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Author(s): William N. Bender and Maureen E. Wall

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SOCIAL-EMOTIONAL DEVELOPMENT OF STUDENTS WITH LEARNING DISABILITIES

William N. Bender and Maureen E. Wall

Abstract. This article presents a model of development for children and youth with disabilities. The model incorporates 14 variables in three domains that have not been fully delineated by the field, including emotional, social, and behavioral development. In general, much more research, particularly intervention research, is needed in each of the 14 areas. Also, the data from several of the areas indicate that development may be more seriously hampered with increasing age.

As the articles in this special issue of the LDQ have highlighted, a number of relatively new concerns are emerging in the field of learning disabilities (LD), dealing with the social, emotional, and behavioral development of students with learning disabilities (Huntington & Bender, 1993; Margalit & Levin-Alyagon, 1994; Sabornie, 1994; Spafford & Grosser, 1993; Vaughn & Haager, 1994). Although studies of certain emotional and/or behavioral variables—for example, self-concept and distractibility—among students with learning disabilities have appeared in the literature since the 1970s, studies of other variables such as temperament, anxiety, loneliness, and depression/suicide are much more recent (Huntington & Bender, 1993; Sabornie, 1994). Further, such studies have yet to be widely incorporated into our conceptualization of what a learning disability is. Consequently, in spite of this growing research interest, these concerns have not yet received the attention that, perhaps, they should.

This article synthesizes the available information in an attempt to suggest the overall importance of this work and to identify additional areas in need of research. We do not intend to offer yet another definition of learning disabilities. We are not certain that this continuing process is considered fruitful by everyone; therefore, it may be time to admit that a major reconceptualization is needed before meaningful (i.e., discriminatory) definitions can be offered. What we

do intend to do here is to present a portrait or model that encompasses the more recent insights from this body of research and to suggest fruitful avenues for research that encompass a much more inclusive set of variables for children and youth with LD based on this evolving knowledge base.

RATIONALE FOR STUDYING SOCIAL-EMOTIONAL DEVELOPMENT

Study of the social-emotional development of students with learning disabilities is important for a number of reasons. First, deficits in cognitive processing, which are sufficient to cause major learning problems in academic areas, are probably sufficient to cause major learning problems in non-academic areas as well. For example, Spafford and Grosser (1993) recently advanced the hypothesis that neurological problems may be the culprit, not only in academic problems but also in social misperceptions of children with LD. Clearly, cognitive processing problems may, at the very least, result in difficulties in interpreting social events and subsequent personal actions that depend upon such interpretations.

WILLIAM N. BENDER, Ph.D., is Associate Professor, College of Education, University of Georgia.

MAUREEN E. WALL, M.A., is an instructor, College of Education, University of Georgia.

We suggest that it may be myopic for the field to have concentrated historically on specific cognitive and/or academic areas in the definition of learning disabilities. Thus, our conceptual understanding may need to expand beyond this limited perspective. For example, the inclusion of social skills as a deficit area in the definition proposed by the Interagency Committee on Learning Disabilities (Hammill, 1988) suggested that an expanded definition may be acceptable by the field in general.

Second, research has indicated that the social-emotional development of students with LD may be more severely impaired during adolescence and early adulthood than previously thought (Gregory, Shanahan, & Walberg, 1986; Huntington & Bender, 1993; Phil & McLarnon, 1984; Spafford & Grosser, 1993; Weller, Watteyne, Herbert, & Crelly, in press). For example, Gregory et al. (1986) found that twelfth graders with LD were more likely to be involved with juvenile authorities and/or law courts than were nondisabled students. Likewise, the students with LD in that study expressed less satisfaction with their peer relationships than other students.

Further, Huntington and Bender (1993) suggested that adolescents with LD are much more likely to be victims of depression and/or suicide than other students. Other research has indicated that many students with LD have less than satisfactory social lives (Mithaug, Horiuchi, & Fanning, 1985; Phil & McLarnon, 1984). As this body of knowledge continues to grow, it becomes apparent that our efforts with students with LD in the middle and secondary schools may not be addressing these students' most pressing needs. More attention, therefore, needs to be given to this emerging set of issues.

