The Concomitance of Learning Disabilities and Emotional/ Behavioral Disorders: A Conceptual Model

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Abstract

Although research has documented overlapping and coexisting characteristics of learning disabilities and emotional/behavioral disorders, little attention has been paid to the subset of students who manifest symptoms of both disorders (LD/EBD). This gap in our professional knowledge/research base may be due to (a) exclusive language in federal definitions that promotes differentiation of disabilities rather than recognition of symptom overlap; (b) the lack of a conceptual model of concomitant learning and emotional/behavioral disorders; and (c) the absence of a research focus on this population. In this article, we construct a conceptual model involving six critical domains of relevance to students with LD/EBD. After describing the utility of this interactive and functional model, we highlight critical issues in screening, assessment, and programming for children with concomitant LD/EBD.

Although the federal definition of learning disabilities (LD) currently excludes learning problems that are primarily the result of serious emotional disturbance, children and adolescents identified as having LD demonstrat a high incidence of concurrent emotional and behavioral problems (Hunt & Cohen, 1984; McConaughy, Mattison, & Peterson, 1994; McKinney, 1989; Schachter, Pless, & Bruck, 1991). Researchers have demonstrated that between 24% and 52% of children with LD have clinically significant social, emotional, and behavioral problems (Bender, 1987; Cantwell & Baker, 1991; Harris, King, Reifler, & Rosenberg, 1984; McConaughy et al., 1994; Rourke & Fuerst, 1991)—an incidence rate of up to four times that found in children without learning disabilities (Schachter et al., 1991). Similarly, studies of children and adolescents with serious emotional disturbance (SED) have found that between 38% and 75% were also identified as having learning disabilities or severe learning problems (Cantwell & Forness, 1982; Duchnowski, Johnson, Hall, Kutash, & Friedman, 1993; Fessler, Rosenberg, & Rosenberg, 1991; Forness, Bennett, & Tose, 1983; Fristad, Topolosky, Weller, & Weller, 1992; Kauffman, Cullinan, & Epstein, 1987; Knitzer, Steinberg, & Fleisch, 1990; Silver, 1984; Wagner, 1989; Wagner & Shaver, 1989).

Although the prevalence of concomitance is still uncertain, it is clear that many children served in both school and clinical settings have overlapping, associated, and clinically significant learning disabilities and emotional or behavioral disorders (EBD; e.g., Fessler et al., 1991; Forness et al., 1983; Harris et al., 1984; Rourke & Fuerst, 1991). In fact, the incidence of concomitant LD and EBD may be even higher than the above estimates if students who have been identified as multiply handicapped are included.

The overlap between the two disability categories has confounded differential diagnosis efforts and limited the utility of screening and assessment instrumentation (Algozzine & Ysseldyke, 1983; Fletcher, Morris, & Francis, 1991; Hinshaw, 1987; Wilson, Cone, Bradley, & Reese, 1986). In some population samples, for example, neither emotional characteristics nor learning variables have been able to differentiate groups of children with LD from those with EBD (e.g., Rubin, Goldberg-Hier, & Lippman, 1986). Characteristics common to both disability categories, such as deficits in executive function, hyperactivity, poor social skills, and inattention (Bricklin & Gallico, 1984; Gallico, Burns, & Grob, 1991), provide further evidence of the concomitance of learning and emotional/behavioral problems. Reports of overlapping learning and behavioral problems are especially common in, and considered characteristic of, attention-deficit/hyperactivity disorder (ADHD; August & Garfinkel, 1989, 1990; Biederman, Newcorn, & Sprich, 1991; Cantwell & Baker, 1991; Dykman & Ackerman, 1991; Weinberg & Brumback, 1992; Weinberg & Emslie, 1990).

In recognition of the co-occurrence and overlap among LD, EBD, and

other areas (e.g., ADHD, speech disorders), the professional literature has shifted from emphasizing identification of the root, or "primary," disability to promoting comprehensive assessment and programming as well as coordinated service delivery for these students (Bricklen & Gallico, 1984; Cohen, 1994; Epstein, Cullinan, & Bursuck, 1985; Fessler et al., 1991; Gallico et al., 1991; Huntington & Bender, 1993). Similarly, it is our position that a child's manifestation of high-incidence characteristics related to both LD and EBD warrants comprehensive intervention and programming, regardless of etiology or identification of primary disability. To simplify discussion in this article and reinforce the case for comprehensive, integrated service delivery, we refer to all students with concomitant learning and emotional/behavioral disorders as LD/EBD without regard to etiology or primary handicapping condition. Etiology is not unimportant; however, we believe that it is first necessary to determine the needs of children with multiple learning and behavior problems in order to (a) program effectively; (b) identify factors influencing outcomes; and (c) begin to identify patterns in symptomatology related to etiology, developmental course, and prognosis.

Concomitant LD/EBD

This section provides evidence of the growing acknowledgement of the problems posed by LD/EBD concomitance, and we describe factors that predict continued growth in the prevalence of concomitant LD/EBD. Next, we assert that the concomitance of LD and EBD results in disorders of significantly greater severity and complexity than those associated with LD or EBD alone, and we discuss possible reasons for that severity. Finally, we recommend specialized procedures for assessment, and programming, for students with LD/EBD.

Indicators of Increasing Recognition and Prevalence

Even though strong evidence of the co-occurrence of learning and emotional/behavioral disabilities exists, incidence data are but one indicator of professionals' growing recognition of LD/EBD. Other indicators include (a) explanations for the reclassification of students from EBD to LD, (b) proposed changes in the definitions of both learning disabilities and serious emotional disturbance, and (c) the documented growth in prevalence of concomitant LD/EBD in school-aged children.

Reclassification of Students Identified as Having SED. In an attempt to track students with SED, the *Fifteenth Annual Report to Congress on the Implementation of IDEA* (U.S. Department of Education [USDE], 1993) found that a substantial number of students initially identified with SED were being reclassified and served under LD. Among other possible explanations, the reclassifications may reflect the overlapping symptoms of LD and SED and/or problems with identification procedures resulting from federal legislation.

Changing Definitions of LD and SED. Responding to recognized limitations of current federal legislation related to exclusive language in LD and SED classification, such special interest groups as the National Joint Committee on Learning Disabilities (NCJLD) and the National Mental Health and Special Education Coalition (NMHSEC) have proposed definitions of LD and EBD that recognize the possibility of concomitance with other disabilities. For example, the NCJLD definition states, "Even though a learning disability may occur concomitantly with other disabling conditions . . . it is not the direct result of those conditions or influences" (Hammill, 1990, pp. 77–78). Similarly, NMHSEC includes the following in its definition of serious emotional disturbance: "The term includes such a disability that coexists with other disabilities" (Forness & Knitzer, 1991). Although the legal definition of SED has not yet changed, the primary intent of the proposed language changes is to help students receive needed services under one or more disability categories.

Increasing Prevalence of LD/EBD. In addition to our growing recognition of LD/EBD, there is evidence that the prevalence is increasing in the United States and will significantly affect greater numbers of children attending our schools in the immediate future. First, literature has shown that a subset of students with LD/EBD exists within populations of students with LD and SED. Logically, as the actual prevalence of these populations and identification efforts continue to increase (USDE, 1992, 1993, 1994), the subset of students with LD/EBD will continue to grow as well.

Other evidence of the growth of the population with LD/EBD is the significant increase in numbers of children who demonstrate learning and behavior problems resulting from other, known etiologies. For example, fetal alcohol syndrome, fetal cocaine syndrome, low birthweight, and untreated lead exposure have all been linked to increases in behavioral, attentional, and learning difficulties in children of school age (Bateman, 1992; Bert & Bert, 1992; Chasnoff, Griffith, Freier, & Murray, 1992; Greer, 1990; McIntyre, 1993; Minder, Das-Smaal, Brand, & Orlebeke, 1994; Shultz, 1984; USDE, 1992; Yates, 1988). In addition, there is evidence that violence and mental illness are growing in our society and are likely to increase the emotional problems and mental health needs of school-age children (Palermo, Smith, DiMotto, & Christopher, 1992).

