The Feasibility of a Responsiveness to Intervention Approach for the Identification of Specific Learning Disability: A Psychometric Alternative

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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 there are many questions about the RTI that remain unanswered, and radical changes in proposed regulations are not warranted at this time. Many fundamental issues related to RTI have not been resolved and a better strategy may be to implement more rigorously existing identification criteria (e.g., discrepancy and psychological processing deficits) in a structured psychometric framework. Suggestions on how to modify present procedures are provided.
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The best means for identifying a “specific learning disability” (SLD) has been an enduring problem for special education. The primary difficulty has been a lack of consensus about the proper way to operationalize the formal definition articulated in the Individuals with Disabilities Education Act (IDEA). To provide uniformity, the then U.S. Office of Education (1977) formalized discrepancy in rules and regulations delineating criteria for SLD identification. The discrepancy notion soon became the primary (and often sole) criterion for SLD identification (Mercer, Jordan, Alsopp, & Mercer, 1996).

The use of discrepancy as the primary criterion for SLD identification created a number of problems. A major difficulty involved the over-identification of SLD. The SLD population has increased 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, the MR numbers have declined significantly with MacMillan, Siperstein, and Gresham (1996) suggesting that the reason resides in 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 over-identification, another problem is found in the very different numbers of students with LD 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 rhyme or reason for these different rates, and it appears that they may primarily reflect a lack of consistency in identification procedures (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 identification criteria has led to a confounding between SLD and low achievement (LA). Over time, a conventional wisdom emerged which suggested that there were no differences between students with SLD and students with low achievement (LA). The idea of limited SLD-LA differences was based primarily on the Minnesota Studies particularly that of Ysseldyke, Algozzine, Shinn, & 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 Minnesota 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 McGuie (1995) disagreed and suggested 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 the cognitive domain 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 the area of reading were substantive and reliable. Thus, although there were large numbers of students with SLD, questions about their identity surfaced and it became necessary to defend SLD as a distinct category of special education.

As a result of problems in SLD identification, the usefulness of discrepancy as the primary identification criterion for SLD has been called into question. To replace the discrepancy model, a response to intervention (RTI) model has been proposed (Vaughn & Fuchs, 2003). The RTI seeks to replace traditional psychometric methods of identification with a protocol that moves away from deficit models by emphasizing student outcomes. Gresham (2002), for example, argued that “children who fail to respond to empirically validated treatments implemented with integrity might be identified as LD” (p. 499). Thus, RTI is viewed as a viable alternative approach where identification and intervention are more closely linked, and the special education process can be conceptualized in terms of treatment validity (L. Fuchs & D. Fuchs, 1998).

**Defining SLD**

The most fundamental problem facing SLD remains definition. Almost from its inception, the formal SLD definition has been contentious primarily because it has failed to provide closure about “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). The number of alternative SLD definitions that have been proposed attests to the enduring problem of finding a single statement describing the SLD condition. The primary objection to the present SLD definition is its inherent vagueness and concomitant lack of rigor when implemented in practice.

In discussions of the RTI model, it is suggested that one purpose is to “redefine” SLD but, in reality, SLD is not being redefined but rather re-operationalized. Since the pending reauthorization of IDEA does not include any change in the formal SLD definition, there is technically no “redefining.” Instead, a new operational definition is being proposed to supplant the “discrepancy” concept in the long-standing operational definition of SLD.

The reluctance to change the SLD definition seems curious in light of 35 years of debate about its merits. Because formal definition changes must precede and be the foundation for operational clarifications, a rationale for not changing the formal definition seems necessary. The fields of MR and ED provide precedence for changing formal definitions. It, therefore, seems indefensible not to change the formal SLD definition in the face of profound changes being proposed for practice. If the definition of SLD is not

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to change, then perhaps closer adherence to what is actually stipulated in the definition might be warranted. One notion clearly articulated in the SLD definition is the presence of “disorder in the basic psychological processes.” Although a critical definitional feature of SLD, 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 outdated processing views (e.g., perceptual-motor) that were implicit in the SLD concept when first proposed, it becomes critical to re-emphasize process deficits in an operational definition of SLD (e.g., Swanson & Alexander, 1997; Hoskyn & Swanson, 2000).

