Alternative Approaches to the Definition and Identification of Learning Disabilities: Some Questions and Answers

Jack M. Fletcher
Department of Pediatrics and Center for Academic and Reading Skills
University of Texas Health Science Center at Houston
Houston, TX

W. Alan Coulter
National Center for Special Education Accountability Monitoring
Louisiana State University Health Science Center
New Orleans, LA

Daniel J. Reschly
National Research Center for Learning Disabilities
Department of Special Education
Peabody College
Vanderbilt University
Nashville, TN

Sharon Vaughn
Texas Center for Reading and Language Arts
College of Education
University of Texas – Austin
Austin, TX

Abstract

Recent consensus reports concur in suggesting major changes in the Federal regulatory approach to the identification of learning disabilities (LD). These reports recommend abandoning the IQ-discrepancy model and the use of IQ tests for identification, and also recommend incorporation of responsiveness to intervention (RTI) as one of the identification criteria. These changes are also recommended to states in the current reauthorization of the United States' Individuals with Disabilities in Education Act (IDEA). While not mandatory, states that follow these recommendations will experience major changes in identification and treatment of students served under the LD category. This paper reviews the basis for these recommendations, summarizing four recent consensus group reports on special education that concur in suggesting these changes. Seventeen commonly asked questions about these changes are presented, with responses. In order to ensure adequate instruction for students with LD, it is essential that identification practices focus on assessments that are directly related to instruction, that any services for students who are struggling prioritize intervention over eligibility, and that special education be permitted to focus more on results and outcomes, and less on eligibility and process. Identification models that incorporate RTI represent a shift in special education towards the goals of better achievement and behavioral outcomes for students identified with LD as well as those students at risk for LD.

Alternative Approaches to the Definition and Identification of Learning Disabilities:

Some Questions and Answers

In the past few years, increasing concern has been expressed in the United States about common definitions and procedures for identifying students with learning disabilities (LD). These concerns involve all four components of most definitions of LD, including the Federal definition recommended in 1977 to States by the United States Office of Education (USOE, 1977). Three of these components - discrepancy, heterogeneity, and exclusion – can be found in the 1977 Federal definition. Discrepancy in most definitions is indicated by the presence of a difference between aptitude and achievement, represented in the Federal regulatory definition as a severe discrepancy between IQ and achievement test scores. Heterogeneity represents the multiple domains in which LD occurs: seven in the 1977 Federal definition, including various disorders of reading, math, written expression, and language. The exclusion component reflects the orientation that LD should not be identified if the primary cause involves a sensory disorder, mental deficiency, emotional disturbance, economic disadvantage, linguistic diversity, or inadequate instruction. In addition, these three components- discrepancy, heterogeneity, and exclusion - are the basis for the fourth component of most definitions, the belief that LD is due to constitutional factors intrinsic to the student. Thus, a student who meets the criteria stemming from the first three components is presumed to have an achievement problem that is due to neurobiological factors. These components, which have served as the foundation for identifying students with LD since the inception of the construct, resulted from a general agreement that this was the best way to proceed considering the lack of empirical evidence. These components of

most definitions continue to prevail despite the emergence of a significant evidence base that suggests problems and alternatives to this consensus.

In the United States, recent efforts at educational reform have focused on the notion of accountability for results and the implementation of evidence-based instructional approaches. These efforts have specifically targeted improving reading instruction, reflecting the accumulation of research on how children learn to read and how to assist struggling readers. The impetus for reform and the emphasis on reading have multiple sources, the most salient being stagnant gains on different national and international assessments over the past 20 years. Of significant concern was the failure of schools to close the gap between achievement scores of economically advantaged, primarily non-minority students, and economically disadvantaged, predominantly minority students. These concerns eventuated in the reauthorization of the Elementary and Secondary Education Act, or the No Child Left Behind Act of 2001, Public Law 107- 110 (NCLB, 2002). Fundamental to NCLB is Reading First, which requires the implementation of approaches to reading instruction supported by scientifically based reading research documented in multiple consensus reports such as the 1998 National Research Council's *Preventing Reading Difficulties in Young Children* (Snow, Burns, and Griffin, 1998), the report of the National Research Panel (2000), and a report on reading comprehension by the RAND Reading Study Group (2002).

These same issues are affecting the major piece of special education legislation in the United States, the Individuals with Disabilities in Education Act (IDEA), which is presently being considered for reauthorization by Congress. This reauthorization was preceded by four consensus reports on special education: the National Research Council report on minority overrepresentation in special education (Donovan & Cross, 2002), a report entitled *Rethinking*

Special Education by the Fordham Foundation and the Progressive Policy Institute (Finn, Rotherham, & Hokansen, 2001), the Learning Disabilities Summit by the U.S. Office of Special Education Programs (Bradley, Danielson, & Hallahan, 2002), and the President's Commission on Excellence in Special Education (2002). Each of these reports was significantly influenced by reading research as well as research on the classification and identification of individuals with learning disabilities (LD). All four reports suggested that the number of individuals identified with LD could be reduced if more effective reading instruction was in place, noting that many students placed in special education may not have received adequate instruction in general education. This lack of adequate instruction within general education also helps explain the disproportionate representation of minorities in special education. These reports also observed that current regulations for the identification of LD lacked a research base and constitute obstacles to the implementation of better instructional approaches for students with disabilities. Thus, in the reauthorization of IDEA, bills under consideration in both the House and Senate loosen the grip of the U.S. Federal regulatory definition of LD, allowing states options for a) not using IQ-discrepancy or even not giving IQ tests as part of a standard identification process; and b) allowing states to include response to intervention (RTI) criteria as part of the identification process.

These changes have been embraced by many professionals and researchers, but viewed with considerable anxiety by others, including some professional organizations and practitioners involved in LD. At the same time, a recent national survey found that 54% of parents and 72% of teachers felt that current identification methods for LD took too long to identify students in need and to provide intervention (National Center for Learning Disabilities, 2002). Few teachers endorsed the view that current methods for identifying LD were effective and most (84%) felt

that improvements could be made. Parents with a student who had been identified with LD were especially negative about the current system. This survey implies that those who want to preserve the current system aren't listening carefully to parents and teachers

The most common misconception is that the proposed changes in both bills involve mandatory replacement of IQ-discrepancy with RTI as a new approach to assessment and identification. In fact, RTI is not mandated and any changes in the use of IQ tests and discrepancy models are up to States. Parents retain the right to request IQ tests. Moreover, RTI is not an alternative approach to accessing special education services, but rather only one of the criteria used in the identification process. It represents a method for assessing the "adequate opportunity to learning" exclusion already present in IDEA. Identification models that incorporate RTI represent an opportunity to provide early intervention and/or pre-referral services to reduce inappropriate referral and identification and to establish a prevention model for students – to eliminate the wait to fail model in place in many schools. It is also an opportunity to move more quickly into intervention for older students who have not had the opportunity or simply not profited from early intervention.

