

# What Is Special About Special Education for Students with Learning Disabilities?

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In this article, the ways in which special education for students with learning disabilities was perceived as “special” historically and what we know about effective special education instructional practices for students with learning disabilities currently are summarized. The influence of monitoring progress, providing explicit and systematic instruction, understanding the critical factors associated with progress in academic areas such as reading and math, and teaching students in small groups with many opportunities to practice and obtain feedback are essential features of special education for students with learning disabilities. A model for providing integrated services between general and special education for students with learning disabilities is described.

How is special education for students with learning disabilities “special”? One way to approach this question is to review the intervention and descriptive studies of instruction and services for students with learning disabilities (LD) and report the ways in which special education provides a differentiated and appropriate education for students. At least with respect to the education that students with LD receive within general education, existing reviews reveal that undifferentiated instruction not specifically designed to meet the instructional needs of the student with LD prevails (see for review, Baker & Zigmond, 1995; McIntosh, Vaughn, Schumm, Haager, & Lee, 1993; Zigmond et al., 1995). Thus, there is a gap between what we know about effective instruction and the extent to which these practices are carried over into instructional settings. However, we were concerned that focusing on this would ignore aspects of special education that are associated with improved outcomes for students with LD.

In this article, we describe what was perceived in the not-so-distant past as necessary special instruction for students with LD and the relatively recent view linking progress monitoring and instructional outcomes as markers for progress with students with LD. In order to address the question of what is special about special education for students with LD, we first briefly review the literature about how special education was initially conceptualized for these students and how effective instructional models for those students have shifted from using underlying process approaches to emphasizing instructional effectiveness based on students’ learning in core academic areas. We then describe a three-tiered model for providing special education to students with LD.

## Special Education and Students with Learning Disabilities

For many students with disabilities, the initial goal of special education was to ensure that they were provided an opportunity to attend and profit from education; that is, that a free and appropriate public education be provided to them, just like to all other youngsters. This was the basis for the landmark legislation known as the Individuals with Disabilities Education Act (IDEA; reauthorized in 1997), which gave all students with disabilities the right to public education. For students with LD, who were already provided education within the general education system when IDEA was enacted (1977), special needs would now be identified and specialized treatment would be provided.

Although parents, students, and educators recognized that the educational needs of students with LD were inadequately met by general education alone, little was known about what an effective educational program for students with LD should look like. As a result, the special education of students with LD has traveled a somewhat rocky road of false starts, misconceptions, and misinformed ideas—until 10 years ago, when the progress in teaching these students began to show much promise (Kavale & Forness, 2000; Swanson, Hoskyn, & Lee, 2000; Vaughn, Gersten, & Chard, 2000).

In this article, we review where we have been with treatments for students with LD, discuss the extent to which the treatments are special, and describe a model for early prevention and intervention. Last, we present some of the critical findings about teaching students with LD that inform what

is special about special education and how these techniques can be effectively implemented.

### *Diagnosis and Remediation of Underlying Process Disabilities*

The hallmark of early instruction for students with LD was instruction based on models of neurological and/or processing disorders in which identification and treatment of learning problems were linked to the underlying processes that interfered with effective learning. Although it may be accurate that many students with LD have underlying neurological and/or processing disorders, researchers and educators have been singularly unsuccessful at reliably identifying these difficulties and designing specific treatments to remediate them (for a review, see Lyon, 1985; Mann, 1979).

It would be incomplete to examine early work in providing educational treatment for students with LD without reviewing the work of Samuel Kirk. As early as 1962, Kirk presented the notion of intraindividual differences to describe what was special about educating students with LD. In Kirk and Kirk (1971), the idea was described as a concept that

directs attention not to the comparison of one child with another but to differences of ability within a single child. In other words, the concept of intraindividual differences leads logically to psychometric tests that could measure a number of specific and discrete areas of psychoeducational development. Its principal use is to diagnose a child's psycholinguistic abilities so that remediation can follow. (pp. 11–12)

**Process Approaches.** Kirk's concept of intraindividual differences was the foundation of early work in LD. It was believed that the psychoeducational strengths and weaknesses that contributed to students' learning could be identified and an educational treatment plan that capitalized on students' strengths and remediated weaknesses could be defined. With this course charted, many assessment and remediation practices in LD were devised and implemented. Johnson and Myklebust (1967) also contributed significantly to early understanding of treatment of such students. They identified procedures for first conducting an intensive diagnostic study and then developing an individualized plan that was based on a language deficit model.