Third, the relative lack of academic success among students with LD during secondary school seems to suggest that our remediation efforts on cognitive/academic variables have not been effective. For example, research by Deshler and his associates has indicated that academic improvement may cease altogether for adolescents with LD, such that these students apparently reach a certain academic level—perhaps best envisioned by a reading level of approximately sixth grade—and then fail to improve further regardless of remedial efforts in special education classes (Deshler, Schumaker, & Lenz,

1984; Warner, Schumaker, Alley, & Deshler, 1980). If this is the case, increased emphasis on remediation in other areas such as social-emotional concerns would, at the very least, not detract from continued academic improvement.

Finally, the cumulative weight of this developing knowledge base on the social-emotional development of students with LD is beginning to cause the field to shift to a more inclusive view of what a learning disability is. Weller's research, for example, has incorporated language variables, social coping, and task orientation into a unified view, which she refers to as *adaptivity* (Weller et al., 1994). This construct is much more comprehensive than the historical fixation on cognitive processes. Likewise, Vaughn's research, reviewed in this issue, has spread a more inclusive net over variables dealing with the concept of social competence.

MODEL

The Process

We developed a model to guide our delineation of the variables of interest. At the outset, we realized that some compilation of variables would be necessary to meaningfully discuss these data in the aggregate. Indeed, entire literature reviews can be done, and frequently are, for any one of the variables that were considered. Nevertheless, we felt that some overview was necessary in order to understand the development of students with LD. Therefore, we sought to provide such a picture rather than a more traditional review of the literature in any one area.

Initially, we focused on three areas, which were not predominantly based on cognitive, mental, or academic functioning: behavioral, emotional/personality, and social development. While recognizing the interactive nature of these domains, and their mutual interaction with the cognitive/achievement domain, we nevertheless felt that initially we should concentrate our efforts on some areas that we could differentiate from each other.

Pooling the Data

Within these three domains, we collected literature on all the variables that were traditionally measured in the literature. We knew it would be necessary to merge the data, simply because of the number of different variables. We likewise realized that the process described below, by which we grouped the data, was somewhat arbi-

trary. Nevertheless, producing an overview of these data necessitated some pooling, and we designed a four-step decision-making process for that purpose.

First, we decided to utilize only variables that had been investigated in a minimum of three studies. Second, we immediately pooled the research data on the numerous variables for which different terms and/or assessment tools were utilized (self-concept and self-esteem). Third, we pooled the numerous variables that incorporated different shades of meaning (locus of control and attribution) and/or different emphases along a continuum (social isolation and social rejection).

Finally, certain variables represented different concepts while addressing the same general overall issue (misconduct, aggression, delinquency). For clarity and brevity, we felt that these areas should be discussed together.

Using this process, we identified 14 variables within the three domains of emotional, social, and behavioral development. While the bulk of the literature shows deficits in each of these areas among children and/or youth with LD, less

than one in four of these areas has resulted in intervention studies aimed at changing those deficits.

“Wheel of Successful Outcomes”

In the model presented in Figure 1, the individual emerges into the world as a cumulative bundle of genetic predispositions, talents, infant temperament, prenatal insights, and memories. If the human tabula rasa prototype ever existed, it has not yet been seen; indeed, research clearly indicates that an infant’s prenatal experiences may be remembered and retained into later life. Besides, the information available on infant temperament suggests that children have decidedly different temperaments from the minute they are born.

The spokes in this wheel of development are comprised of the 14 measurable attributes emanating from the individual child with LD. The dark lines delineate the domains that we feel can be isolated, including social, emotional, behavioral, and cognitive/academic development.