Despite the existence of some promising models and encouraging data (Donovan & Cross, 2002), some parents and educators continue to warn against changes in current identification procedures, thus retaining an emphasis on IQ testing and the discrepancy model. Others argue that LD cannot be identified without some assessment of cognitive processes. The research base supporting these propositions is very limited. Perpetuating assumptions about LD on the basis of a discrepancy model would represent continuance of an identification model singled out as inadequate by all four of the consensus reports and by empirical research (Aaron, 1997; Steubing et al., 2002). There is clear consensus that this traditional model has not lead to

improved instructional outcomes for children- neither those deemed eligible for special education, nor those found ineligible but who continue to struggle in school.

The authors served on one or more of the four recent consensus groups on special education. In this paper, we summarize components of these reports and recent empirical syntheses that have raised numerous issues concerning the reliability and validity of the Federal regulatory definition of LD in the IDEA. These evidence-based reports show congruence in recommending abandonment of the IQ-discrepancy criterion, a significantly restricted role of IQ tests, and a focus on deficient achievement, exclusionary criteria, and RTI for identification of LD. We discuss the basis for these recommendations and respond to 17 questions raised by different groups in the LD community. This community urgently needs to consider these recommendations and responses. The LD category is in danger of expiation without a closer link with the research on LD from the past 30 years and the even more immediate problem of lack of progress of students with LD who are placed in special education.

Why Is Change Needed?

Many years ago, the legislation now known as IDEA made it possible for students with disabilities to attend public schools. Now that the original problem has been addressed, the next goal should be to enhance instructional outcomes for these students, picking up on the themes introduced by NCLB. To accomplish this goal, identification models for LD should require educators to intervene as early as possible and then, if appropriate, refer students for more formal evaluations or other services. The model of intervention followed by necessary evaluation appropriately modifies the more common practice of testing to diagnosis that has been the basis for LD identification over the past 30 years. This change -- a movement away from "test and treat" models to "treat and test" models – is the essence of proposals for alternative identification

models for LD. This does not mean that there is no value in systematic assessment of academic skills. It is necessary to have some idea of what to teach. But the provision of extensive assessment to diagnose LD as a prerequisite to intervention is unnecessary and not supported by evidence that these models are related to better student outcomes. Screening and evaluation of academic skills in the service of intervention and to determine level of risk for LD is not time consuming, especially in relation to the present identification process.

Recent empirical syntheses and consensus reports share the common finding that IQ is ineffective in the identification of LD and suggest alternatives that do not involve the use of the IQ-discrepancy model (Bradley et al., 2002; Donovan & Cross, 2002; Lyon et al., 2001; President's Commission on Excellence in Special Education, 2002; Reschly, Tilly, & Grimes, 1999; Stuebing et al., 2002). The alternatives typically retain the idea of heterogeneity, though not necessarily all of the seven domains currently listed in the Federal definition. Some domains seem out of place in the LD category (e.g., oral expression) and others are missing (e.g., reading fluency) (Fletcher et al., 2002). The exclusions are supported only as they indicate the need for alternative interventions, such as speech and language support or behavioral intervention. Exclusions are also useful in that they support policy considerations, such as the separation of funds for special education and compensatory education as originally intended by Congress (Kavale, 1988; Lyon et al., 2001). But IQ-discrepancy or the replacement of IQ by any form of cognitive assessment (excluding achievement tests) has been uniformly criticized not only for its lack of an evidentiary basis, but also because such approaches are not adequately reliable (Francis et al., in press) or equitable (Donavon & Cross, 2002). For minority students, cognitive measures, such as IQ, have been divisive procedures, preventing a focus on many of the more significant problems that educators must address to provide equivalent education for students of

all economic, linguistic, and cultural groups. It is widely recognized that the presence of IQ-discrepancy, an achievement difficulty, and absence of the exclusions does not mean that the student has a neurobiological disorder (Lyon, Fletcher, & Barnes, 2002; Vellutino, Scanlon, & Jaccard, 2003).

There are many other reasons why use of IQ-discrepancy should be abandoned. The IQ-discrepancy criterion is potentially harmful to students as it results in delaying intervention until the student's achievement is sufficiently low so that the discrepancy is achieved. For most students, identification as LD occurs at an age where the academic problems are refractory to even the most intense remedial efforts (Torgesen et al., 2001). Perhaps of even greater concern than the challenge of teaching students critical academic skills later is the price students pay for not learning them early. Simply put, students who learn to read early are higher achievers because they have access to learning both more content knowledge as well as word meanings – critical means for improving knowledge, language, and comprehension (Stanovich, 2000). In the reading area, students who don't access print early in school fall behind their peers in the development of a sight word vocabulary, leading to fluency difficulties (Torgesen et al., 2001). Not surprisingly, the "wait to fail" model that exemplifies identification practices for students with LD does not result in significant closing of the achievement gap for most students placed in special education. Many students placed in special education as LD show minimal gains in achievement and few actually leave special education (Donavon & Cross, 2002; Lyon et al., 2001).

The use of IQ-discrepancy drives assessment practices for most special education services (President's Commission on Excellence in Special Education, 2002; Reschly, Hosp, & Schmied, 2003). Nationwide, virtually every student considered for special education eligibility

receives IQ and achievement tests. This practice consumes significant resources, with the average cost of an eligibility evaluation running several thousand dollars (MacMillan & Siperstein, 2002; President's Commission on Excellence in Special Education, 2002). Yet such assessments have little instructional relevance and often result in long delays in determining eligibility and therefore services.

In many schools, special education is the only alternative to instruction in general education classrooms. It is not surprising that when school personnel "believe" that students require special education, they often make note of state and federal guidelines for determining eligibility, and conduct testing until the student's performance yields the necessary discrepancy (Donovan & Cross, 2002; MacMillan & Siperstein, 2002). Even in schools where these guidelines are ignored or not used, IQ and achievement tests are nonetheless given, even though this approach to assessment is costly and consumes resources that are disproportionate to their instructional implications.

What are the Alternatives?

Proposed alternatives share three essential components: the need to specify low achievement, identify exclusionary factors, and measure RTI (Bradley et al., 2002; Donovan & Cross, 2002; President's Commission on Excellence in Special Education, 2002). These alternatives are often presented in the context of approaches underscored in the NCLB legislation: (a) an emphasis on universal screening of all students for reading difficulties in the early school years (kindergarten, grade 1, or earlier), (b) placement in early intervention programs, and (c) careful monitoring of progress with accountability for results. Students can be identified with LD if they maintain deficient achievement, do not adequately respond to

increasingly intense interventions, and do not demonstrate evidence for one of the exclusionary criteria as the primary cause of the lack of adequate response.

What Are The Advantages Of Incorporating Response To Intervention?