**SLD Parameters**

A definition delineates the nature and limits of a phenomenon (Kavale, Forness, & Lorsbach, 1991). The SLD definition does not adequately circumscribe the condition, meaning that its interpretation for practical purposes (i.e., operationalization) is suspect. 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 it actually stipulated in the formal definition to meet the criteria of significance and meaningfulness necessary for a valid operational definition. It is important to emphasize that “specific learning disab-

ity” is the concept articulated in the formal definition. As a category of special education defined in the law, SLD should represent a particular and circumscribed 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 is diluted by the conventional wisdom suggesting that “there are many types of learning disability” thereby extending the boundary conditions to the point where SLD is no longer a distinct classification. Thus, in practical terms, SLD moves in a direction that makes it increasingly unrecognizable (Kavale & Forness, 2003). The logical relation moves from *All students with SLD have learning problems* to *All students with learning problems have SLD* which is not true if SLD is properly viewed as a categorical designation (Kavale & Forness, 1985b). No other category in special education has demonstrated similar confounding which has resulted in the very existence of SLD being called into question by being termed “myth” (McKnight, 1982), “questionable construct” (Klatt, 1991), or “imaginary disease” (Finlan, 1993). Clearly, 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. Simple tinkering with a new operational definition cannot 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 and, although a large proportion of students with SLD will manifest difficulties in reading, other achievement areas may be deficient, especially math disabilities (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). At a fundamental level, the discussions involved questions about territorial integrities and responsibilities (Gaskins, 1982). Apparently, supporters of RTI view SLD and RD as equivalent because of a willingness to designate all students with RD as SLD. The problem with this position is that RD is itself a legitimate concept and, while clearly 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 the 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, SLD loses its integrity and becomes a 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 demonstrated does not relate to severity level. This objection is rendered immaterial 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 necessarily has any bearing on academic performance. Students with and without a performance discrepancy may, in fact, possess the same level of low achievement and thus demonstrate similar academic performance. 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 does not demonstrate significant underachievement, then the possibility exists that the student in question may 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 and has been a long-standing problem. This segment of the school population has never been a special education category and probably never should be. A slow learner does not demonstrate unexpected low achievement but rather an achievement level consistent with IQ level (Gresham, MacMillan, & Bocian, 1996). Although such

low achievement is problematic when there is a desire to leave no child 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. There may be solutions to the problems presented by the slow learner, but none should involve a loss of integrity for the SLD category.

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. Since the underachievement dimension is integral to the SLD construct, it may represent a better “first gate to learning disabilities identification” (Speece, Case, & Malloy, 2003, p. 147) than the proposed RTI model. With a well below average achievement level, discrepancy indicates the presence of underachievement and a possible disability. Although the discrepancy concept is valid across IQ ranges, SLD should be associated only with significantly below average achievement levels. For example, Siegel (2003) lamented 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. This is a specious argument since students are referred for evaluation only if they are exhibiting signs of academic difficulty. Gordon, Lewandowski, and Keiser (1999) warned against the use of the SLD label for “relatively well-functioning” students. There are few if any school districts that test all students and provide special services to any student with a significant IQ-achievement discrepancy. Special education should be provided when there is academic difficulty (i.e., below average achievement) and the criteria for 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 a single diagnosis to explain complex behavior like poor academic performance. 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 different discrepancy models have been thoroughly evaluated, and a consensus emerged that standard score, regression methods were psychometrically defensible (Shepard, 1980; Wilson & Cone, 1984). Because students were often required to only meet the discrepancy criterion for SLD classification, any who did were, in fact, identified with a sound statistical procedure. Thus, discrepancy does provide reliable information (Reynolds, 1985). The real problem comes from large-scale studies showing that sometimes up to 50% of any SLD population does not meet the discrepancy criterion (e.g., Norman & Zigmond, 1980; Kavale & Reese, 1991; 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, then the resulting classification cannot be reliable. The problem has not been the reliability of the discrepancy criterion but rather the lack of rigor in its implementation: “public school practices for diagnosing children with LD bear little resemblance to what is prescribed in federal and state regulations (i.e., administrative defini-