The outer circle is depicted as the successful outcomes of the interaction between the vari-

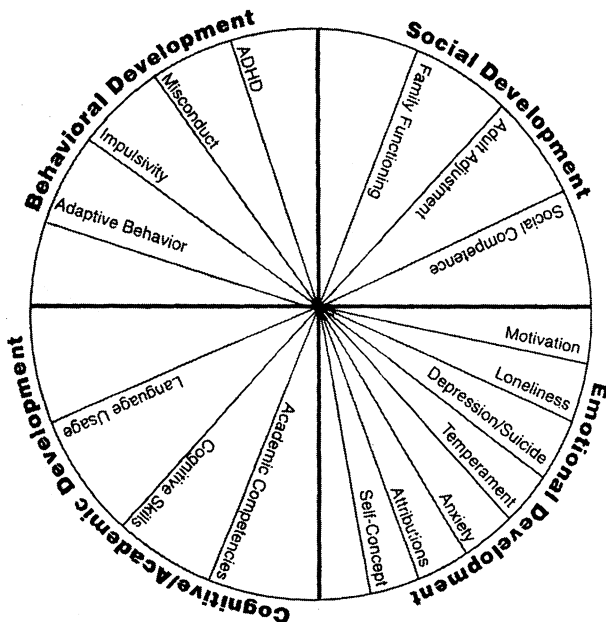


Figure 1. Wheel of successful outcomes.

Table 1

Summary of Emotional Development Research

Affective Variable	Recent Studies (1984-present)	Representative Conclusions	Intervention Studies (1984-present)	Representative Conclusions
Self-Concept	27	Children and youth with LD exhibit significantly lower self-concept and lower perceived academic competence than their nondisabled peers (Ayres et al., 1990; Bear et al., 1991; Chapman, 1988; Cooley & Ayres, 1988; DeFrancesco & Taylor, 1985; Mulcahy, 1990; Raviv & Stone, 1991). Other studies, however, indicated no significant differences in global self-concept between students with and without LD (Sabornie & Thomas, 1989).	4	Positive effects of group counseling and rational-emotive education on self-concept have been reported (Omizo et al., 1985, 1987, 1988; Mulcahy (1990) found that cognitive strategies training over a two-year study did not affect affective measures of self-concept and locus of control in children with LD.
Attributions	22	Children with LD exhibit more external locus-of-control orientations (Friedman & Medway, 1987; Lewis & Lawrence-Patterson, 1989; Rogers & Saklofski, 1985; Tarnowski & Nay, 1989). Cooley and Ayres (1988) found that self-concept correlated positively with ability/effort attributions and that the lower their self-concept, the more likely pre-adolescents with learning disabilities were to attribute failure to ability.	6	Attribution training programs and application of learning strategies have been effective (Borkowski et al., 1988; Schunk & Cox, 1986; Scott, 1988; Shelton et al., 1985). Taylor et al. (1989) reported the positive effects of a special education program designed to enhance perception of control in students with LD. Allen and Drabman (1991) found that boys with LD who were not taking stimulant medication reported more internal-effort attributions in failure situations than those who were taking medications.
Depression/Suicide	17	Students with LD manifest a high risk of depression and suicide (Hall & Haus, 1989; Hayes & Shost, 1988; Rourke et al., 1989). Maag and Behrens (1989) and Wright-Strawderman and Watson (1992) found depression to be prevalent among adolescents with LD, although neither study involved a control group of non-LD students. Heavey et al. (1989) found a significant correlation between anger and behavior in children with LD.	0	No intervention studies found.
Motivation	14	Elementary-school students with LD were found to be lower in academic self-regulation (Grotnick & Ryan, 1990) and to have lower motivation for on-task performance than their peers without disabilities (Heavey et al., 1989). College students with LD, however, have demonstrated the capacity to develop coping strategies to bypass or compensate for their processing and skill deficits (Cohen, 1986).	5	Successful self-management strategy training and self-evaluation procedures have been reported for adolescents (Sander, 1991; Schloss, 1987; Shapiro, 1989; Smith et al., 1988).
Anxiety	5	Recent research reports higher scores for students with LD on anxiety, worry/oversensitivity and lower autonomy levels compared to their nondisabled peers (Margalit & Shulman, 1986; Margalit & Zak, 1984; Stein & Hoover, 1989). Also, Margalit and Raviv (1984) found a higher prevalence of minor somatic complaints with children with LD.	0	No intervention studies found.
Temperament	4	Children with LD are found to be lower in task orientation and social flexibility, two components of temperament (Bender, 1987; Keogh & Burnstein, 1988). Teachers of children with LD have consistently evidenced perceptions in the negative direction (Cardell & Parmar, 1988).	0	No intervention studies found.
Loneliness	4	Children and youth with LD are more likely to demonstrate higher levels of loneliness than their nondisabled peers (Margalit & Ben-Dov, 1992; Sabornie, in press). However, earlier research indicated no difference in loneliness levels between early adolescents with LD and those without LD (Sabornie & Thomas, 1989). Margalit and Levin-Alyagon (in press) and Parkhurst and Asher (1992) found that loneliness has different psychological and behavioral meaning within different subgroups of students with LD.	0	No intervention studies found.