There are several advantages to using RTI as one factor in the identification of students as LD. *Most significant is that the focus shifts from eligibility to concerns about providing effective instruction.* Of further importance is the shift from waiting for students to meet IQ-discrepancy criteria (wait to fail) to identifying students who need intervention as early as possible and providing it immediately. Eligibility determination is therefore supported by systematic efforts at enhanced instruction and progress monitoring, not from a protracted evaluation process that takes place in isolation from the classroom and has historically proven to have no benefit for those deemed eligible (Fuchs & Fuchs, 1998). Another advantage to an approach that incorporates RTI is that identification is not dependent on teacher referral. Teacher referral has been demonstrated to be biased, yielding disproportionate numbers of boys and African-Americans, likely reflecting behavior management difficulties that make many referred students difficult to manage in the classroom (Donovan & Cross, 2002). Various studies report that 70% to 80% of all students referred for special education eventually were identified and placed in special education, raising questions as to why the elaborate referral and assessment process was even necessary (MacMillan & Siperstein, 2002; MacMillan & Speece, 1999; Ysseldyke, Vanderwood, & Shriner, 1997).

Finding the "right" students is not the most pressing educational challenge for special education. It is shameful to provide regulations that seem to force our schools to continue to engage in practices for which there is little evidence of either prevention or effective intervention (Fletcher, Morris, & Lyon, 2003; Fuchs & Fuchs, 1998; Reschly et al., 1999). Our most pressing

11

challenge is conveying urgency about preventing disabilities through early screening and effective instruction and, for those who do not respond sufficiently, providing effective special education interventions that change achievement and social/behavioral outcomes. A focus on RTI aids in formally addressing the requirement that "a child shall not be determined to be a child with a disability if the determinant factor for such determination is lack of instruction in reading or math" (P. L. 105-17, sec 614 (b) (5)). Without some RTI activities in place, this component of IDEA is merely surmised and not measured. Lack of RTI criteria place schools in violation of the Federal statute, and at substantial risk for denying students their right to a free and appropriate public education.

Including RTI as one of the criteria for identification allows educators and parents to immediately provide students with well-targeted and much needed intervention rather than waiting for extensive, time-consuming assessments that offer little or no information to inform instruction. The alternative to this form of assessment uses formal progress monitoring, which involves the use of short reading or math probes on a frequent basis in relation to intervention. Such an approach incorporates RTI and ensures that any referral to special education includes data indicating how the student has responded to various interventions. Families do not have to wait for the deliberations of the interdisciplinary team to be completed before initiating efforts to provide assistance to their child since they receive intervention throughout the process. Using RTI criteria requires general and special education to operate as a seamless, unified system, not the dual system that is currently in operation in most school districts. Such models would also require that alternative interventions be established so that special education would not be the only pathway to assistance, a situation characteristic of many schools and districts.

The adoption of progress monitoring and RTI shifts the focus from a set of test scores that have limited utility for improving interventions to approaches that design and guide instruction to accelerate progress. Thus, screening for learning problems occurs before intervention and formal assessment for eligibility purposes is a *consequence* of instruction, not a prerequisite. A student with LD is identified as one who has *unexpected* difficulty learning and the *discrepancy* is measured relative to the expectation that most students can learn if quality instruction is provided. The definition and identification of students as LD become inherently linked to instruction and the narrowing of the achievement gap. Improved instruction and reducing the achievement gaps should be primary goals in general and special education. If a student needs special education because of a lack of RTI, the interventions provided in special education should be more intense and specialized than what was provided in general education or as part of the pre- referral process, requiring the flexibility and individualization built into IDEA.

Currently the eligibility process sets a standard that is replicated in the annual and triennial reviews. Both are oriented to maintenance of eligibility, not formal assessments of progress. These reviews yield data that at best serves only to document failure to make substantial academic progress because eligibility is maintained and does not provide guidelines to parents and educators about what to do. Including RTI as part of the eligibility process sets a standard for assessment that is meaningfully related to student outcomes at the very beginning. Criteria that include RTI set the narrowing of the achievement gap as an explicit goal of both general and special education, thus irrevocably linking IDEA and NCLB. Perhaps most important, ongoing progress monitoring data tell teachers and parents when and how students are succeeding on critical benchmarks so that they can determine what they might do to change the rates of progress (Fuchs & Fuchs, 1998).

The proposed alternative approaches to LD identification, like NCLB, require a focus on reading problems, early intervention, assessment of progress, and accountability for results. They are not restricted to reading, with examples of implementation in other IDEA categories, such as behavior problems (Donovan & Cross, 2002). But reading difficulties account for the largest single group of students in special education and typically occur early in schooling (Lyon et al., 2001). The President's Commission on Excellence in Special Education (2002) reported that most students identified with LD were placed in special education because of reading difficulties, representing 2 of every 5 students in special education- by far the largest single group of students (see also Donovan & Cross, 2002). But when aggressive reading programs are implemented with accountability for results, LD identifications are reduced. The potential for these reductions has been demonstrated in research studies (Donovan & Cross, 2002; Lyon et al., 2001) and scaling has begun in actual school settings. In the Elk Grove school district in California, introduction of strong core reading programs reduced the number of students identified into special education from 13% to 9%. After Connecticut introduced a reading blueprint in 1999 that included early intervention and progress monitoring, a significant decline in identifications for special education was observed.

Alternative approaches to LD identification are thus compatible with the tenets of NCLB and promote the goal of maximizing achievement for all students. In these examples, many students who did not have a disability were kept out of special education while other students with a disability received supports that lead to successful reading, thereby providing appropriate intervention early. The student who needs the protection of special education is the student who has not been able to learn at a reasonable rate. Even after identification, the student receiving

special education services will require continued monitoring of progress with accountability for results as a common denominator for general and special education. *If the LD component of IDEA is not modified, it will be inconsistent with NCLB and dilute its impact.* The students most likely to be harmed by this dilution are those with disabilities.

What are the Concerns and Potential Solutions Regarding Alternative Models?

Despite the previously presented advantages to discarding IQ-discrepancy models for identifying students with LD, many in the LD community are concerned that any changes represent some violation of age-old concepts of LD, especially the notion of discrepancy and unexpected underachievement. Similarly, some worry that dropping mandatory IQ tests from the assessment protocol places the LD construct at risk. Others suggest that radical departures to current approaches will be traumatic to the field and that more evidence of their effectiveness is needed before implementation. In the remainder of this report, we address some of these concerns in a question and answer format.

Are radical departures in LD identification proposed? The changes proposed in recent consensus documents are not radical. The clear consensus among LD researchers (Bradley et al., 2002, pp. 791-804), professionals, and parents is to abandon the ability-achievement discrepancy model. The Learning Disabilities Roundtable (2002), composed of 10 national organizations and representing 350,000 parents and professionals involved with LD, explicitly rejected the use of the ability-achievement discrepancy: "The ability-achievement discrepancy formula should not be used for determining eligibility." (p. 8).

The most significant change is the dropping of the mandatory IQ-discrepancy component of the Federal definition. This suggested change to IDEA would not be statutory, only involving changes to the regulations, and would not be required. Other components – low achievement,

exclusion, and RTI – are already part of most definitions, including the IDEA process, and would remain intact. Since RTI efforts are actually measured and tied to a formal attempt to teach the student, this effectively makes the "inadequate instruction" component of the IDEA exclusions the most important component of identification and, consistent with NCLB, an aspect of LD identification that must be measured.