Measures such as the *Illinois Test of Psycholinguistic Ability* (ITPA; Kirk, McCarthy, & Kirk, 1968) were designed to determine students' strengths and weaknesses and to prescribe corresponding treatment. The ITPA, which was frequently used to diagnose processing problems, consists of three dimensions:

1. Channels of communication include the modes of expression for receiving and expressing information.

2. The psycholinguistic processes relate to the acquisition of language.
3. The levels of organization refer to communication habits, including more complex mediated learning (representational level) and less voluntary learning (automatic level).

Student profiles can be generated based on the subtests that corresponded with each of these three dimensions of the test. Specific tasks, activities, and instructional programs are specified for instructing students in the processes that correspond with the tasks (Kirk & Kirk, 1971).

The concern with process assessment and treatment has been that underlying learning deficits and processes were not reliably identified and the corresponding treatments were not specific to the learning problems. Although the efficacy of psycholinguistic training has been much debated, treatments were not in fact powerful enough to make discernable differences in academic learning—the most important outcome (Hammill & Larsen, 1974, 1978; Kavale, 1981; Larsen, Parker, & Hammill, 1982; Lund, Foster, & McCall-Perez, 1978). The emphasis on underlying mechanisms related to learning yielded undue focus directed to remediating process deficits and too little focus on instructing students in their target areas of need (e.g., reading, math). Thus, process remediation as a means to resolving LD went unsupported (Chall, 2000; Kavale, 1980; Kavale & Forness, 2000; Kavale & Mattson, 1983; Silver, 2001). However, it is important to note that despite lack of support for process identification and treatment models, they continue to persist. Thus, early in the field of LD, unique treatment approaches for students with specific LD, were devised yet were often not directly related to learning goals; these approaches were implemented broadly and continue today in spite of little information on the fidelity of implementation and weak results related to learning outcomes.

It is important to note that past failures in identifying and remediating processing problems do not necessarily forecast future failures. Three impediments have so far stood in the way.

1. Knowledge about the neurological underpinnings of learning and LD has not been adequate.
2. The measurement needed to identify specific process disorders in learning has not been precise enough (Keogh, 1994a; Lyon, 1994).
3. Matching the subtype of a learning problem with appropriate treatments has not been carried out successfully.

However, future research may yield better scientific understanding of these principles, and a return to process approach may well serve individuals with LD. Thus, theoretically sound and empirically driven work that attempts to better inform these issues should be considered as feasible and desirable progress in the field.

### Modality-Matched and Multisensory Approaches.

*Modality* refers to sight, hearing, touch or movement. The learning modality approach to instruction is based on the assumption that learners have preferred modalities for learning and teaching that is redesigned to rely more directly on this preferred modality will help students learn more readily and rapidly. For teachers of students with LD, the rationale is to identify each student's preferred modality and to match teaching to this modality preference. An extension of modality-matched instruction is learning styles, in which the teacher identifies types of tasks that fit the students' learning orientation and provides instruction that allows students to use their preferred learning style. There is no empirical support for the use of modality-matched instruction or learning styles as a means to enhance outcomes for students with LD (Arter & Jenkins, 1979; Kavale & Forness, 1987; Kavale, Hirshoren, & Forness, 1998; Larrivee, 1981). However, many teacher education programs and professional development experiences encourage teachers to consider modality-matched instruction as a means for enhancing outcomes for students with learning problems. These techniques are part of many preservice and inservice programs for teachers, appear to have widespread use, and are fundamentally unsupported by empirical evidence.

*Multisensory instruction* involves teaching aimed at using all pathways to the brain simultaneously, particularly visual, auditory, and kinesthetic-tactile (McIntyre & Pickering, 1995). From the early work of Fernald (1943), Gillingham and Stillman (1936), and Orton (1937), a multisensory approach to teaching students with learning/reading disabilities has been advocated. According to Orton, "All of the usable linkages between vision, audition, and kinesthesia should be established during remediation of reading difficulties" (p. 17). Despite positive outcomes for individual cases (Fernald & Keller, 1921; Strauss & Lehtinen, 1947), research has offered no compelling evidence to suggest that a multisensory approach to instruction is advantageous for students with learning or reading disabilities (Kavale & Forness, 2000). Thus, what has historically been considered "special" about providing treatment for individuals with LD—psycholinguistic training, modality-matched instruction, and multisensory teaching—has been associated with little or no effects on learning outcomes for students with LD.