Outcomes for Students with LD/EBD

There is a dearth of literature examining outcomes specific to students with LD/EBD. One notable exception

is a longitudinal study by McKinney and colleagues (McKinney, 1989; McKinney & Feagans, 1984), which found that elementary-age students with concomitant learning disabilities and behavioral disorders displayed a declining pattern of academic progress and typically increased in maladaptive behavior over time.

Outcomes for Students with SED. Overall, students with a diagnosis of SED have the least positive outcomes of any group of children with disabilities (Chesapeake Institute, 1994; Lichtenstein, 1988; National Mental Health Association [NMHA], 1993; Sitlington, Frank, & Carson, 1990; USDE, 1994; Wagner et al., 1991). They receive lower grades, fail more often, are more likely to be placed in restrictive settings, and drop out of school at higher rates than any other students with disabilities (Lichtenstein, 1988; NMHA, 1993; USDE, 1993, 1994). Even when compared to all youth with disabilities, individuals with EBD were found to have (a) significant difficulty with postschool employment, including underemployment and poor job stability, and (b) low rates of participation in postsecondary education (Wagner, D'Amico, Marder, Newman, & Blakorby, 1993; Wagner et al., 1991). As young adults, these individuals frequently utilize mental health, welfare, public health, substance abuse, juvenile justice, and criminal justice services, at substantial cost to society (NMHA, 1993; USDE, 1994; Wagner et al., 1991).

Potential Effects of LD/EBD. Although negative outcomes are generally associated with students identified primarily as having serious emotional disturbance, there is some evidence suggesting that the poorest of these outcomes are experienced by students with both emotional/behavioral problems and learning problems. For example, the *Sixteenth Annual Report to Congress on the Implementation of IDEA* (USDE, 1994) reported that students with SED are identified at rates far below their estimated prevalence in the general population. The report noted that many students are not identified as having SED unless they also have a history of severe academic problems and school failure (Forness, Kavale, & Lopez, 1993; USDE, 1994). Thus, statistics relating poor school and adult outcomes to students with SED may actually reflect the critical prognosis of children and youth with LD/EBD.

The combination of SED and LD is also predictive of restrictive class placement. Sinclair, Forness, and Alexson (1985) found that for students with psychiatric diagnoses, the presence of a concomitant learning disability, rather than the incidence of psychiatric hospitalization, predicted eligibility for SED services in schools. It appears that reading disabilities in particular relate to placement in restrictive SED placements (McGinnis & Forness, 1988). Restrictive placement, in turn, has been associated with the extremely high dropout rates for students with EBD (USDE, 1993). In support of the hypothesis that having LD/EBD relates to the greatest likelihood of dropping out of school, Bender's (1987) study found that personality and behavioral variables of students with LD, not academic underachievement, appeared to account for their high dropout rate.

In terms of vocational success, successful job placement occurs less frequently for individuals with psychiatric disorders who also have learning disabilities than for individuals with psychiatric disorders who do not have LD. Not having been dually diagnosed with a learning disability is a predictor of vocational success among psychiatric populations (Mandes & Gessner, 1986). Rates of social service case closings for clients with LD are significantly lower than for all other types of psychiatric classifications (Mandes & Gessner, 1986).

Finally, LD/EBD appears to suggest general adult adjustment problems. A study of factors of adult adjustment (appropriate social, employment, and school activities and general satisfaction) found that successful and unsuccessful groups of students with LD were significantly discriminated by parent reports of ability to get along with others, self-confidence, life adjustment, and personal happiness. In addition, unsuccessful students had significantly higher rates of residential or hospital placement. Qualitatively, the two groups were differentiated on perseverance and coping, among other factors (Spekman, Goldberg, & Herman, 1992). These results indicate that some characteristics and events associated with emotional and behavioral problems (e.g., adjustment problems, difficulty coping, poor self-concept, hospitalization) are associated with significantly poorer outcomes for adults with LD.

Possible Variables Related to Poor Outcomes

As noted previously, the manifestation of concurrent learning and behavior problems increases the likelihood of both academic and social failure. There are several reasons why students with concomitant LD/EBD face greater challenges and poorer outcomes than students with one disability, including (a) inaccessible instruction, (b) problems in compensation and adaptation, (c) low frustration tolerance, (d) low self-concept, and (e) poor social adjustment.

Inaccessible Instruction. Students with behavioral disorders are often unable to access instruction due to their behavioral deficits or excesses. Often, teachers report that serious EBD interferes with their ability to "get to" teaching (e.g., Reinert & Huang, 1987). Many special education teachers are not adequately prepared for the demanding task of meeting the particular educational, behavioral, affective, or social needs of students with EBD (Grosenick, George, & George, 1987; Lauritzen & Friedman, 1991; McIntyre, 1993). The addition of a learning disability further complicates instruction

for these students. Even when teachers are able to program for the behavioral interventions, the specialized instruction, learning strategies, remedial techniques, or overlearning necessary to remediate or compensate for learning disabilities may be absent (Knitzer et al., 1990; USDE, 1994). Furthermore, inconsistent delivery of instruction (which is detrimental to students with LD) may occur as a result of interruptions resulting from behavioral problems, crisis intervention, therapeutic interventions, or administration of medication.

Compensation and Adaptation. Outcomes for students appear to be significantly affected by an ability to compensate for disabilities. Students with LD who are most successful as adults demonstrate the ability to adapt to and compensate for learning, performance, and organizational deficits, often through the use of learned strategies and modifications (Spekman et al., 1992). Individuals who have concomitant LD/EBD may be extremely limited in their flexibility, adaptability, and compensation skills due to their emotional and behavioral deficits or general temperament. In fact, some of the primary characteristics of high-incidence behavior disorders include rigidity, inflexibility, and restricted ranges of problem-solving responses (Long, Morse, & Newman, 1980; Rosenberg, Wilson, Maheady, & Sindelar, 1992). Therefore, children with LD/EBD may be unable to develop and generalize strategies, utilize compensatory techniques, or identify resources to help them manage their learning disorders.

Frustration Tolerance. Another characteristic common to many students with behavioral disorders that may significantly impair learning is severely reduced frustration tolerance (Redl & Wineman, 1957). It is not uncommon for these children to refuse to attempt tasks or to give up at the first sign of uncertainty. However, students with LD must be introduced systematically to new skills, practice with teacher guidance, receive error correction, and continue to practice skills for independent mastery (Bos & Vaughn, 1994; Kameenui & Simmons, 1990); a child with LD/EBD who rapidly gives up or refuses all but the most simple tasks will not make progress in overcoming or compensating for learning deficits. The interactive effects of the learning problems can further exacerbate the child's frustration. In response to learning differences, teachers may attempt several strategies and methods to convey the necessary concept, rule, or process; however, the child may give up after the first unsuccessful attempt at instruction. Thus, the combination of learning disabilities and low frustration tolerance may be indicative of a particularly poor prognosis.

Self-Concept. Decreased self-concept is considered a secondary characteristic in large numbers of children with EBD (Rosenberg et al., 1992). A student with LD may be able to build self-confidence through performance in other areas, including social connections, positive reinforcement for effort, personality, or character traits, and success in nonacademic ventures. Students with both learning and behavior disorders, however, may have a significantly reduced arena for potential reinforcement as they are not typically praised for effort, attitude, social skills, or behavior (Gever, 1991). As a result, these children may receive more negative feedback about themselves from others and suffer an associated reduction in self-concept (Gever, 1991). Reduced self-concept, in turn, has been associated with decreased academic achievement in students from preschool through postsecondary school (Margalit & Zak, 1984). In addition, decreased self-concept (as represented by negative cognitive self-statements) appears to be significantly correlated with severe depression in students with LD and EBD (Maag & Behrens, 1989b).