Is the fundamental concept of LD changed? Shifting the focus of LD to the student who does not respond to intervention retains the concepts of "discrepancy" and "unexpectedness" (Fletcher et al., 2003). But instead of operationalizing the concepts of "discrepancy" and "unexpectedness" based on formal IQ tests that have little bearing on intervention, they are gauged in relation to the effectiveness of carefully targeted intervention. Thus, the student who does not respond adequately to intervention displays a severe discrepancy in relation to the expectation that most students can be taught to read, write, and do math- a key tenet of NCLB. The students who would be served under IDEA would therefore change, as students more appropriately identified as "instructional casualties" would be identified and provided accelerated instruction, primarily by general education personnel and, when necessary, through shared instructional efforts of general and special education personnel. These students would be excluded from the formal special education assessment and identification through effective instruction in general education (Lyon et al., 2001), reflecting the primary focus on teaching the student, not on what the student has failed to learn.

Should low achievement definitions be substituted for IQ-discrepancy definitions? Some propose to identify LD on the basis of low achievement test scores, so long as the student does not meet one of the exclusions (e.g., mental retardation). This approach has merit, but carries many of the same psychometric problems of IQ-discrepancy (Francis et al., in press; Stuebing et

al., 2002). Test scores at a single point in time are insufficient for determining the presence of a disability. Like IQ-discrepancy models, low achievement definitions also involve testing a student once and determining whether performance is below some pre-ordained cut point. Such an approach cannot work because any test has measurement error and the specific cut point is inherently arbitrary. The use of a single test avoids the increased unreliability that accrues when two tests with measurement error are employed for identification, as when IQ and achievement tests are compared. However, the problem of instability around a cut point persists (Francis et al., in press). Implementing low achievement definitions still reduces identification to an unreliable process, with some studies suggesting that students should be tested multiple times with lengthy norm-referenced tests to account for variability around a cut point (Shepard, 1980). This procedure is not practical within school settings. Specifying low achievement is necessary, but not sufficient, for identification of individual students with LD. The addition of the RTI component and its corollaries of universal screening, early intervention, and progress monitoring, represent an effort to link general and special education efforts to results and outcomes. This approach addresses the needs of students whose learning difficulties are linked to inadequate instruction and also those students who are challenged by LD and co-occurring disorders.

By not measuring IQ, is LD equated with low achievement? This statement, and its corollary (LD is not real), stem from concerns that moving to an identification system based on achievement, rather than aptitude, will be the death knell of LD (Kavale & Forness, 1999; Scruggs & Mastropieri, 2002). We believe that just the opposite may be true. Without implementing more empirically defensible approaches, the LD category may suffer extinction (Aaron, 1997). The heterogeneity component of LD definitions, however, essentially recognizes that different types of LD can be reliably and validly differentiated. Students with problems in

reading, math, and written expression must be separately defined because the instructional needs of students with disabilities in these areas are different. Obviously, we shouldn't provide students with reading problems an intervention that only teaches math! Moreover, students with LD in different academic areas can be differentiated on cognitive and brain function assessments, and even in the heritability of reading and math disorders (Grigorenko, 2001; Lyon et al., 2002). But these strong examples of the validity of the LD construct are based largely on low achievement definitions and application of the exclusions, not use of an IQ-discrepancy model. As we indicated above, simply specifying low achievement is not sufficient for LD identification purposes.

Concerns to the effect that dropping IQ tests abandons concepts like "unexpected underachievement" and "discrepancy" indicate a failure to recognize that LD is a construct that is always measured with error. Psychometric data based on single norm-referenced assessments provide no evidence that the construct of low achievement is different from the construct of LD, regardless of the assessment model, the tests employed, or the size of any discrepancy. To separate out a construct that differs from low achievement, other approaches to assessment and additional criteria are essential. Adding RTI addresses this need because it requires progress monitoring that provides serial assessments of student learning. Comparisons of students who are responders and nonresponders show differences in many domains, with nonresponders being those "unexpected underachievers" who are "discrepant" relative to expectations that all students should respond to quality instruction (Al-Otaiba & Fuchs, 2002; Nelson, Benner, & Gonzalez, 2003; Vellutino, Scanlon, & Jaccard, 2003).

Aside from the obvious benefit to general education and to individual students, such an approach strengthens the special education identification process by ensuring that all students

evaluated for LD demonstrate that they have had adequate opportunities to learn by measuring

response to scientifically-based instruction. Single norm-referenced assessments do not identify

those students who are difficult to teach. It is well- known that IQ scores and IQ-discrepancy

criteria are unrelated to long- term outcomes, response to intervention, and neurobiological

factors in LD (Fletcher et al., 2002). IQ is neither necessary nor sufficient to identify the student

with LD, and is not the basis for the studies validating the reality of LD. Indeed, the current

model devolves to a low achievement model in research, as most studies use low achievement

criteria, and in its implementation in schools (MacMillan & Siperstein, 2002), where low

achievement drives concerns about the identification of students as LD.

More fundamentally, concerns about the reality of LD without IQ-achievement

discrepancy do not take into account the dimensional nature of LD and the underlying

classification model. There is not a set of unique characteristics that makes LD qualitatively

distinct from normative development. Like all high-incidence disabilities, LD is a variation on

normal development. The classification model is therefore more like obesity or hypertension

than measles or mumps (Ellis, 1985; Shaywitz, 1996). But the dimensional nature does not mean

that LD is not real, cannot be reliably identified, or that the criteria are subjective. Both obesity

and hypertension are on a continuum, are inherited, represent constitutional disorders that

interact with the environment, and require early detection and early intervention. Objective

criteria exist for identification. But hypertension, for example, should not be identified solely on

the basis of a single blood pressure assessment because such assessments have measurement

error that is actually much greater than psychometric tests. When assessing blood pressure,

successive measures are taken over time and often in response to interventions (increased

exercise, change of diet). If these interventions don't "improve" blood pressure, thereby

reducing risk for strokes and heart attacks, progressively intense interventions are tried. The

critical values of blood pressure can be expressed as a range of values over time in relation to

environmental variation, not a single index obtained on the initial assessment. Identifying

students as LD under alternative models can be just as objective as the determination of

hypertension and obesity, but identification methods must follow from the dimensional nature of

LD.

Doesn't IQ predict achievement? Like many other factors, performance on IQ tests is a

moderate predictor of general academic achievement. However, within groups of students with

LD, IQ is a weak predictor. One very popular but invalid assumption is that IQ tests assess an

underlying construct (aptitude) that predicts how well a student with LD should learn. In fact, IQ

does not predict how well students with LD learn reading or math, or their prognosis (Vellutino,

Scanlon, & Lyon, 2001). IQ can be considered a measure of past learning that is in part an

outcome of the same processes that led to the LD (Francis, Fletcher, Shaywitz, Shaywitz, &

Rourke, 1996). Thus, a student with early language problems often shows lower scores on both

IQ and reading measures because of the language problem. Other factors predict achievement as

well as IQ, including parental education, income, and other indices of socio-economic status

(SES), and even these variables are weak predictors of the performance of students with LD.