### Academic Instruction for Students with LD

Instructional approaches that have yielded significant outcomes for students with LD are characterized as being well specified, explicit, carefully designed, and closely related to the area of instructional need (e.g., reading, spelling, math). Although these techniques are not special and unique to special education settings, teachers, and students, their application needs to be. Torgesen (1996) specified that special education differs from general education for students with LD when it is more (a) explicit, (b) intensive, and (c) supportive.

D. Fuchs (1996) argued that two of the attributes of effective special education for students with LD are individualization and validation. Curriculum-based measures (Deno, 1985) and other progress-monitoring tools (Good & Kaminski, 1996) help ensure that intervention is responsive to the individual needs of students (D. Fuchs, 1996). Validation occurs in several ways, but perhaps the most powerful way is through experimental studies that are conducted over time and yield converging evidence (K. E. Stanovich, 2000; Vaughn & Dammann, 2001). To maximize student outcomes, these approaches can then be given precedence by teachers who monitor student progress, and adjustments can be made to (a) the features of instruction (e.g., pacing, group size, amount of time), (b) the materials, and (c) the instructional practice.

Effective instructional approaches for students with LD and their effect sizes have been reported in several sources (Gersten, Schiller, & Vaughn, 2000; Gersten & Vaughn, 2001; Kavale, & Forness, 2000; Swanson et al., 2000; Vaughn et al., 2000) and can be briefly summarized as the following:

- Controlling task difficulty (e.g., sequencing examples and problems to maintain high levels of success and matching task difficulty with student abilities and emerging skills) is associated with improved academic outcomes.
- Teaching students in small, interactive groups is related to increased achievement.
- Modeling and teaching strategies for generating questions and thinking aloud while reading, writing, or working on a scientific or mathematical problem (e.g., self-questioning, metacognitive strategies) are instructional features linked to improved results.
- Direct and explicit instructional practices are associated with improved academic outcomes.
- Higher order processing skills and problem solving can facilitate the integration of knowledge and skills as students address increasingly complex problems and projects, especially in math and science.
- Learning when, where, and how to apply strategies helps students develop plans of action to guide their learning.
- Ongoing progress monitoring of specific skills is associated with effective outcomes in academic areas.
- The building blocks of reading and writing (e.g., phonemic awareness, writing speed) are essential for improving outcomes in reading and writing.
- The process of writing and the organizational and mechanical aspects of writing contribute to improved outcomes in writing.
- The teacher and students who provide ongoing and systematic feedback assist students with LD

in repairing misunderstandings or revising their writing or understanding of text.

In summary, professionals interested in providing the most effective special education for students with LD initially used psycholinguistic and underlying process models to identify LD and to attempt to develop cures. Within the last 15 to 20 years, considerably greater emphasis has been placed on devising effective interventions that correspond to the academic needs of students. This path has proven to be more effective in terms of the overall positive effects on instructional outcomes for students with LD. However, considerable numbers of students still do not successfully respond to treatments that are effective for students with related problems (O'Connor, 2000; Torgesen, 2000).

### *Implementation and Fidelity*

Another question of significance is the extent to which these documented practices are being used and whether they are implemented with fidelity. Researchers and practitioners have observed a significant gap between the documentation of effective practices and their use in educational settings (Cooper, 1996; Lloyd, Weintraub, & Safer, 1997; K. E. Stanovich, 2000). Even when practices are implemented in target settings, sustainability is challenging (D. Fuchs & Fuchs, 1998; Malouf & Schiller, 1995; P. J. Stanovich & Stanovich, 1997). It appears that too little of what is done in education is based on the findings of rigorous inquiry (Carnine, 1997; Walberg, 1998). Perhaps of greatest importance is how we go about affecting change in use of documented practices in special education. It is difficult to discuss what is unique about teaching students with LD if we are unable to implement and sustain these techniques across settings.