Social Adjustment. A fifth concern for students with LD/EBD relates to the potentially lasting effects and negative prognosis of poor social adjustment and social isolation. As noted above, deficits in social skills are characteristic of both students with LD and those with EBD. Extreme social withdrawal and social rejection can endanger subsequent social and personal development (Coleman, 1992; Kauffman, 1993; Rosenberg et al., 1992) and may place children at risk for dropping out, criminality, and mental health problems (Cowen, Pederson, Babijian, Izzo, & Trost, 1973; Parker & Asher, 1987).

Concomitant LD/EBD, then, creates a persistent and pervasive set of problems which, in combination, create significant barriers to learning and psychosocial functioning. These barriers affect performance in many settings, particularly those involving high task demands, increased structure, and interpersonal interactions.

The Need for a Conceptual Model

In review, there are significant numbers of children who demonstrate characteristics of concomitant learning and behavioral disabilities. In addition, the estimates of increasing prevalence of learning and behavioral problems in school-age youth are alarming. Each of these disabilities has been associated with poor adult outcomes relative to adjustment, academic success, employment, and independent living (Wagner et al., 1991; USDE, 1993). Occurring concomitantly, these disabilities suggest an extremely poor prognosis. Currently, students with these problems may be underidentified, or may be serviced under only the "primary" disability. It is important that we begin to identify and characterize problems in behavior and learning, as well as examine the interactive effects of those problems. As past views on concomitance have had limited utility for service delivery, it is imperative that we develop a new

model emphasizing the interactive nature of LD/EBD (Gallico & Bricklin, 1984).

A Model of Complex Multiple Learning and Behavior Problems

Building on Maag and Reid's (1994) performance problem classification system for children with ADHD, we have developed a conceptual model of the concomitance of learning disabilities and emotional disturbance (see Figure 1). At the center of this model are the complex multiple learning and behavior problems that are the direct result of acquisition or performance impairments in two or more of six critical domains: cognitive processing, behavioral functioning, social/emotional adjustment, academic performance, language functioning, and executive functioning. This model reflects the problems affecting students with concomitant disorders and illustrates the interaction, multidirectionality, and synergistic effects of disabilities on children. Deficits in the critical functioning domains are not considered to be mutually exclusive; rather, it is understood that there is significant overlap between, and interaction among, these areas. This association and multidirectional interaction is reflected in the circular interconnections among deficit areas.

The child with concomitant LD/EBD manifests problems that (a) occur in two or more of the critical functioning domains, including academic and either social/emotional adjustment or behavioral functioning; (b) are each of such severity as to be considered clinically significant by themselves; (c) interact to substantially impair functioning in school and/or the community; and (d) may be compounded by difficulties in additional areas that may or may not be clinically significant. There are multiple interconnections among the deficit areas, presenting the possibility of not one, but numerous ongoing causative and interactive relationships (Bricklin & Gallico, 1984). The multitude of potential manifestations and developmental courses are in concordance with the described heterogeneity of this population (Rourke & Fuerst, 1991). Here are but three possible, and perhaps common, examples (with current diagnoses in parentheses): (1) A child with executive functioning problems also has a language-processing problem that impairs the acquisition of academic skills and causes externalizing behaviors (ADHD and language disorder); (2) a student with a reading disability displays social deficits that cause emotional problems (LD and internalizing problems); (3) an adolescent with learning disabilities shows impairment in executive functioning and behavioral control, which is manifested as a conduct disorder (LD and conduct disorder).

Obviously, there are thousands of specific deficit combinations that could fall under the rubric of concomitant learning and behavior disorders. As would be expected, students with LD/EBD are unique and display a diverse set of characteristics, aptitudes, and deficits reflecting and multiplying the heterogeneous characteristics of both disorders (Rourke & Fuerst, 1991). The purpose of developing our model was not to determine all possible variations to create categories, but, rather, to enable the comprehensive assessment of a single child, with identification of problem indicators and implications for intervention. The model could then be used to consider areas of deficit, generate causative hypotheses, assess the child's comprehensive needs, and aid in theory development related to specific patterns of symptoms.

Consideration of the areas of critical functioning is useful in describing the characteristics of students with LD/EBD. Rather than "explaining away" some of the students' difficulties as secondary or corollary to other symptomatology, we focus on describing the problematic functioning in multiple domains that characterizes LD/EBD. This view also allows for a more comprehensive picture of a

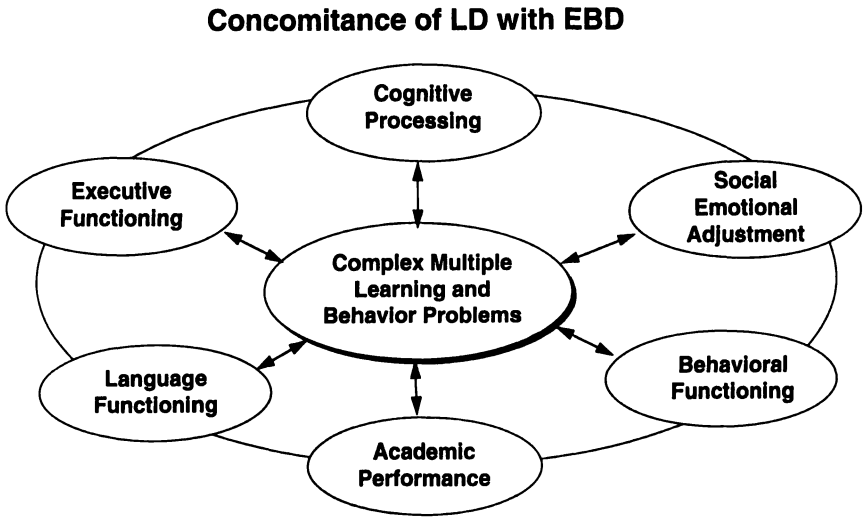

FIGURE 1. A conceptual model of six critical functioning domains and areas of potential impairment in students with concomitant LD/EBD. The rings indicate developmental interactions among the functioning areas. The double arrows illustrate the multidirectional effects of the dysfunction on the child and his or her ongoing development.

child's strengths and weaknesses and underscores the importance of integrated programming.

The model may also help to illustrate the effects of one or more deficits on development and on emerging skills in other functioning areas. For example, the effects of a child's dysfunction in language and emotional development may cause behavioral problems; these combined problems may impair academic achievement or exacerbate emotional difficulties. Although the child in this example clearly manifests learning, emotional, behavioral, and language problems, describing these deficits in such a linear fashion may be misleading. A listing of functioning deficits may give the impression that one disorder (typically the "primary" disorder) is inherently more significant or more serious than another.

An interrelated model, on the other hand, provides a comprehensive view of the child's needs and allows professionals to identify the best means for meeting those needs. In addition, a linear listing fails to convey the ongoing interactive effects of the deficits. We believe that interactions across deficit areas exacerbate problems, limit student growth and success, and interfere with the efficacy of individual interventions.

Finally, regular assessment of the functional domains may be used to increase knowledge of the developmental nature and course of LD/EBD. For example, through regularly scheduled comprehensive assessments, we may be able to document the emergence of problems and specific interactive effects of LD/EBD. By examining evidence of the development or exacerbation of deficits in functioning domains, professionals may be able to (a) support skill acquisition in developing functioning areas to prevent failure; (b) identify combinations of deficits or risk factors that predict other developmental problems (e.g., depression, suicide); and (c) identify interventions that limit the range and severity of functioning deficits typical in children with LD/EBD.

Potential Deficits in the Six Critical Functioning Domains

This section provides a brief definition of the specific deficits that have been identified in students with learning disabilities and/or emotional/behavioral disorders. For each of the six critical functioning domains integral to our model of LD/EBD, evidence is also presented that documents the acquisition or performance deficits in this population and the negative impact on the child.