Neither IQ nor SES predicts future achievement as well as prior achievement. Interpreting IQ

tests as measures of aptitude yields misunderstandings and misapplications that can be damaging

to children and their families (Donovan & Cross, 2002).

Does RTI mean that LD will be combined with other disabilities and lose its status as a

separate category? Some states and local districts have pursued classifications of students in

special education that ignores the 13 major categories in special education using either traditional

assessment or RTI methods of determining eligibility. Further, some states and local districts have used RTI in either a categorical or noncategorical scheme. The decision to employ a categorical or noncategorical approach is independent of whether RTI methods are used. Incorporating RTI criteria does not mean that LD will be eliminated as a category of disability, nor does it imply that eligibility determination using standardized measures of cognitive functioning guarantee the continuation of LD as a distinct category.

Is there a problem with the definition of LD, or just with the implementation of the current identification process? There is substantial variability in how schools implement identification procedures for LD under IDEA (MacMillan & Siperstein, 2002). This research is often interpreted to suggest that more rigorous implementation of existing identification procedures would reduce misidentification or actually reduce identification rates (Scruggs & Mastropieri, 2002). Some schools will go to great lengths to obtain test scores that support the presence of an ability- achievement discrepancy (MacMillan & Siperstein, 2002). This reflects a desire on the part of schools to serve students in need. In many school systems, special education is often the only alternative to conventional classroom instruction. In other schools, discrepancy criteria are rigidly enforced, leading to disputes over eligibility and always leaving students who need help entrenched in a cycle of failure. In some instances, this reflects an attempt to use identification procedures as a gate-keeping device. *The fundamental problem with these approaches is that they focus on eligibility and not on student needs.* Making current test-focused identification procedures more rigorous will not make the assessments used more appropriate for identification as LD, nor will they reduce the tendency of general education to divest itself of the responsibility for educating students who struggle to learn. The best solution to concerns about identification (and over-identification) is better instruction, first in general

education and then in a cooperative effort with special education. More rigorous implementation of procedures for identification, like IQ-discrepancy, will not address its lack of an evidentiary base, which has been questioned from the inception of its adoption in Federal regulations. After nearly 30 years, there are still substantial inconsistencies in the interpretation of the regulations both across and within states. Rigorous implementation can't bring clarity to a fundamentally flawed standard, reflecting an underlying approach to classification of LD that is neither reliable nor valid.

Are IQ tests necessary to identify LD and demarcate it from mental retardation? This question presumes that IQ tests are an essential component of identifying students with mental retardation. In fact, all definitions of mental retardation require assessments of adaptive behavior and consideration of exclusions. Learning disabilities are not a consideration in identifying students with mental retardation. If IQ tests are used, it is difficult to define a firm boundary between mental retardation and LD (Gresham, MacMillan, & Bocian, 1996). Decisions about mental retardation can be made in most students without IQ tests by using achievement and, if necessary, adaptive behavior assessments. Fundamentally, if the need to give an IQ test for special education decision-making involves mental retardation, then IQ tests are useful tools in a comprehensive assessment protocol. But not every student considered for the much more prevalent category of LD needs to have an IQ test just to rule out mental retardation. Such assessments are wasteful of resources and professional time. Simply dropping the requirement of IQ testing from the IDEA process will make assessments more efficient and less costly.

Will valuable information about cognitive processing be lost without IQ tests? Despite many efforts to show relations of a wide variety of presumed underlying cognitive processes to interventions, no research foundation exists for this very popular assertion (Fletcher et al., 2003;

Reschly et al., 1999). Regardless of whether cognitive processing is conceptualized as a

modality (visual or auditory), intact and deficit neuropsychological functions, successive or

simultaneous processing, or the many variations of learning style, there is little data showing that

either teaching the cognitive processes produces better achievement or that matching instruction

to cognitive processing strengths leads to better achievement (Kavale & Forness, 1999). The

anecdotal links between cognitive processing and instruction are at best appealing experimental

hypotheses that have not been validated despite extensive efforts over the past 30 years. In

contrast, components of efficient reading such as word identification, fluency, and

comprehension can be taught, which leads to improved achievement. Information on students'

learning styles and information processing deficits are best discerned during instructional efforts,

when they are at least tied to instruction and not to a set of sterile test scores.

Should other forms of discrepancy be considered? It has been argued that the hallmark

of LD is some form of ability or intrapersonal discrepancy (Learning Disabilities Roundtable,

2002). This statement is accompanied with alternative recommendations for assessments of

aptitude, such as listening comprehension, or the use of measures of cognitive or

neuropsychological processing. There is no question that when a student demonstrates

unevenness in their development of different skills, LD may be indicated. However, this does

not mean that a classification model based on the search for these students is a defensible

practice. First, not all students who demonstrate unevenness in their development are LD as it

also depends on the student's level of achievement. Many students with LD are low achievers in

all academic domains. Thus, the use of uneven development as a sole criterion is indefensible.

Second, students with LD who have uneven performance across processing domains often

demonstrate these discrepancies in their academic performance, such as the student who reads

accurately, but slowly, or reads well but struggles with math or writing. Students must be evaluated on an individual basis and assessed for intra-individual differences in the seven domains that comprise the definition of LD in the law. Third, measures of processing have no demonstrable relationship with outcomes (Reschly et al., 1999) and are not well delineated for all forms of LD (Torgesen, 2002). Finally, any reliance on discrepancy carries with it the psychometric problems described throughout this paper. This model is simply another example of the "test and treat" approach that has not been effective for students struggling to learn (Fletcher et al., in press). Although the presence of significant unevenness in achievement profiles is a meaningful indicator of certain types of LD, the absence does not mean that the student does not have LD, and does not justify extensive assessments of cognitive skills.

Are the problems with IQ-discrepancy limited to studies of beginning reading? This statement and its corollary, which is that RTI models have only been studied in beginning readers, are both incorrect. In the Stuebing et al. (2002) meta- analysis, the age range in the studies that were synthesized included students in elementary, middle, and high school, as well as adults. Studies of IQ-discrepancy in math and speech and language disorders have not supported distinctions with low achievers (Fletcher et al., 2002). This is because the underlying psychometric model, based on single assessments and the computation of difference scores, is inherently flawed as an identification method, a fact that has been known for about 20 years (Christensen, 1992; Francis et al., in press; Shepard, 1980). Similarly, there is nothing inherent in alternative models that prevent them from being applied to students with any form of LD, regardless of age and domain. Such models are widely and effectively used for students with behavior disorders (Donavon & Cross, 2002).