## **Making Special Education Effective for Students with LD**

In addition to the previously summarized research on effective instructional practices for students with LD, a knowledge base on how best to deliver these instructional services in ways that meet the needs of diverse students is accumulating. One early intervention/prevention approach is to layer reading instruction in tiers, or levels, that begin with effective practices implemented class-wide and then provide successive levels of support to students as needed (Dickson & Bursuck, 1999; O'Connor, 2000) by including ongoing screening and progress monitoring as part of the class-wide intervention.

For example, O'Connor (2000) aimed to reduce reading failure in kindergarteners by providing instruction across four levels that varied in length (number of minutes per session), intensity (number of times per week and group size), and duration (number of weeks). O'Connor's project provided instruction to these students for 2 years (kindergarten through

first grade); at the end of first grade, reading failure among the at-risk children had declined. However, the proportion of children referred for special education services did not decrease. O'Connor attributed this to the limited resources available within the schools, which precluded provision of the most intense level of intervention needed by the minimal-gains children. Dickson and Bursuck (1999) also provided a three-tiered system that varied along the dimensions studied by O'Connor. They found high effect sizes primarily for students at risk for reading failure placed in small-group intensive intervention. Dickson and Bursuck also lamented the lack of time and resources needed to support change in teachers' instruction and to provide the intensity of instruction needed by struggling readers. These findings support the contention that researchers need to continue to explore ways to reach this subgroup of readers within the scope of existing resources in the schools.

### *Small-Group Instruction*

One crucial variable in these prevention/early intervention models for struggling readers is the teacher-student ratio (or student group size) during instruction. Lower teacher-student ratios allow for increased teacher-student interactions, individualization of instruction, student on-task behavior, and teacher monitoring and feedback (Elbaum, Vaughn, Hughes, & Moody, 2000; Thurlow, Ysseldyke, Wotruba, & Algozzine, 1993). For reading instruction, group size is particularly relevant for several reasons:

1. Smaller group sizes are associated with improved outcomes (Lou et al., 1996; Swanson, Carson, & Sachs-Lee, 1996).
2. The range of reading abilities represented in general education classrooms may be from three to five grade levels, and smaller groups reduce variability of instructional needs of students (Elbaum, Vaughn, Hughes, & Moody, 1999).
3. Group size affects the amount and quality of oral language used among English language learners (Gersten & Jimenez, 1998).
4. Reading instruction can be tailored to students' individual needs (Gelzheiser, Meyers, Slesinski, Douglas, & Lewis, 1994; Rashotte, MacPhee, & Torgesen, 2001).

In a meta-analysis of grouping practices and reading outcomes for students with disabilities, Elbaum et al. (1999) reported that effect sizes for students receiving instruction in both small groups and student pairs were considerably higher than those for students receiving whole-class instruction. Similarly, other analyses with general education students have indicated that small-group learning is associated with higher achievement gains than is whole-class grouping (Kulik & Kulik, 1987; Lou et al., 1996; Slavin, 1987).

The optimal group size for young students who are struggling to learn to read has not been definitively established (Thurlow et al., 1993). In a study targeting both monolingual English speakers and English language learners, a teacher–student ratio of 1:1 was compared to ratios of 1:3 and 1:10 during supplemental reading instruction; the content and intensity of instruction were held constant (Vaughn, Linan-Thompson, Kouzekanani, et al., in press). Results indicated that students in the 1:1 and 1:3 conditions made similar gains in phoneme segmentation, fluency, and comprehension that were maintained at a 4-month follow-up and that were greater than for students in the 1:10 group.