Cognitive Processing. Cognitive processing is defined as the skills required for problem solving and abstract reasoning, which are measured via individual intelligence tests. This area involves skills such as verbal comprehension, perceptual organization, processing speed, attention, and memory. As itemized by Salvia and Ysseldyke (1995), these skills can be further isolated as discrimination, generalization, motor behavior, general information, vocabulary, induction, comprehension, sequencing, detail recognition, analogies, abstract reasoning, memory, and pattern completion.

Deficits in one or more of these areas are considered to be central to learning disabilities. In fact, the current federal definition of LD assumes an underlying cognitive dysfunction described as "a disorder in one or more psychological processes" and includes perceptual handicaps (Individuals with Disabilities Education Act, 1990). In students with learning disabilities, cognitive deficits may cause uneven academic performance across skill areas. For example, problems in processing speed may affect writing fluency, language processing, reading speed, and problem solving. Deficits in language-related areas of the left hemisphere seem to be strongly related to poor reading skills (Vellutino & Denkla, 1991). Specifically, problems with phonological processing have been shown to be predictive of dyslexia in children and adults (Badian, McAnulty, Duffy, & Als, 1990; Felton, Naylor, & Wood, 1990) and are considered to be the most basic cause of reading disabilities (Stanovich, 1988). Problems in memory (both short- and long-term) may interfere with following directions, retaining learned material over time, and mastering rote material. Perceptual difficulties may hinder directionality, writing, organization, and spatial/geometric concepts. In addition, general comprehension difficulties may impair social judgment and the understanding of cause-and-effect relationships. These specific deficits are presumed to be (a) neurologically based and enduring (Bigler, 1992; Torgesen, 1989); (b) the cause of specific problems in academic functioning (e.g., Mann, Cowin, & Schoenheimer, 1989); and (c) linked to social/emotional problems (Bigler, 1992; Rourke & Fuerst, 1991; Townes et al., 1985).

Executive Functioning. Executive, or metacognitive, function is the combination of abilities that permit an individual to function in a constantly changing environment. Basically, executive function has two primary components: an awareness of which skills, strategies, and resources are needed to perform a task effectively, and the ability to use self-regulatory mechanisms to ensure the successful completion of the task (Baker, 1982). Specific skills include maintaining an appropriate problem-solving set of procedures for attaining a future goal (Pennington, 1991); inhibiting or deferring a response; formulating a sequential, strategic plan of action; and encoding relevant information in memory for future use (Welsh & Pennington, 1988). Executive function is thought to be necessary for organizing information, planning short- and long-term strategies, future-oriented behavior, set maintenance, self-monitoring and self-regulation, selective attention, vigilance of attention, inhibiting irrelevant behavior, and switching strategies when old ones are no longer rewarding (Pennington, 1991). Although generally considered to be a part of overall cognitive functioning, executive func-

tions play a critical role in LD and EBD over and above general thinking abilities. For this reason, we believe that this area warrants recognition as a separate critical functioning domain.

Executive dysfunction has been linked to LD (Denkla & Reader, 1993; Meltzer, 1993; Torgesen, 1994), EBD (Moffitt & Henry, 1989), and ADHD (Pennington, 1991; Weinberg & Brumback, 1990). Students with LD often are unable to (a) efficiently select and implement strategies; (b) adjust strategy use to meet situational demands; (c) consistently and routinely plan, self-monitor, and evaluate their performance; or (d) describe the strategies they have employed (Torgesen, 1994). Students with EBD have difficulty controlling their behavior, understanding the negative impact of their behavior on others, and inhibiting inappropriate behavior. Researchers investigating the connection between antisocial behavior and executive dysfunction have suggested that these behaviors may be caused, at least in part, by problems in self-monitoring and regulation, failure to inhibit responses, and other executive skill deficits (Gorenstein, 1982; Pontius, 1972; Yeudall, 1980). Neuropsychological studies of students with ADHD have explained deficits in executive functioning (including impulsivity, distractibility, and inattention) as related to prefrontal brain dysfunction (Denkla & Reader, 1993; Pennington, 1991; Weinberg & Brumback, 1990).

Language Functioning. Language functioning is defined in terms of form, content, and use (Bloom & Lahey, 1978). This includes (a) phonology (the understanding of how language is formed), (b) morphology (semantic knowledge of how meaning is determined by language), (c) syntax (the grammatical structure of language), and (d) pragmatics (the functional use of language for social communication).

The literature on language disorders strongly documents language dysfunction in youth with either LD or EBD. Both behavioral and learning correlates of language disorders are supported by the research on students with emotional disturbance and communication disorders (Camarata, Hughes, & Ruhl, 1988; McDonough, 1989; Rosenthal & Simeonsson, 1991) and that on students with LD and language problems (Cantwell & Baker, 1985; Mack & Warr-Leeper, 1992; Wiig & Semel, 1984).

Over 50% of students with psychiatric diagnoses demonstrate significant language deficits (Gualtieri, Koviath, & van Bourgondien, 1983; Trautman, Gidden, & Jurs, 1990) in both expressive and receptive language. Some prevalence rates for this population reach above 70%, reflecting more than 10 times the expected rate of speech disorders found in general child populations (Camarata et al., 1988; Miniutti, 1991). Compared to peers without disabilities, the speech of children with serious emotional and behavioral disorders (a) is less informative and effective (Rosenthal & Simeonsson, 1991); (b) does not improve as students age (Rosenthal & Simeonsson, 1991); (c) is characterized by shorter utterances, significantly poorer topic maintenance, inappropriate responses, and inappropriate speech style (McDonough, 1989); and (d) reveals significant problems in numerous areas, including auditory memory, comprehension, semantic expression, and syntactic expression (Mack & Warr-Leeper, 1992). It seems that most of these students are not assessed for, nor do they receive, services for their severe language impairments (Camarata et al., 1988).

Similar to the incidence in the population of students with EBD, between 45% and 65% of students with LD also have a language disorder (Cantwell & Baker, 1985; Mack & Warr-Leeper, 1992; Wiig & Semel, 1984). The language problems of students with LD and students with EBD are very similar, although the two groups exhibit significantly poorer language functioning than normally achieving students (Miniutti, 1991). Students with either LD or EBD display such a broad range of, and severity in, language problems that they require interventions that differ from traditional therapy techniques and service delivery models (Audet & Hummel, 1990; Baker & Cantwell, 1987; Miniutti, 1991).

Behavioral Functioning. This area will be defined as externalizing behaviors, described earlier as including disruptive, aggressive, acting-out, and hyperactive behaviors. Deficits in this area include all externalizing behaviors that are problematic to the adjustment of the child within home, school, and community settings. Severe manifestations may include symptoms of Attention-Deficit and Disruptive Behaviors Disorders as defined by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994).

These behaviors are characteristic of high-incidence EBD (Rosenberg et al., 1992) and, as noted earlier, occur at elevated levels in students with LD. Studies focusing on the behavioral problems of students with LD have found patterns similar to those in students with EBD, with the main difference occurring in the frequency and severity of the problems (Cullinan & Epstein, 1985; Gallico, 1986; McConaughy et al., 1994; McKinney & Forman, 1982). Behavior problems seem to increase with the student's age and the severity of concomitant LD. For example, Cullinan and Epstein found that conduct problems failed to differentiate students with LD from students with EBD at the senior high school level. In a similar vein, Gallico found that in students with complex multiple learning and behavior problems, as the severity of the academic disability increased, the range of discriminating behavior problems decreased.

Social/Emotional Functioning. In this area we are including internalizing behaviors, such as mood, anxiety, and somatoform disorders, as well as social perception and social interaction. Deficits in these areas cause con-

flict within the student and can result in a range of performance deficits in other domains. Students with LD/EBD are at especially high risk for internalizing disorders (Fristad et al., 1992).