Is the research base for alternative models adequate? Bringing new education practices to scale is always a challenge, and there are many roadblocks to moving from policy to implementation. These challenges include: preparing professionals to adequately implement the research-based screenings and interventions; preparing and offering ongoing technical assistance and support to professionals to implement progress monitoring measures to ensure that RTI can be effectively implemented; carefully monitoring students who benefit from supplemental interventions to ensure that they do not return to "risk" status; and obtaining materials and resources that represent these research-based practices so that they can be readily used by professionals in schools (Denton, Vaughn, & Fletcher, 2003; Fuchs, Mock, Morgan, & Young, 2003). Many teachers in general education and special education are not well-prepared to provide research- based instruction, especially in the area of reading (Lyon et al., 2001). These problems include inadequate preparation in all components of reading instruction in preservice programs and inadequate understanding of concepts involving phonological awareness and the structure of language. There is also the need to resolve measurement issues involved in identifying specific students as non responders, so that RTI can not be the sole eligibility criterion. Fortunately, the measurement issues that characterize RTI approaches are well understood (Francis et al., in press) and the fact that progress monitoring entails multiple assessments helps educators to successfully implement programs of instruction that precede (or negate) formal special education referral.

Several large scale interventions for students identified with LD or behavior problems that include RTI have been demonstrated to be effective (Donovan & Cross, 2002; Gresham, 2002; Reschly et al., 1999). Knowledge of these interventions has influenced eligibility approaches in Iowa, Louisiana, Utah, Pennsylvania, Minnesota, and Connecticut. Although all

of these models may not effectively implement scientifically- based research and validated protocols for accelerating the development of reading and behavioral skills, the knowledge base for operationalizing improved instructional practices is known. Although it may appear that resources are inadequate to implement these changes, the real task is to more effectively utilize the resources that presently exist with a focus on improved student outcomes through better educational practices.

Whenever educational change is introduced, implementation integrity is difficult (Gresham, Gansle, Noell, Choen, & Rosenblum, 1993). In the LD area, scaling is especially difficult because of current regulations and the focus on compliance. The extensive monitoring of regulatory compliance under IDEA makes schools, districts, and states leery of doing anything that deviates from current IDEA mandates. Even when agencies agree that current LD identification practices lack an evidentiary base, do not facilitate improved outcomes, and prevent prevention, their efforts to scale up are most often uneven and not uniformly effective. While questions about scaling and implementation exist, they do not undermine the reasons for looking to alternative, more effective models for instruction and intervention (Gresham, 2002).

Given an opportunity to offer students effective interventions without having to wait to fail, the fundamental question is whether we have sufficient research to support new or alternative practices in education. The four consensus reports concluded that the research base is sound. The true benefits of changed practices need to be determined over time. Only by scaling can the long-term value of such practices be assessed. We believe the evidence is sufficient to justify scaling at this time, and that simultaneous research is needed to monitor, test and recommend alterations to features of implementation that are made public by these attempts to

scale the practice. Simply implementing progress monitoring (as required in NCLB) would be a significant step towards alternative approaches to the identification of LD.

What about students who make progress during the intervention but make limited progress after they are released from the intervention? There are students who make progress as a result of pre-referral intervention, but struggle once they no longer receive targeted instructional support. Response to intervention models should monitor progress in all students who are at risk, including those who exit an intervention. When progress is monitored, school personnel will be able to quickly recognize that students are not maintaining progress. Such students can reenter the intervention. A simultaneous investigation of the learning environment in which adequate progress is not apparent can be initiated to identify factors that contributed to students' continued struggle to learn (Fuchs & Fuchs, 1998). The key to ensuring student success is to have data that indicate the progress students are making so that these determinations can be made. Lack of progress in classrooms when intervention no longer occurs could be a valuable data source for determining whether adequate instruction is provided as part of the core instructional program, whether group sizes are too large and the target students would respond more effectively if the group size were reduced, and the extent to which contextual factors such as school attendance, home supports, and other factors were influencing learning.

Will school psychologists and educational diagnosticians lose jobs? Professionals involved in LD assessment commonly lament the time they devote to cookie-cutter and generally meaningless assessments. In states like Iowa where assessment models emphasize RTI, these professionals spend less time giving IQ tests and more time involved in assessment related to intervention, such as progress monitoring. They also spend more time on other activities related to instruction and behavioral support. These professionals report increased job satisfaction as a

result of a reallocation of responsibilities driven by alternative models (Reschly et al., 1999).

Professional organizations representing these professionals support changes in LD identification

practices, and no job losses have been reported or would be expected (Learning Disability

Roundtable, 2002). While improved pre-service preparation and continuing professional

development are ongoing challenges throughout the education community, many assessment

professionals are currently well-positioned to implement alternative approaches to LD

identification.

What about students currently identified as LD? Concerns have been expressed about

unintended consequences for students currently identified or not identified as LD. No student

who is currently eligible should lose eligibility or be subjected to additional evaluations because

of regulatory changes. Parents should have the option of requesting formal evaluations at any

point in the identification process, though many are likely to delay a formal referral as the

student will be engaged in intervention and they can obtain ongoing data on how the student is

responding. Parents should be permitted to request an IQ test if they are concerned about the

student's level of intelligence, although better communication between parents and school

personnel should inform parents about the value of an IQ test and at what point in the assessment

process it should be administered. Knowing a student's IQ score will not predict what they can

learn, just what they haven't learned.

What about the older student? For the student in middle and secondary school, the

presence of an inability to read, write, or do math should immediately trigger concerns about LD.

There should be no hesitation on the part of parents and school personnel to include an older

student in a RTI protocol as there is ample evidence, at least in the reading domain, that many

older students identified with LD have never received adequate instruction in either general or

special education. Many respond surprisingly well with a sufficiently intense intervention (Torgesen et al., 2001; Simos et al., 2002). Students who are struggling to learn and who are likely candidates for special education referral would certainly benefit from an intervention trial, if for no other reason than the student will get help sooner, not later, as is presently the situation in many districts backlogged with requests for eligibility determinations. *The real question is why the first thing done with an older student (or adult) struggling with reading, math, and/ or writing isn't to provide them with intervention?*

What about the bright student or "gifted LD?" There is no question that students can be remarkably capable in one area and deficient in another. The presence of this type of uneven development of capabilities is sufficient, but not necessary for the identification of LD. For example, the concern about "bright" students often involves those who seem highly capable but are slow at reading and/or math. Here the critical issue is the need to broadly assess domains of academic achievement, including fluency in reading, math, and writing. As the Federal definition does not emphasize fluency, these difficulties are often not assessed. The key finding from a thorough assessment of academic skills is that accuracy and fluency not only are discrepant, but that there is educational need.

Related concerns are often expressed about students who seem bright, but are distractible or have subtle retrieval deficits. Concerns about distractibility and retrieval beg the question of whether the correct identification has been made. Although many students with LD also are distractible and have retrieval deficiencies, these problems in the absence of clearly specified achievement difficulties are better subsumed under other disorders, such as ADHD or specific language impairments, where the implications for intervention are more directly linked with

identification. Children with LD and ADHD have two disorders, both of which need intervention (Lyon et al., 2002).

Another common concern involves students who obtain achievement test scores that are above average, but below scores on an IQ test. This finding is often an artifact of failing to correct for the correlation of IQ and achievement tests. On average, extremely high IQ test scores will be associated with lower achievement test scores due to a statistical problem known as "regression to the mean" in which the less extreme score on two correlated tests moves to the average. A student, for example, with an IQ score of 130 (95th percentile) and an achievement quotient that is 15 points lower is not discrepant if the correlation of the two tests is taken into account. The actual amount of the discrepancy to represent this difference at the 50th percentile (100) would be closer to 24 points at levels of IQ as high as 130, depending on the correlation of the two tests.