Arguably, the presence of measurement error in discrepancy model increases the risk of false negatives as well as producing some false positives. Measurement error only has an impact when there is rigid adherence to a single cut-point without further investigating the underlying processes and competing diagnostic hypotheses. For instance, if a discrepancy criterion of 15 points is used and a student has a 14 point discrepancy, that student may still be SLD just as a student with a 16 point discrepancy should not automatically become SLD. Clinical judgment would dictate that scores within a range of discrepancy, for example, between 10 and 20, 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. Diagnostic accuracy increases when multiple measures are used and provide a convergence of evidence for one diagnosis versus competing hypotheses.

Objection to discrepancy models for SLD identification have also included the criticism that they do not inform instruction, but this suggestion appears to miss the point that the real task is to first achieve 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 de-emphasize classification, thus creating a mindset where there is little concern about whether or not a student is “truly” SLD so long as effective instruction can be provided. Although effective instruction is the raison d’etre of special education, the system should insure that special education is provided only to those who require it. Unchecked advocacy will inexorably undermine the integrity of special education and 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 if the discrepancy criterion is replaced, then IQ testing would be eliminated given its function of documenting an expected achievement level. Additionally, in light of findings revealing that one empirically validated reading instruction method (i.e., systematic phonics) is not effective for cognitively limited, low ability children, IQ tests assume importance and assessing intellectual ability remains critical (Ehri, Nunes, Stahl & Willows, 2001). Special education has unfortunately come to de-emphasize the value of intellectual assessments (Morison, White, & Fever, 1996). Yet, the concept of intelligence and its measurement has been one of the most intensively studied topics, and it would be necessary to ask why so much attention has been paid to such a seemingly useless construct.

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 is now an array of 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 for understanding 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).

Practically, IQ tests have only modest influence on the special education process. Specifically, it is certainly not the case 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 testing of IQ is vilified because the term “intelligence” may create positive or negative impressions about a student. For example, special education eligibility based on SLD determination is viewed as positive and an entitlement while eligibility based on MR or ED is viewed negatively and potentially punitive. Clearly, there are significant negative perceptions for some classifications and these perceptions are what make IQ tests appear villainous since they provide the basis for receiving a positive or negative label (MacMillan, Gresham, Bocian, & Lambros, 1998).

The use of IQ tests in documenting discrepancy does not restrict access to special education; again, the sheer number of students served under the SLD classification attests to this 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 and systematically as suggested by Gottlieb, Alter, Gottlieb, and Wisher (1994) who stated 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). The lack of rigor, however, has created a relative discrepancy model where SLD determination depends on the level of performance compared to other students in that school (Peterson & Shinn, 2002). Additionally, a strict ability-achievement discrepancy model has also been replaced by an absolute low achievement model where, for example, most students with borderline IQ receive special education as SLD. These modifications occur because the individual school setting (i.e., context) influences the way the presence or absence of a disability may be identified. For example, if the average reading ability in a particular classroom is 90, a student with an IQ of 110 and 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 75 reading score may appear to have a disability in that context. When a student is first referred, the influence of context should be evaluated to determine whether or not there is a real possibility that a disability does, in fact, exist. 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. In part, the problem with the ED classification is the negative connotation surrounding the term and what may happen in a school setting (McEvoy & Welker, 2000). More importantly, however, is the failure of the ED identification process to consider associated cognitive impairments, particularly those related to executive functioning and social cognition that often result in inadequate service delivery and the promotion of an attribution bias where student behavior is viewed as being caused by either willful defiance (choose to be “bad”) or a lack of emotional control (Hinshaw, 1992). Such negative causal attributions often lead to punitive rather than accommodative or remedial interventions.