### *Accelerating Intensity Through One-on-One Instruction*

For many students, even small-group instruction may not be enough to provide the directed, intensive, specific instruction required; thus, one-on-one instruction may be necessary. Several studies offer support for the effectiveness of one-on-one instruction, particularly with students who have been identified as at risk or as having reading or learning disabilities (Bloom, 1984; Juel, 1991; Wasik & Slavin, 1993). A recent meta-analysis found that supplemental one-on-one reading interventions for students at risk for reading failure resulted in reading outcomes for participating students that exceeded outcomes of controls by an average of .41 standard deviations—a modest but, for these readers, quite notable amount. Interventions in which tutoring was provided by trained volunteers or college students were highly effective (Elbaum et al., 2000). Two recent studies of intensive, one-on-one interventions for students at risk for reading disabilities have yielded impressive results. Vellutino et al. (1996) provided up to two semesters of tutoring in letter identification, phoneme awareness, and word-reading skills in 20-minute daily sessions for struggling first-grade readers. This one-on-one tutoring helped the majority of students become average readers. Torgesen et al. (2001) were also able to demonstrate significant improvements in decoding skills of students with significant reading disabilities following 80 hours of instruction in phonological decoding strategies. The instruction was provided one-on-one, in two 50-minute sessions per day. Results indicated that decoding accuracy reached national averages but that speed of decoding did not. These studies suggest that critical features of reading instruction, when combined with one-on-one tutoring in sessions of sufficient intensity, can make an impact on the acquisition of literacy skills for students with reading disabilities.

### *Duration of Intervention*

Another variable that may affect the effectiveness of an intervention is the duration or intensity of the intervention. Length of intervention may be a preset number of sessions or may be determined by mastery of preset criteria at specific in-

tervals. Providing the intervention for more than one session each day is another way to enhance intensity. Torgesen et al. (2001) provided two sessions per day (50 minutes each session) of intensive one-on-one instruction to students with LD with severe reading problems. Students made significant gains, and most students maintained these gains for 2 years. Furthermore, 19 of 49 students were able to return to general education and were no longer identified as in need of special education. To determine the length of intervention needed by second-grade students struggling with reading, Vaughn, Linan-Thompson, and Hickman (2003) provided 54 struggling second-grade readers with small-group instruction for 10, 20, or 30 weeks. Students continued to receive supplemental instruction until the preestablished grade-level criteria were met. Of the 45 students available at all assessment points, 11 of the students failed to reach the criteria after 30 weeks of intervention, 10 met exit criteria after 10 weeks of intervention, 15 after 20 weeks, and 9 after 30 weeks. Results supported the value of varying group size and intensity of intervention.

### *Model for Primary, Secondary, and Tertiary Interventions*

For students with LD, we propose a systematic, tiered instructional approach that links general and special education. This model capitalizes on existing research in instruction, instructional grouping, and duration. In this three-tiered model, we adopt Keogh's (1994b) view that prevention and intervention are inextricably linked. According to Keogh, "The same procedures or services may serve preventive or treatment purposes relative to the context in which they are delivered or when they are implemented" (p. 64). To optimize learning opportunities for students, instruction at each level (primary, secondary, and tertiary) is more intense and explicit and the instructional group size is reduced. Throughout the three levels, progress monitoring is used to ensure that students are mastering the content and that their growth rates are adequate. With this model, both mastery of content and growth rate are monitored and used to make instructional and placement decisions. Although this model focuses on supplemental instruction, it was influenced by the work on alternative models for identifying students with disabilities developed by L. S. Fuchs and Fuchs (1998) and implemented by Speece and Case (2001).

The first level, primary instruction, takes place in the general education classroom and consists of the grade-level curriculum. Providing general education teachers with intensive and ongoing professional development on effective instructional practices is essential to ensuring that all students have access to the curriculum. A significant part of the professional development is training in the use of progress monitoring to inform instruction and as a means of identifying students who are not benefiting significantly from classroom instruction and who require supplemental instruction.

The second level of instruction, secondary intervention, may take place in the general education classroom or outside the

classroom as a pullout program. This more intensive and explicit instructional program (supplemental to the core program) can be provided by the teacher or by other school personnel and is meant to parallel classroom instruction. Instruction that focuses on students' needs, as determined by progress monitoring, is provided in small groups (one adult with four students), five times a week. Sessions last between 20 and 40 minutes, depending on the grade level and need.

The third level of instruction, tertiary intervention, may be categorized as special education for some students. Students would be eligible for special education if they failed to make adequate progress and to meet established criteria, despite receiving enhanced classroom instruction and 20 weeks of supplemental, small-group instruction.