What about the "slow learner"? Students with mental retardation have different instructional needs than students with LD. Moreover, the critical piece of information for identifying a student with mental retardation is a pervasive deficit in adaptive behavior-socialization, self- care skills, and independent living capabilities. Students with LD may have selective deficits in adaptive behavior, but not a pervasive deficit (Bradley et al., 2002).

The slow learner concern typically revolves around the question of what to do with a student with an IQ score in the 70- 80 range who "cannot be expected to learn" at an age appropriate rate. This type of student typically does not have pervasive adaptive behavior deficits and is not eligible for the mental retardation category. The concern, often made in parallel with concerns about parental expectations, presumes that IQ is a strong predictor of RTI, which it is not. The extent to which our conceptions are permeated by antiquated "milk and jug"

thinking should be of concern to anyone interested in LD, reflecting the culmination of years of inappropriate interpretations of IQ test scores. Milk and jug thinking is epitomized by the following quotation in 1937 from Sir Cyril Burt:

> Capacity must obviously limit content. It is impossible for a pint jug
>
> to hold more than a pint of milk and it is equally impossible for a
>
> student's educational attainment to rise higher than his educable
>
> capacity (p.477).

There is no evidence that IQ tests set an upper limit on a student's ability to learn. The only way to assess learning potential is to teach a student and gauge RTI.

Conclusions: Line up IDEA with NCLB

As the education community considers potential changes in LD identification, we observe that most of the provisions recommended as alternatives to IQ-discrepancy models are already allowed in IDEA. However, without well articulated policy and regulations, many schools and parents will be without direction. The most significant challenge in revamping identification procedures and enhancing results for students with LD involves the concept of "aptitude" and how it has traditionally been utilized in models of LD. Even if we reject the use of IQ as an indicator of aptitude, the notion that a student with LD has a discrepancy relative to aptitude as measured by tests deviates from historic conceptions of LD as an inability to learn despite the presence of adequate opportunity. *A major advantage of shifting the focus in LD identification from IQ status to inclusion of RTI is that it more appropriately and immediately addresses the instructional needs of students who are difficult to teach, as opposed to the current model of waiting until they have failed in school.* This allows for learning to be measured through progress monitoring as part of a systematic effort at intervention (Fuchs & Fuchs, 1998). Such

31

approaches facilitate the integration of general and special education around instruction, line up IDEA with the laudatory goals of NCLB, and lead to federal regulations and conceptual models of LD consistent with our best research about teaching and learning. General and special education students alike deserve instruction and support that is appropriate to their learning needs. Service delivery to students in special education needs to be more focused on results and less on process. Obstacles that prevent these changes need to be removed. Otherwise it is likely that the construct of LD as currently implemented will wither and expire due to the absence of evidence linking identification to improved outcomes.

These arguments in favor of alternative models are not simply about RTI. The alternative models recognize that most forms of LD emerge early in school and can be identified through universal screening. Students who are at-risk should receive accelerated instruction through standard, scientifically-based protocols, with their progress constantly monitored. Those who do not respond should be candidates for special education. Additional criteria for identification (e.g., exclusions, educational needs) should be considered by an interdisciplinary team. The students who emerge from this process and qualify for special education will, if the interventions are appropriate and provided with integrity, be different from those who are currently served because instructional casualties will be eliminated . The key, of course, is better instruction provided earlier in schooling and enhanced coordination between general and special education. The debate about alternative models is not simply IQ-discrepancy or low achievement versus RTI. It is about whether special education continues to use the now indefensible psychometric models adopted in 1977 or moves to alternative models that prioritize instruction and not eligibility, and student learning as opposed to process. In making these shifts, IDEA becomes

aligned with NCLB, ensuring that general education and special education operate as a unified system with common goals.

The NCLB act represents an unprecedented opportunity for the special education community. It requires students with disabilities to be part of the accountability system, which means that they must be afforded effective instruction if schools are to meet NCLB goals. Adopting alternative models of the sort proposed in recent consensus documents will permit special education students to fully benefit from the mandates built into NCLB. Improved achievement and behavioral adjustment should be the goals and outcomes of any educational practice. We have an obligation to think of students who are struggling to learn as difficult- to- teach before we label them as unable to learn.

References

Aaron P.G. (1997). The impending demise of the discrepancy formula. *Review of Educational Research*, *67*, 461-502.

Al Otaiba, S. & Fuchs, D. (2002). Characteristics of children who are unresponsive to early literacy intervention: A review of the literature. *Remedial and Special Education, 23*, 300-315.

Bradley, R., Danielson, L., & Hallahan, D. (Eds.) (2002). *Identification of learning disabilities: Research to practice.* Mahwah NJ: Erlbaum. www.air.org/ldsummit

Burt, C. (1937). *The backward child*. London: University of London Press.

Christensen, C.A. (1992). Discrepancy definitions of reading disability: Has the quest led us astray? *Reading Research Quarterly, 27*, 276-278.

Denton, C., Vaughn, S., & Fletcher, J.M. (2003). Bringing research-based practice to scale. *Learning Disability Research and Practice, 15*, 74-94.

Donovan, M.S., & Cross, C.T. (2002). *Minority students in special and gifted education.*

Washington, DC: National Academy Press. http://www.nap.edu/catalog/10128.html

Ellis, A.W. (1985). The cognitive neuropsychology of developmental (and acquired) dyslexia:

A critical survey. *Cognitive Neuropsychology, 2*, 169-205.

Finn, C.E., Jr., Rotherham, R.A.J., & Hokanson, C.R., Jr. (Eds.) *Rethinking special education for*

a new century. Washington, DC: Thomas B. Fordham Foundation and Progressive

Policy Institute. www.edexcellence.net/library/special_ed/index.html

Fletcher, J.M., Francis, D.J., Morris, R.D., & Lyon, G.R. (in press). Evidence-based assessment

of learning disabilities in children and adolescents. Journal of Clinical Child and

Adolescent   Psychology.

Fletcher, J.M., Lyon, G.R., Barnes, M., Stuebing, K.K., Francis, D.J., Olson, R.K., Shaywitz,

S.E., & Shaywitz, B.A. (2002). Classification of learning disabilities: An evidence-

based evaluation. In R. Bradley, L. Danielson, & D. Hallahan (Eds.), *Identification of*

learning disabilities: Research to practice. (pp 185-250). Mahwah NJ: Erlbaum.

Fletcher, J.M., Morris, R.D., & Lyon, G.R. (2003). Classification and definition of learning

disabilities: An integrative perspective. In H.L. Swanson, K.R. Harris, and S. Graham.

Handbook of learning disabilities (pp. 30-56). Guilford Publications.

Francis, D.J., Fletcher, J.M., Shaywitz, B.A., Shaywitz, S.E., & Rourke, B.P. (1996). Defining

learning and language disabilities: Conceptual and psychometric issues with the use of

IQ tests. *Language, Speech, and Hearing Services in Schools*, *27*, 132-143.