Internalizing disorders, in part, define emotional disturbance and, as noted previously, occur frequently in students with LD. After examining the emotional well-being of adolescents with learning disabilities in the areas of self-concept, attribution, anxiety, depression, and suicide, Huntington and Bender (1993) concluded that there is significant evidence of a neuropsychological interrelationship between emotional maladjustment and LD. One example of this interrelationship may be the biologic mechanism identified by Brumback and Weinberg (1990) relating depression to the specific cerebral dysfunction also responsible for some learning disabilities. Similarly, investigators have suggested that some students diagnosed with ADHD evidence an underlying biological depressive disorder (Cohen, 1994; Hudson & Pope, 1990).

Academic Performance. Academic performance is defined here as being related to the areas of specific learning disability included in the federal regulations (P.L. 94-142). These deficit areas include basic reading skills, reading comprehension, oral expression, listening comprehension, written expression, mathematical reasoning, and mathematical calculation. Similarly, the DSM-IV identifies four categories of learning disorders: reading, math, written expression, and general learning.

Academic deficits are criteria for a diagnosis of both learning disabilities and serious emotional disturbance. In fact, few differences have been found between the academic characteristics of students with learning disabilities and those of students with behavioral disorders, including profile of achievement-test performance or reading/math correlations (Scruggs & Mastropieri, 1986).

Mediating Variables

Implicit in our model of LD/EBD is a recognition of the influence of additional factors on the etiology, developmental course, and prognosis of deficits in the six critical functioning domains. For example, there are many factors than can influence the course of a disability by affecting the individual's ability to adapt successfully and develop necessary functioning skills (Spekman et al., 1992). Mediating factors include biological/intellectual, personal/social, and historical/socialization variables, as well as locus of control (Hultsch & Deutsch, 1981; Polloway, Smith, & Patton, 1984). Of particular relevance to the LD/EBD model are personal qualities related to protective mechanisms, individual resilience, utilization of support systems, self-understanding, and the presence of mentors, which have been associated with competence and resilience in students with EBD and other at-risk populations (Anthony, 1987; Beardslee, 1989; Garmezy, 1987; Werner, 1989, 1990).

In congruence with the interactive nature of the model, we believe that different variables routinely affect the development and course of learning and behavior problems in general, and concomitant LD/EBD in particular. In fact, it may be these variables that contribute most significantly to the development of multiple learning and behavior problems when a neurological dysfunction places the child at risk. We encourage the consideration of mediating variable sets related to environmental (ecological, ecobehavioral, and educational) and biophysical (physiologic, constitutional, temperament, genetic) factors in all discussions of concomitant disorders.

Environmental Variables. Ecological or environmental perspectives of disability focus on the assumption that a specific environment lacks the features necessary to support a student's performance (e.g., Bijou, 1981; Engleman, Granzin, & Severson, 1979). This environmental adequacy approach views a student's functioning within a specific context, supported by the features present at a specific point in time. The development of learning disabilities is affected by such critical environmental variables as social supports, effective teaching, family structure, economic conditions, and time dedicated to academic tasks (Adelman, 1992; Adelman & Taylor, 1986; Hallahan, 1992). The ecobehavioral approach integrates ecological considerations with principles of applied behavioral analysis (Carta & Greenwood, 1985; Greenwood, Delquadri, Stanley, Terry, & Hall, 1985; Rogers-Warren, 1984). In this view, the interaction between the child and the environment is continuous, reciprocal, and interdependent (Bijou & Baer, 1978).

Documented evidence exists of the interactive effects of environment on the social competence of students with LD, including socioeconomic status, school transiency, and classroom climate. For example, Vaughn, McIntosh, Schumm, Haager, and Callwood (1993) found that students with LD who were placed with teachers who were considered to be highly effective and accepting of such students (classroom climate) had peer acceptance ratings and reciprocal friendships on par with the social competence of other achievement groups. In consideration of these multidirectional interactions, learning and behavioral deficits must be viewed in the context of the social, cultural, linguistic, economic, and physical variables found in children's home and school environments.

Biophysical Variables. Similarly, there is evidence that biophysical factors may significantly affect the course and prognosis of deficits associated with LD/EBD. For example, it has been noted that fetal chemical addiction, low birthweight, lead exposure, and other physiological influences relate to multiple learning and behavior problems. Similarly, a genetic predisposition has been found for some psy-

chiatric illnesses (e.g., mood disorders, substance abuse) and some learning disabilities (dyslexia) and may be manifest as LD/EBD. For example, some cognitive deficits (e.g., nonverbal learning disabilities rooted in prefrontal dysfunction) may predispose children to other problems, such as depression or anxiety (Rourke & Fuerst, 1991).

Finally, temperament type and "general constitution" may have an association with developmental problems in children. Although temperament types seem to be innate, an individual temperament may be problematic as a result of a poor fit with the environment (Chess & Thomas, 1984).

Specialized Practices for Students with LD/EBD

The range and severity of problems experienced by students with LD/EBD dictate the need for a highly coordinated plan of interdisciplinary interventions involving extensive levels of direct services to students. As evidenced by our concurrent-deficit model, we believe that students with LD/EBD have multiple disabilities. These multiple disabilities may include severe disabilities that require early intervention and extensive support for any chance of positive adult outcomes. Service coordination and delivery for these students should not differ significantly in procedure or structure from the careful and exhaustive programming required for students with other types of multiple and severe disabilities (e.g., cognitive and physical disabilities). Interventions for the variety and complexity of problems in students with LD/EBD (a) require an integrated approach to identification, assessment, and programming; (b) must relate to the functional needs of students in home, school, and community settings; and (c) need to address each of the critical functioning areas and mediating variables. These features correspond to the programming needs of students with severe disabilities (e.g., Orelove & Sobsey, 1991)

Identification

To increase identification rates and early intervention services to students with LD/EBD, we must monitor comprehensive functioning before a child is in crisis (Patterson, Reid, & Dishion, 1994). Due to the propensity of students with LD/EBD to exhibit dysfunction in three or more domains (Rourke & Fuerst, 1991), it is imperative that screening information be obtained from a variety of sources regarding students' functioning in all six of the domains delineated above. A combination of screening materials can be used, or a questionnaire integrating items from all six functioning domains can be easily devised.

The complex learning and behavioral problems seen in students with LD/EBD underscore the importance of transdisciplinary team functioning, as defined by the team's joint focus, professional development approach, role-release implementation, shared and reciprocal consultation, multiple lines of communication, and integration of services (Lyon & Lyon, 1980; Orelove & Sobsey, 1991; Thomas, Correa, & Morsink, 1995). At best, interactive teaming (Thomas et al., 1995) would add critical elements of legitimacy and autonomy, clear objectives, team building, and commitment to common goals to further improve the identification and decision-making process for students with LD/EBD.

The assessment process, then, should be conducted by a team of professionals who, individually and collectively, identify individual deficit areas and ascertain the effects of concomitant deficits in multiple domains. Moreover, the team must be able to determine students' most pressing needs, identify primary areas for initial intervention, and designate future plans for alternative programming if primary plans are unsuccessful. As with other students with severe or multiple disabilities, problems in assessment or in the development and coordination of intervention plans can significantly affect long-term outcomes.

Diagnosis

Evaluation of students with LD/EBD requires special considerations, in that coordination of testing, interpretation of results, and integration of planning efforts must occur within a model of concomitance. One of the most difficult determinations to make is whether a learning disability exists in a child with EBD when the emotional disturbance is, by definition, affecting educational performance. Research suggests that different measurement methods result in the identification of different populations and/or incidence rates for students with comorbid learning and behavioral problems (Reynolds, 1984–1985; Schuerholz et al., 1995; Shepard, 1989). In particular, the identification of concomitant LD in populations of students with behavioral problems has varied significantly with the identification methods used, and appears to require careful attention to methods of identification and characteristics of the child being evaluated (Kamphaus, Frick, & Lahey, 1991). Discrepancy formulas are problematic for the diagnosis of LD in general (Council for Learning Disabilities, 1986; Reynolds, 1984–1985) and cannot differentiate children with emotional or behavioral disturbances (which significantly affect educational performance) who also have LD. Also, aptitude is often hard to ascertain in the erratic profiles of children with EBD. The determination of an underlying process deficit in a child with SED might be considered in diagnosing LD. However, this approach is highly criticized for having construct and measurement problems.