**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 adequate general cognitive ability. Without an assessment of general cognitive ability, the “unexpected” notion would be impossible to document. Although underachievement defined by a 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 – low achieving versus low ability – low achieving students because of small differences found 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 in some way outperform students with SLD (i.e., high ability) on measures of phonological processing, rapid-automtic naming, verbal memory, vocabulary, or any reading ability measure. Similarly, students with problems learning to read will by definition score low on reading related measures.

A low ability – low achievement group represents an inappropriate comparison for research investigating the nature of SLD. 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, then there are difficulties in distinguishing IQ-discrepant from non-discrepant students. 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 reluctance to use full scale IQ scores has also led to the inappropriate use of partial IQ test batteries. For example, using only visual-perceptual measures to measure IQ (known to be unrelated to reading) leads to the self-fulfilling prophecy that no relationship exists between IQ and reading. In another inappropriate practice, a limited number of subtests from intelligence assessments are given and full-scale IQ scores are pro-rated. In this case, no IQ effects are found primarily because IQ has not actually been measured (Hale & Fiorello, 2001).

A more useful comparison would be to evaluate low ability students who receive a diagnosis of SLD versus those who do not
receive such a designation. Such a comparison is likely to demonstrate that important ability differences account for the adequate versus inadequate academic development between these groups. Another potentially useful comparison would be between achievement discrepant students (i.e., LA) diagnosed with RD versus students with an IQ-achievement discrepancy who are not diagnosed. Ultimately, the goal of these comparisons is to uncover factors that lead to a valid diagnosis; only then will we better understand the complex interactions that shape the nature of SLD.

The demonization of IQ has led to the suggestion that IQ is unrelated to academic achievement. This is patently not the case (Nagler, 2001) and it has been clear for a long time that intelligence tests are more highly correlated with scores on achievement tests than they are 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 was previously found to be not related to reading. Not surprisingly, Siegel’s 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 a subsequent article, Siegel reported that IQ was, in fact, associated with reading even though the influence of IQ was reduced because of its use as a grouping rather than continuous variable (see Jimenez, Siegel, & Lopez, 2003). In yet another study, to prove no 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 really not problematic and can be included as a variable in making eligibility decisions (Kavale, 2002). When additional factors are also included in the eligibility decision, the number of false negative and false positive diagnoses would be greatly reduced. What is also clear is that 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 criterion for determining eligibility. Thus, discrepancy remains useful as a fundamental element in SLD identification and discussion 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, then 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 there is a failure to respond to the more intensive intervention, then a diagnosis of SLD would 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, then perhaps the SLD diagnosis might be transformed into mild MR with a different set of special education services then

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provided. The entire scenario may take a significant amount of time, but there remains the possibility that the student will eventually get the services they need (Beitchman, Cantwell, Forness, Kavale, & Kauffman, 1998).

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. 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. If the student remains unresponsive, then a more intensive behavioral intervention may be implemented but may still not significantly reduce the target behavior. The 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 forthcoming. 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 are now implemented. It is important to note that throughout this scenario the student continues to demonstrate reading difficulties. Yet, the reading problems take a secondary position until the confounding caused by the co-morbidity among behavioral disorders is unraveled. The co-occurrence difficulties suggest that reading problems may not be primary but simply part of a larger syndrome. To avoid such a confounded scenario, appropriate assessments to establish the existence and parameters of particular problems should 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. First, the number of school district programs that engage in early screening and identification efforts is probably underestimated. Early identification has been a major focus for a number of years and suggests that schools do not wait for failure but rather 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 reading failure rather than SLD per se.

The “wait to fail” notion also assumes 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, then the possibility exists that whole classrooms, or many students in a single classroom, might 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 that 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 that should be used to assess reading performance. This is a significant positive step because the resources used for preventative interventions will ultimately benefit all students. Nevertheless, there remains a number of unanswered

questions. First and foremost, should the student who moves through the RTI model, which clearly establishes increasingly severe RD, now be designated SLD? This change in status does not appear justified, primarily because RD should not be equated with SLD. On what basis is an SLD classification warranted? At this point, the conceptual leap from RD to SLD is too great. The RTI model appears better suited for prevention rather than classification.