Francis, D.J., Fletcher, J.M., Stuebing, K.K., Lyon, G.R., Shaywitz, B.A., & Shaywitz, S.E. (in

press). Psychometric approaches to the identification of learning disabilities: IQ and

achievement scores are not sufficient. *Journal of Learning Disabilities.*

Fuchs, D., Mock, D., Morgan, P.L., & Young, C.L. (2003) Responsiveness-to-intervention: Definitions, evidence, and implications for the learning disabilities construct. *Learning Disabilities Research and Practice*, *18*, 157-171.

Fuchs, L.S., & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing identification of learning disabilities. *Learning Disabilities Research & Practice*, *13*, 204-219.

Gresham, F.M. (2002). Responsiveness to intervention: An alternative approach to the identification of learning disabilities. In R. Bradley, L. Danielson, & D. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 467-519). Mahwah NJ: Erlbaum.

Gresham, F.M., Gansle, K.A., Noell, G.H., Cohen, S., & Rosenblum, S. (1993). Treatment integrity of school-based intervention studies: 1980 – 1990. *School Psychology Review*, *22*, 254-272.

Gresham, F.M., MacMillan, D.L., & Bocain, K.M. (1996). Learning disabilities, low achievement, and mild mental retardation: More alike than different? *Journal of Learning Disabilities, 29*, 570-581.

Grigorenko, E.L. (2001). Developmental dyslexia: An update on genes, brains, and environments. *Journal of Child Psychology and Psychiatry, 42,* 91-125.

Kavale, K.A. (1988). Learning disability and cultural disadvantage: The case for a relationship. *Learning Disability Quarterly, 11*, 195- 210.

Kavale, K. A., & Forness, S. R. (1999). Effectiveness of special education. In C. R. Reynolds & T. B. Gutkin (Eds.), *The handbook of school psychology* (3rd Ed.) (pp. 984-1024). New York: Wiley.

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.

Learning Disabilities Roundtable (2002). *Specific learning disabilities: Finding common ground*. Washington DC: U.S. Department of Education, Office of Special Education Programs, Office of Innovation and Development.

Lyon, G.R., Fletcher, J.M., & Barnes, M.C. (2002). Learning disabilities. In E. Mash and R. Barkley (Eds.) *Child psychopathology* (pp. 520-586) (Vol. II). New York: Guilford.

Lyon, G.R., Fletcher, J.M., Shaywitz, S.E., Shaywitz, B.A., Torgesen, J.K., Wood, F.B., Schulte, A., & Olson, R. (2001). Rethinking learning disabilities. In C.E. Finn, Jr., RA.J. Rotherham, & C.R. Hokanson, Jr. (Eds.) *Rethinking special education for a new century* (pp. 259-287). Washington, DC: Thomas B. Fordham Foundation and Progressive Policy Institute.

MacMillan, D.L., & Siperstein, G.N. (2002). Learning disabilities as operationally defined by schools. In R. Bradley, L. Danielson, & D. Hallahan (Eds.), *Identification of learning disabilities: Research to practice* (pp. 520-586). Mahwah NJ: Erlbaum.

MacMillan, D.L., & Speece, D. L. (1999). Utility of current diagnostic categories for research and practice. In R. Gallimore, L.P.Bernheimer, D.L. Macmillan, D.L. Speece, and S. Vaughn (Eds). *Developmental perspectives on children with high-incidence disabilities*. Mahwah, NJ: Erlbaum.

National Center for Learning Disabilities (2002). *Early help for struggling learners: A national survey of parents and educators.* Author. (http://www.ld.org/press/PR2003/survey_findings.pdf)

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*. Washington, DC: National Institute of Child Health and Human Development. www.nationalreadingpanel.org/

Nelson, J.R., Benner, G.J., & Gonzalez, J. (2003). Learner characteristics that influence the treatment effectiveness of early literacy interventions: A meta-analytic review. *Learning Disabilities Research & Practice, 18*, 255-267.

President's Commission on Excellence in Special Education (2002). A new era: Revitalizing special education for children and their families. http://www.ed.gov/inits/commissionsboards

Rand Reading Study Group (2002). *Reading for understanding*. Santa Monica, CA: Rand Corporation. www.rand.org/multi/achievementforall/

Reschly, D.J., Tilly, W.D., & Grimes, J.P. (1999). *Special education in transition: Functional assessment and noncategorical programming*. Longmont, CO: Sopris West.

Reschly, D.J., Hosp, J.L., & Schmied, C.M. (2003). And miles to go ….: State SLD requirements and authoritative recommendations. Nashville, TN: National Research Center on Learning Disabilities. www.nrcld.org

Scruggs, T.E., & Mastropieri, M.A. On babies and bathwater: Addressing the problems of identification of learning disabilities. *Learning Disability Quarterly, 25*, 155-168.

Shaywitz, S.E. (1996). Dyslexia. *Scientific American, 275*, 98-104.

Shepard, L. (1980). An evaluation of the regression discrepancy method for identifying children with learning disabilities. *Journal of Special Education, 14*, 79-91.

Simos, P.G., Fletcher, J.M., Bergman, E., Breier, J.I., Foorman, B.R., Castillo, E.M., Fitzgerald,

    M., & Papanicolaou, A.C. (2002). Dyslexia-specific brain activation profile becomes

    normal following successful remedial training. *Neurology*, 1-10.

Snow, C.E., Burns, M.S., & Griffin, P. (1998). *Preventing reading difficulties in young children*.

    Washington, DC: National Academy Press. www.nap.edu/catalog/6023.html?se_side

Stanovich, K.E. (2000). *Progress in understanding reading: Scientific foundations and new*

    frontiers. New York: Guilford.

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 disabilities: A meta-analysis.

    American Educational Research Journal, *39*, 469-518.

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. Hallahan (Eds.), *Identification of learning disabilities: Research to*

    practice. Mahwah NJ: Erlbaum

Torgesen, J.K., Alexander, A.W., Wagner, R.K., Rashotte, C.A., Voeller, K.K.S., & Conway, T.

    (2001). Intensive remedial instruction for children with severe reading disabilities:

    Immediate and long-term outcomes from two instructional approaches. *Journal of Learning*

    Disabilities, *34*, 33-58.

United States Office of Education (1977). Assistance to states for education for handicapped

    children: Procedures for evaluating specific learning disabilities. *Federal Register, 42*,

    G1082-G1085.

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.

Vellutino, F.R., Scanlon, D.M., & Jaccard, J. (2003). Toward distinguishing between cognitive and experiential deficits as primary sources of difficulty in learning to read: A two year follow-up of difficult to remediate and readily remediated poor readers. In B.R. Foorman (Ed.), *Preventing and remediating reading difficulties: Bringing science to scale,* pp. 73-120. York Press: Baltimore, MD.

Ysseldyke, J. E., Vanderwood, M. L., & Shriner, J. (1997). Changes over the past decade in special education referral to placement probability: An incredibly reliable practice. *Diagnostique, 23,* 193-201.