Evaluators of students with possible LD/EBD should be knowledgeable about the use of the regression method of identification (Cone & Wilson, 1981; Council for Learning Disabilities, 1986;

Kamphaus et al., 1991) combined with consideration of academic/learning dysfunction. The most useful assessment information on the learning problems of students with EBD will, most likely, be found in dynamic-interactive assessment (e.g., Burns, 1987; Haywood & Wingenfeld, 1992; Palincsar, Brown, & Campione, 1991), functional assessment, and observational methods. These assessment methods would also be appropriate when students' behavior (e.g., noncompliance or depression) during formal test administration invalidates the results of normative testing.

Critical Assessment Areas

Traditionally, evaluating students with suspected learning and behavior problems has included assessments in the areas of cognition, academic performance, social–emotional functioning, and behavior. On the basis of our review of the literature that follows, it would seem to be critical that comprehensive assessment also include the domains of language and executive functioning. Assessment of functioning in the "traditional" areas is generally used by school districts to differentiate students with LD from those with EBD and thus establish a primary area of disability, but students with LD/EBD display dysfunction in multiple cognitive, social, academic, and behavioral domains, as well as in language and executive function. It is clear that assessment must be integrated, comprehensive, and functional, as it is often impossible to rule out the existence of language, learning, emotional, and behavioral disorders for many of these children.

Assessment of Language. About half of all students with LD have significant language disorders (Cantwell & Baker, 1985; Mack & Warr-Leeper, 1992; Wiig & Semel, 1984), as do nearly three fourths of students with EBD (Camarata et al., 1988; Miniutti, 1991). Many students with either LD or EBD display such a broad range of, and severity in, language problems that they require interventions that differ from traditional therapy techniques and service delivery models (Audet & Hummel, 1990; Baker & Cantwell, 1987; Miniutti, 1991). It seems fair to posit that students with concomitant LD/EBD exhibit language disorders that adversely affect their academic performance, feelings of self-worth, and ability to interact appropriately with peers and adults.

Given the wide-ranging effects of language development on students' performance in nearly all other critical functioning domains, it is essential to assess the language skills of students with LD/EBD. Evaluations of receptive and expressive skills should be conducted by an experienced speech/language pathologist in the areas of phonology, semantics, morphology, and pragmatics. In addition to traditional formal tests, evaluations should include an assessment of the language demands of the classroom and observational samples of students' pragmatic skills in natural environments (e.g., classroom, playground, cafeteria). This information will allow other professionals to modify task demands or increase support in language-intense situations, thereby reducing or preventing some of the negative behavioral and emotional reactions of students with LD/EBD. In addition, clinicians should observe and document difficulties with turn-taking in conversation, sensitivity to tone of voice, and "reading" of nonverbal cues (such as gestures and facial expression) as these skills hold implications for success in peer and adult interactions.

Assessment of Executive Dysfunction. As noted above, executive dysfunction has been linked to both LD and EBD. Deficits in this area correspond to difficulties in selecting, implementing, adjusting, and monitoring strategies; planning, self-monitoring, and evaluating performance; controlling or inhibiting behavior; and recognizing the impact of behaviors on others (Gorenstein, 1982; Pontius, 1972; Torgesen, 1994; Yeudall, 1980). Students with LD/EBD should be assessed to determine their levels of executive functioning, particularly in the areas of metacognition, organization, and vigilance.

By definition, metacognition is awareness of one's own thinking; as a mediating process, it is difficult to measure empirically. However, Meltzer (1987) developed an instrument, the Surveys of Problem-Solving and Educational Skills, that evaluates understanding of task instruction, ease in formulating strategies, ability to identify salient details, and flexibility in shifting problem-solving approaches. Another important method for assessing metacognition is interactive-dynamic evaluation, which includes multiple models, a test–teach–retest approach, and guided learning (Bransford, Delclos, Vye, Burns, Hasselbring, 1987; Burns, 1987; Campione, 1989; Feuerstein, Miller, & Jensen, 1981; Haywood & Tzuriel, 1992; Palincsar et al., 1991).

Organizational skills can be measured through product measures, documentation of student preparedness for class, and attendance/tardiness records. Vigilance has been assessed via reaction-time tasks (Seidel & Joschko, 1991; Van de Meere & Sergeant, 1988a, 1988b); continuous performance tasks (e.g., Gordon & Mettleman, 1988); direct observation of visual attention or behavior (Barkley, 1994); diagnostic systems (e.g., Gordon, 1986); and computer programs (e.g., Greenberg, 1996). These tasks typically measure one or more of the following skills: sustained attention, motor response time, selective attention, and inhibition of response. Measures of these metacognitive and organizational skills are essential for designing interventions and providing compensatory or learning strategies.

Mapping of Functioning Levels

After the assessment results are shared, a conceptual diagram of func-

tioning problems/deficits should be developed to (a) view the child's comprehensive needs in a nonlinear fashion, (b) remove any hierarchical order or assumptions about etiology from the initial listing, (c) enable consideration of alternative hypotheses regarding diagnosis (de Mesquita & Gilliam, 1993), and (d) suggest other possible interaction effects among the deficit areas. This step is necessary for identifying the particular deficit patterns possible with LD/EBD and determining programming options based on identified performance deficits. We have developed the Diagnostic Indicator Profile (DIP), which allows professionals to briefly indicate all areas of critical functioning impairment or weakness. In addition to generating an overview of the comprehensive needs and susceptibilities of a particular child, the DIP can be used to generate discussion and plan interventions. The DIP form lists common, representative disorders described in federal regulations, the DSM-IV classification system, and the professional literature for each of the critical functioning domains. The evaluator indicates whether the child (1) met the diagnostic criteria (e.g., from the DSM-IV) for a disorder in that category, or (2) demonstrated one or more problems of clinical concern. If a child has no identified problems in a functioning area, the evaluator places a check in the appropriate box. If, conversely, a problem *is* found, the appropriate professional indicates the degree of severity by placing a 1 (mild), 2 (moderate), or 3 (severe) notation in the box corresponding to the specific problem. Space is available for additional areas of potential dysfunction within each domain and for the identification of mediating variables that might affect a problem area.

An additional category recognizes the possibility of further concomitance with other disability areas and permits the identification of other problems currently affecting the child. Finally, the lines to each functioning domain indicate current areas of performance that are affected by the problems. This will be meaningful for functional assessment and intervention, as well as for meeting eligibility criteria for some of the proposed definitions (e.g., Forness & Knitzer, 1992; Kauffman, 1993). A completed sample Diagnostic Indicator Profile of a child with LD/EBD is presented in Figure 2.

The DIP is not intended to replace the comprehensive assessment, reporting, and documentation of skills in students with LD/EBD. Rather, it is intended for use as a summary table subsequent to the review of formal assessment results. It thus permits professionals from several disciplines to review, at a glance, all potential interactions that might affect performance or intervention efficacy. This consideration of the coexisting needs and interactions is critical for programming for students with multiple disabilities (Orelove & Sobsey, 1991).

Decision Making

Because students with concomitant LD/EBD present significant problems in many areas and require a broad array of services and interventions to address those problems (Bricklin & Gallico, 1987), it is necessary to identify the child's most critical needs, as well as additional areas requiring concurrent or subsequent intervention. Although many students require immediate and intensive intervention in several areas, others may need a slower intervention tack, with professionals addressing change in only one major area or primary presenting problem at a time. Because teams sometimes must struggle to prioritize and/or coordinate service delivery for students with LD/EBD, a decision-making process can help in (a) determining eligibility issues, (b) establishing consensus on the child's most pressing needs, (c) determining which services will be begun immediately, and (d) designating future plans for alternative programming if the primary plans are unsuccessful. This group decision-making system should allow for equal participation and input from all team members, including parents and classroom teachers.