Besides the disconnect from the SLD construct in terms of classification, the RTI model also presents pragmatic difficulties about what to do next. How do we determine what a student needs now? It seems clear that students who fail to respond during the RTI process possess unique needs that can only be determined with comprehensive evaluations of intellectual/cognitive, academic, and psychosocial functioning. Hale and Fiorello (2001) suggested that it is necessary to intervene to assess so reducing the number of referrals with the RTI will permit attention to be directed toward providing comprehensive interventions for those students who truly need it. Without a comprehensive evaluation, it becomes difficult to design interventions tailored to unique needs (Braden & Kratochwill, 1997).

**SLD and Empirically Validated Interventions**

The primary advantage of the RTI model over previous prereferral efforts is that students experiencing difficulty are assured of receiving interventions with some empirical validation such as those reported by the National Reading Panel (1997) but which, nevertheless, have not gone unchallenged (Troia, 1999). It is important to note, however, that the power of specific interventions may have been somewhat overstated since, statistically, the actual effects can only be deemed moderate (see Ehri, Nunes, Stahl, & Willows, 2001). These 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 average effects would indicate that the average student in the borderline range (i.e., standard score = 70) would move, at the end of intervention, to a standard score of 78, which still 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 relatively modest effects, 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 and remain low achievers. Low achievement is not a diagnosis and is best viewed as a fundamental 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 literacy (e.g., comprehension) that transcend the word level. 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 where RD is based on deficits in phonological processing and rapid naming of letters and digits (Wolf & Bowers, 1999). In a review, Allor (2002) concluded that performance on each task contributes uniquely to word reading. Additionally, besides the double-deficit criteria, 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 really account for all the possible factors contributing to RD. In an open letter to Reid Lyon about the NICHD reading research efforts, Strauss (2001) suggested that, “Your narrow definition of reading, your avoidance of important questions on literacy . . . obligates 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 they are reading at a level consonant with peers? Does a student merely have to read more regardless of whether they remain significantly behind their 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 likelihood that there will be a 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). 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 in 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 will provide for more rigorous, consistent, and systematic decisions about an individual student (Meehl, 1954).

The RTI use of narrowly focused interventions 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 and problem solving, 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). For example, students with cognitive impairments (e.g., MR) may not respond to specific interventions such as systematic phonics instruction (Ehri et al., 2001). It is, therefore, virtually impossible to make either a valid diagnosis or an individualized intervention program without the test data gleaned from a comprehensive evaluation that elucidates individual strengths and weaknesses (Dawes, Faust, & Meehl, 1989).

**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. Nonresponsiveness is an outcome that may or may not be caused by SLD. Thus, the RTI model cannot stand alone as the primary means to identify SLD. Even though multi-faceted, the RTI model still represents a single criterion (i.e., nonresponsiveness) and a single criterion cannot capture the complex multivariate nature of SLD. The primary problem with discrepancy models was that they also represented only a single criterion. The advantage of discrepancy over RTI is that it documented the presence or absence of underachievement which is integral to the SLD concept. On the other hand, RTI can only document low achievement in reading. By meeting the discrepancy criterion, two things are known about a student: (a) they fall within an average IQ range (by definition, a necessary component of the SLD construct), and (b) the presence of low achievement was unexpected. If the identified underachievement is properly viewed as a necessary but not sufficient criterion for SLD classification, then 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 where components from the Federal regulations were combined into an operational definition that attempted to capture the complex and multivariate nature of SLD. The components included:

1) a severe discrepancy between ability and achievement,
2) learning difficulties in language, reading, writing, or mathematics that require special education,
3) psychological processing deficits that are associated with academic learning problems, and
4) 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.

