of IQ-discrepancy classifications of reading difficulties: A meta-analysis. *American Educational Research Journal*, 39, 469-518.
- Swanson, H. L. (1999). Has the importance of phonological awareness training been greatly overstated? *Issues in Education: Contributions from Educational Psychology*, 5, 125-139.
- Swanson, H. L., & Alexander, J. E. (1997). Cognitive processes as predictors of word recognition and reading comprehension in learning-disabled and skilled readers: Revisiting the specificity hypothesis. *Journal of Educational Psychology*, 89, 128-158.
- Torgesen, J. K. (1979). What shall we do with psychological processes? *Journal of Learning Disabilities*, 12, 514-521.
- Torgesen, J. K. (2002). Empirical and theoretical support for direct diagnosis of learning disabilities by assessment of intrinsic processing weaknesses. In R. Bradley, L. Danielson, & D. P. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 565-613). Mahwah, NJ: Lawrence Erlbaum.
- Troia, G. A. (1999). Phonological awareness intervention research: A critical review of the experimental methodology. *Reading Research Quarterly*, 34, 28-52.
- U.S. Office of Education. (1977, December 29). Assistance to states for education of handicapped children: Procedures for evaluating specific learning disabilities. *Federal Register*, 42(250), 65082-65085. Washington, DC: U.S. Government Printing Office.
- Vaughn, S., & Fuchs, L. S. (2003). Redefining learning disabilities as inadequate response to instruction: The promise and potential problems. *Learning Disabilities Research and Practice*, 18, 137-146.
- Vaughn, S., Gersten, R., & Chard, D. J. (2000). The underlying message in LD intervention research: Findings from research syntheses. *Exceptional Children*, 67, 99-114.
- Vellutino, F. R., Scanlon, D. M., & Lyon, G. R. (2000). Differentiating between difficult-to-remediate and readily remediated poor readers: More evidence against the IQ-achievement discrepancy definition of reading disability. *Journal of Learning Disabilities*, 33, 223-238.
- Wilson, L. R., & Cone, T. (1984). The regression equation method for determining academic discrepancy. *Journal of School Psychology*, 22, 95-110.
- Wolf, M., & Bowers, P. G. (1999). The double-deficit hypothesis for the developmental dyslexias. *Journal of Educational Psychology*, 91, 415-438.
- Wong, B.Y.L. (1996). *The ABCs of learning disabilities*. New York: Academic Press.
- Ysseldyke, J. E., Algozzine, B., & Richey, L. (1982). Judgment under uncertainty: How many children are handicapped? *Exceptional Children*, 48, 531-534.
- Ysseldyke, J. E., Algozzine, B., Shinn, M. R., & McGue, M. (1982). Similarities and differences between low achievers and students classified learning disabled. *Journal of Special Education*, 16, 73-85.

Requests for reprints should be addressed to: Mark Mostert, School of Education, Regent University, Virginia Beach, VA 23464; markmos@regent.edu.

Copyright of Learning Disability Quarterly is the property of Council for Learning Disabilities and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.