Group decision making can be facilitated through (a) multivoting, whereby each individual votes a preset number of times (Behr, 1992); (b) rank ordering of student needs from highest to lowest by all team members for tallying; or (c) group systems software that allows for the development and prioritization of strategies or interventions by several team members simultaneously. It must be noted, however, that these methods serve only to help professionals identify team members' most critical concerns; they do not imply that lower ranking student needs are unimportant. Used judiciously, decision-making systems can assist in prioritizing and planning interventions and follow-up activities. Interactive teaming methods will be necessary for establishing group commitment to the common goals (Thomas et al., 1995).

Selecting appropriate primary and secondary interventions requires careful consideration of the interactions among the needs and skill deficits of the student and the likely impact of the interactions on the efficacy of the intervention. Although an intervention may have demonstrated efficacy when assessed in a population of students with LD or EBD, it may not achieve the desired results when complex and multiple problems occur simultaneously. Consequently, interventions need to be considered for their efficacy (a) in combination with other methods or (b) with modifications or enhancements necessary for students with LD/EBD. It is hoped that future research will help to identify the most effective intervention method for students with concomitant disorders, but it is likely that most students with LD/EBD will require multiple, concurrent interventions in several of the six domains.

The team should consider the appropriate placement for delivering these services only after the specific

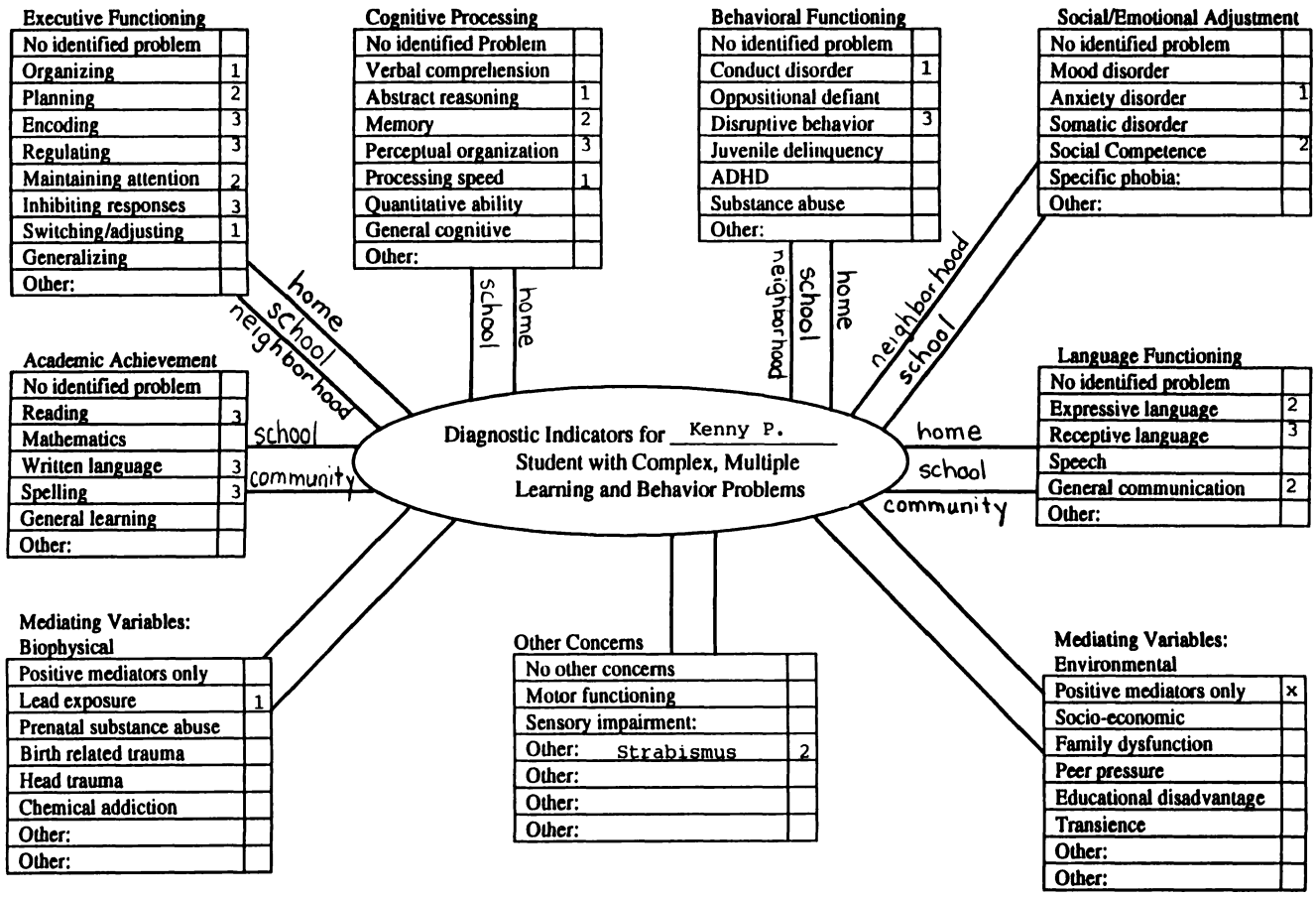

FIGURE 2. This is a Diagnostic Indicator Profile completed for Kenny, a child with LD/EBD. The severity of problematic functioning is indiated with a 1 (mild), 2 (moderate), or 3 (severe) notation in the corresponding box. Specific environments where a deficit affects performance are written on the connecting lines.

interventions are selected. In accordance with federal guidelines, students with LD/EBD should be educated in the least restrictive environment. However, due to the severity and multiplicity of these students' symptoms and their need for a highly structured environment and multiple, intensive, and integrated interventions, it may be difficult to provide services to them in a general classroom or even in the home-school placement. Students with LD/EBD should be considered to have multiple disabilities and require intensive and extraordinary supports to learn. Many children with LD/EBD will require extensive supports, as characterized by regular ongoing involvement in at least some environments (Luckasson et al., 1992). For many students with severe LD/EBD, if extraordinary supports are not provided (or cannot be provided) in general school settings, the least restrictive environment may be a segregated setting serving the needs of this population. If we are to promote the integration of these students, it is critical that we develop innovative models of delivery and/or coordination of services to meet their needs in a continuum of settings.

Financial Considerations

Based on outcome studies, it is clear that young adults with SED create a substantial cost to society through their involvement with welfare, public health, substance abuse, mental health, juvenile justice, and criminal justice services (NMHA, 1993). Students with LD/EBD are predicted to account for the poorest overall outcomes. It is essential that professionals in education, mental health, and medicine diligently promote the education of the greater public as to the real costs of failing to provide intensive services and supports to young students with LD/EBD.

Future Directions for Serving Students with LD/EBD

To improve services and outcomes for students with concomitant LD/EBD, we need to develop an empirically validated knowledge base, improve teacher training and retention, and improve delivery systems and models. Whereas it may take time for us to benefit from future research,

there are many strategies and recommendations that utilize existing knowledge, can be implemented or expanded immediately, and can be expected to improve outcomes for students with LD/EBD.

Research

Due to our limited knowledge base on students with LD/EBD, we must target for investigation specifically those students who demonstrate concomitant learning and behavior disorders. First, we must improve identification of students and clarification of the incidence of LD/EBD by recognizing students with multiaxial DSM-IV diagnoses of learning and psychiatric pathology, or students who have been identified with either LD or EBD as primary handicapping conditions and who also possess clinically significant symptoms of the other disorder. Methods for assessing learning disabilities in students with SED will need to be developed or refined. After identification, it will be important to describe current methods for serving these children and the extent to which Individualized Education Programs (IEPs) and interventions address students' comprehensive needs.