Figure 1. Example of an Operational Definition of Learning Disability by Kavale and Forness (2000)

Operational Definition

Level I

Underachievement
Ability-Achievement Discrepancy

Level II

Language
Reading
Writing
Math

Learning Efficiency

Strategy
Rate

Level III

Level IV

Attention
Memory
Linguistic Processing
Social Cognition
Perception
Metacognition

Level V

Not Sensory Impairment
Not MMR
Not EBD
Not Cultural Differences
Not Insufficient Instruction

Necessary

Sufficient

Each level represents a necessary but not sufficient condition and SLD identification is achieved only when all five criteria are met.

Flanagan, Ortiz, Alfonso, and Mascolo (2002) deemed the Kavale and Forness (2000) operational definition “an important new direction for current practice” (p. 346), but indicated 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 incorporates 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.

<table>
<thead>
<tr>
<th>Level</th>
<th>Component</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-A</td>
<td>Inter-Individual Academic Ability Analysis</td>
<td>Document specific academic skill or knowledge deficits</td>
</tr>
<tr>
<td>I-B</td>
<td>Evaluation of Exclusionary Factors</td>
<td>Identify alternative explanation for learning difficulties</td>
</tr>
<tr>
<td>II-A</td>
<td>Inter-Individual Cognitive Ability Analysis</td>
<td>Document specific cognitive deficits</td>
</tr>
<tr>
<td>II-B</td>
<td>Re-Evaluation of Exclusionary Factors</td>
<td>Identify alternative explanation for cognitive difficulties</td>
</tr>
<tr>
<td>III</td>
<td>Integrated Ability Analysis – Evaluation of Underachievement</td>
<td>Document that identified academic deficits are empirically or logically related to cognitive deficits</td>
</tr>
<tr>
<td>IV</td>
<td>Evaluation of Interference</td>
<td>Document the degree to which</td>
</tr>
</tbody>
</table>

**Table 1**
Comprehensive Framework for LD Determination
with Functioning | 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

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.

**Figure 2. Level I-A: Measurement of Specific Academic Skills and Acquired Knowledge – Inter-Academic Ability Analysis**

![Diagram of academic skills](image)

\[ G_c = \text{Quantitative Knowledge} \quad G_{\infty} = \text{Reading/Writing} \quad G_e = \text{Crystallized Intelligence} \]
The next step is to assess each academic skill. For example, Basic Reading would be assessed by the CHC abilities shown in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Basic Reading Skills Assessment</th>
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<tbody>
<tr>
<td><strong>Corresponding CHC Ability</strong></td>
</tr>
<tr>
<td>Reading Decoding (RD)</td>
</tr>
<tr>
<td>Verbal (printed) Language Comprehension (V)</td>
</tr>
<tr>
<td>Reading Speed (RS)</td>
</tr>
<tr>
<td>Phonetic Coding: Analysis (PC:A)</td>
</tr>
<tr>
<td>Phonetic Coding: Synthesis (PC:S)</td>
</tr>
</tbody>
</table>

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” (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 pro-

provide an inherently practical method for SLD identification that carries the potential for increased agreement about the validity of SLD classification.

Ultimately, development of an expert system model that applies findings from research to provide a diagnostic process will bring about more confident identification of students with SLD. Such a process with its in-depth evaluation of academic and cognitive skills offers the advantage of not only determining eligibility, but also identifying factors that impede student progress. by identifying targets for remediation or accommodation, 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 would receive valuable information regarding why there was such a struggle in acquiring academic content to the point of possibly needing special education.

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 where all RD magically transforms itself into SLD. The real problem with the RTI model lies not in the procedures themselves but rather 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 multi-faceted 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 processing 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% (or even 30%) 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 numbers of non-responders. 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 element associated with the basic psychological

processing deficit definitional parameter (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 means that the number of false positives may theoretically be close to 100% while, at the same time, the number of false negatives may also be close to 100%. Such a scenario makes little sense but then neither does exclusively relying on RTI for SLD identification.

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