Movement between the levels is fluid and is based on progress monitoring and mastery of benchmarks. As an illustration, students who lack basic skills in a particular area (e.g., reading, writing, math) at the time of the first assessment are assigned to a secondary intervention group for supplemental instruction. At the end of the first 10 weeks, students are assessed, and those who have mastered the benchmarks according to preset criteria no longer receive supplemental secondary intervention. Those students who do not reach the preset criteria after receiving secondary intervention are provided additional supplemental instruction for 10 weeks. Again, students who meet the criteria are exited from supplemental instruction. Those students who do not meet exit criteria after 20 weeks (two consecutive 10-week periods) of secondary intervention may be eligible for tertiary intervention or, if they are identified as having disabilities, for special education.

Of importance is the extent to which the techniques used in the tertiary level of instruction are unique to special education. We believe that they are unique because they are more situated to the students' needs, are more intense, provide more monitoring, and adjust materials and instruction to reflect student progress or lack of progress. Students in tertiary intervention continue to be assessed regularly, along with their classmates. Students who receive tertiary intervention are provided the most intensive and specific intervention, in which their progress is monitored weekly and instruction is adjusted as needed.

This model provides a procedure for providing supplemental instruction based on progress-monitoring data to students who require various levels of support in order to benefit from classroom instruction. There are several advantages to using this type of model.

1. Both students who require additional instruction from time to time and students who require long-term instructional support (special education) can be served. All the students in the class are assessed throughout the year to ensure they are making adequate gains so students who fall behind later in the year or after exiting secondary intervention can receive additional sup-

port. This procedure provides a means for accessing supplemental instruction for students who may not require special education but are consistently and continuously falling behind.

2. Students with LD benefit from the use of a dynamic and fluid approach centered on progress monitoring. Students are provided multiple opportunities to reach grade-level benchmarks while receiving supplemental instruction before they are eligible for special education. Once they are eligible for special education, the level of support that they receive is based not on a label but on their ability to benefit from instruction, as measured by their performance on progress-monitoring measures.
3. This model can be implemented at both the elementary and secondary levels. At the secondary level, special education teachers can provide secondary and tertiary intervention to students in areas of need while enabling the students to remain in the general education classroom.

## Conclusion

Historically, special education for students with LD has been approached by identifying students' processing deficits and matching treatment practices to these deficits. There is currently inadequate information about learning processes and instruction to implement the process deficit and remediation model. Recent research has suggested that the most productive model for improving outcomes for students with LD is one in which students' instructional gaps are identified, progress relative to these gaps is monitored, and explicit and intensive intervention is provided.

1. *So what is special about special education for students with LD?* For most students with LD, it is not the curriculum. Students with LD should have access to the same curriculum, including higher order processing and problem-solving skills, as their nondisabled peers. What should be special is the delivery of instruction, given that their needs are rarely met through general education instruction alone. Students with LD benefit from explicit and systematic instruction that is closely related to their area of instructional need. How much additional instruction do students need, though, and in what format? As researchers continue gathering evidence of how variables such as group size, duration, and intensity interact, the key issue will be the extent to which schools can implement and sustain special education for students with LD.

2. *To what extent are effective practices being used and implemented with fidelity?* Though there is little compelling evidence to suggest that evidence-based practices are used widely in special education (Gersten, Vaughn, Deshler, & Schil-

ler, 1997; Stone, 1998), there is certainly growing support for the use of research-based practices in schools (Abbott, Walton, Tapia, & Greenwood, 1999; Klingner, Vaughn, Hughes, & Arguelles, 1999). Recent consensus reports in reading (Committee on the Preventing of Reading Difficulties, 1998; National Reading Panel, 2000) have suggested that empirical research should be used as a basis for policy decisions in educational curriculum. The catalyst for change should be institutions of higher education, which are largely responsible for preservice teacher education, and the myriad professional development enterprises, which provide the bulk of inservice education. These entities must place a much greater emphasis on research-based practices.

**3. Are these practices documented with culturally and linguistically diverse students?** Although culturally and linguistically diverse students are represented in much of the research on effective practices for teaching students with LD, findings for these students are rarely disaggregated from the findings for the majority students (Swanson, Hoskyn, & Lee, 1999). Thus, in terms of responding to instruction, we know more about students as a whole than we do about specific culturally and linguistically diverse groups. Research in reading disabilities has provided evidence that African American students benefit from the same instructional practices as do White students (Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998) and that English language learners may profit from the same approaches to reading as do English monolingual learners (Committee on Preventing Reading Difficulties, 1998).

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