In the next phase of research, longitudinal studies will be needed for formative evaluation of outcomes related to school, adult adjustment, employment, recreation, and independent living for these students. Factors predicting relative success and failure must be identified. Developmental epidemiology may be especially helpful in assessing outcomes related to specific program features or service delivery methods on subgroups of individuals with various risk factors or patterns (Carran, Nemerofsky, Rock, & Kerins, 1996). It will be important to examine developmental patterns of functioning deficits in individuals with LD/EBD and begin to identify specific methods that are effective with these subpopulations (Bender, 1987). Other methods to minimize the interactive effects, support ongoing growth and development, and help predict more successful outcomes should logically follow.

Current efforts to provide service to students with LD/EBD in integrated settings are often unsuccessful. Studies are needed to examine the critical factors related to integration of students with EBD (Rock, Rosenberg, & Carran, 1995) and extensive coordinated service delivery as they pertain to students with concomitant learning and behavioral disorders.

Teacher Training Needs

Providing and retaining teachers who are well trained and qualified to teach and manage these students is probably the most critical problem facing service delivery to students with LD/EBD (Cullinan, Epstein, & Sabornie, 1992; Grosenick et al., 1987; McIntyre, 1993; McManus & Kauffman, 1991). Our current demand for teachers of students with EBD far outstrips our supply (USDE, 1993, 1994), due to extremely high teacher attrition (Bowen, 1990; Lauritzen & Friedman, 1991). We must find a way to encourage the extended education, training, practice, and retention of these "special" educators. The training of teachers is expected to become an even more critical concern as more states adopt generic or noncategorical certification for teachers of students with mild and moderate disabilities. Teachers in these states may not receive adequate preparation in the competencies required for students with EBD or LD/EBD (e.g., Bullock, Ellis, & Wilson, 1994). Considering the cost to society of the pervasive failure of these students, investments to support teachers in extended and specialized teacher training, incentives for teaching in the EBD critical shortage area, and provision of ongoing professional development may be most profitable.

Despite the shortcomings of research addressing the needs of students with LD/EBD, teachers cannot wait for research answers. They must address the needs of these students now (Cullinan & Epstein, 1985b) via best practices and interventions in *each* of the critical functioning areas. Further, teachers must select, implement/coordinate, document, and evaluate concurrent intervention methods, with ongoing support by professionals in all related disciplines. Improved and, perhaps, more intensive preservice programs based on validated competencies for teachers of students with EBD (e.g., Bullock et al., 1994) and LD (Graves et al., 1992) are essential for improving the skills and outcomes of the special educators who will be serving these students.

Improving Service Delivery

In addition to improving teachers' training and rates of retention, it is critical that we address effective methods for delivering services to students with LD/EBD, beginning with early identification and continuing through outcome evaluation and follow-up support.

Identification/Diagnosis. Currently, federal identification and assessment procedures specific to single disability areas may reduce the likelihood that children with LD/EBD will have their needs comprehensively assessed. Rather than limiting the assessment process by focusing on one disability, symptom overlap and concomitance can and should be used to (a) generate multiple hypotheses, (b) assist with the required differential diagnosis, and (c) help professionals view the full range of children's problems and their comprehensive needs (de Mesquita & Gilliam, 1993). Diagnostic teams must begin to examine students carefully for multiple disabilities. This viewpoint in assessment and decision making could significantly change the way we serve students with LD/EBD. Coordinated service delivery, highly skilled service providers, and extensive supports are critical to the success of many students with multiple and/or severe disabilities.

Coordination of service delivery begins with interactive or transdisciplinary teaming. Often, however, school assessment teams do not include professionals qualified to assess and program for all areas of critical functioning. To improve assessment, teams must develop proactive methods of screening and comprehensive assessment to identify at-risk students and uncover their diverse needs. In addition, assessment must occur within the framework of multiple functioning domains and mediating variables affecting students with LD/EBD.

Intervention/Programming. Service delivery to students with concomitant learning and behavior disorders in public school programs may be fragmented or inadequate. One reason for this could be that the coordination, regulation, monitoring, and delivery of the multiple services required for many students with LD/EBD may exceed the resources and expertise of comprehensive school programs. A single child, for instance, might require ongoing supports, including special education, regular crisis intervention, frequent counseling, social skills training, language therapy, close supervision (such as a one-to-one aide) and structured behavior management programming, with the additional need for intermittent family therapy, respite care, residential care, occupational therapy, or vocational training. A comprehensive and coordinated approach to identification and service delivery, along with an interactive and functional conceptual model (as described herein), can be applied in a variety of settings. If we are to successfully intervene with, and/or limit difficulties of, students with LD/EBD, it is clear that we need to address programming limitations.

To improve instructional programming and long-term outcomes for these students, we must (a) ensure that IEPs reflect all of the child's critical needs, including academic, behavioral, social, affective, and language needs; (b) utilize best practices for learning disabilities with an emphasis not only on classroom behavior, but also on academic instruction and outcomes (Forness et al., 1983); (c) identify innovative methods for delivering *comprehensive* services that reduce restrictive class placement and dropping out (USDE, 1992, 1993); and (d) utilize data-based methods for program development and evaluation (e.g., Carran et al., 1996).

To improve behavioral and social/emotional outcomes for these students, we need to (a) train teachers to be adequately prepared to deal with the severity of the behavioral problems and emotional needs of these students (Bullock et al., 1994; Cullinan & Epstein, 1985; Grosenick, et al., 1987; Lauritzen & Friedman, 1991; McIntyre, 1993); (b) increase academic and vocational programming (Knitzer et al., 1990); (c) increase the emphasis on social skills interventions (Baum, Dufflemeyer, & Geelan, 1988); (d) coordinate and manage the delivery of high-quality, consistent wrap-around and postschool mental health services (Saxe, 1991; Saxe, Cross, & Silverman, 1988; USDE, 1994); (e) provide integrated classroom-based speech/language services (Camarata et al., 1988; Miller, 1989; Miniutti, 1991; Morine-Dershimer, 1987); (f) program for affective curricula (Bender, 1987); (g) provide sufficient support by trained, professional staff in the areas of crisis intervention, small-group or individual instruction, and therapy/counseling; and (h) design and deliver effective transition programs to teach skills for independent living, socialization, recreation, and employment (e.g., Brolin, 1995; Wehman, 1992).

Summary

In this article, we have focused on the significant numbers of children who manifest learning and behavior disorders. Many children identified as having LD (or EBD) display additional problems of EBD (or LD) of a severity and magnitude as to be a serious barrier to school success and postschool success. In fact, some of the same neurological factors that cause learning impairments may be directly related to social/emotional problems as well (Bigler, 1992; Rourke & Fuerst, 1991). In addition, evidence of a strong association between LD/EBD with executive functioning (e.g., ADHD) and communication disorders was presented.

Several principles guided our development of a paradigm for understanding, identifying, assessing, and programming for these students. First, we believe that service delivery must begin with a comprehensive and functional assessment of an individual child's needs, without initial concern for etiological basis, differential diagnosis, or classification. Second, six (or more) critical functioning domains must be considered in order to develop a comprehensive profile of a child with LD/EBD, prioritize concerns, plan and implement interventions, and generate multiple hypotheses regarding "root" deficits. Third, the complexity and severity of problems faced by children with LD/EBD relate to the existence of multiple, and possibly severe, disabilities. Programming for these students should reflect current best practices for serving individuals with multiple disabilities (e.g., Orelove & Sobsey, 1991). Fourth, because of their complex needs, transdisciplinary programming or interactive teaming (Thomas et al., 1995) is essential for decision making, intervention planning, and comprehensive and coordinated service delivery. Finally, although long-term change in perceptions about LD/EBD and focused research will be essential, the current literature supports interventions and programming that have immediate application for improving services to students.

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