ables in the domains of development and the child's genetic and prenatal makeup. Any variable within the model can become a conduit of success for a particular child, allowing the child, over a period of years, to manipulate the environment to gratify his/her basic needs. The model is intended to indicate a circular motion, such that, although both the inner circle (the person's genetic/prenatal makeup) and the outer circle (successful outcomes) remain constant, the individual's development is not "fixed," but in constant motion.

This motion is intended to show that any of the 14 variables can affect outcomes in any of the four domains. For example, as depicted, hyperactivity tends to affect successful outcomes more in the behavioral than in the cognitive area. However, hyperactivity can affect academic outcomes over time very negatively. Consequently, the model had to include some possibility of motion such that problems with hyperactivity could interact with successful outcomes in almost any domain. For example, a deficit in self-concept and attribution for success can negatively affect academic success, even though the latter variable is included within the emotional rather than the cognitive/academic domain.

EMOTIONAL DEVELOPMENT

We identified seven affective variables, presented in Table 1, within the domain of emotional development. While extensive review of all the available studies on these variables is not possible here, we present the general conclusions and information on interventions wherever intervention research is available.

Self-Concept

Self-concept has been described in the literature as self-evaluation, self-esteem, self-awareness, self-understanding, self-perception, self-worth, and self-image (Axelrod & Zvi, 1993; Morvitz & Motta, 1992; Priel & Leshem, 1990; Renick & Harter, 1989; Tomlan, 1985). Although the term *self-concept* may impact development in the cognitive/academic domain, our review was focused on the broader meaning of the term as it applies to affective as well as cognitive processes, especially as it relates to how children and youth view their learning disabilities. The search indicated that children and youth with learning disabilities exhibit lower self-

concept and lower perceived competence than their nondisabled peers (Ayres, Cooley, & Dunn, 1990; Bear, Clever, & Proctor, 1991; Chapman, 1988; Cooley & Ayres, 1988; De-Francesco & Taylor, 1985; Mulcahy, 1990; Raviv & Stone, 1991). Further, research has suggested that lower overall self-concept negatively affects social behavior and academic achievement (Heyman, 1990; Kershner, 1990).

Interventions aimed at improving self-concept in students with learning disabilities, including group counseling, rational-emotive education and cognitive strategies training, have yielded mixed results (Mulcahy, 1990; Omizo, Cubberly, & Omizo, 1985; Omizo & Omizo, 1988). The interventions that seemed generally to be more effective involve rational-motive education and group counseling. While some interventions in some studies did improve self-concept, there has been little effort to measure secondary effects on related variables such as improvements in academic work or social acceptance that may result from interventions intended to enhance self-concept. The model presented here suggests the need to restructuring intervention research to measure potential effects in these other areas as well.

Attributions

Success-failure attributions (also referred to as *locus of control*, *perception of control*, or *causal attributions*) of students with learning disabilities have been studied as often in conjunction with such variables as self-concept and performance expectations as independently (Bender, 1986; Kistner, Osborne, & LeVerrier, 1988; Licht, Kistner, Ozkaragoz, Shapiro, & Clausen, 1985; Morgan, 1986; Taylor, Adelman, Nelson, Smith, & Phares, 1989).

In reviewing the attribution literature, we located several studies in which children and youth with learning disabilities exhibited more external attribution orientations than internal (Friedman & Medway, 1987; Lewis & Lawrence-Patterson, 1989; Rogers & Saklofski, 1985; Tarnowski & Nay, 1989). Children with learning disabilities are most likely to perceive academic outcomes as controlled by powerful others. However, the lower their self-concept, the more likely they are to attribute failure to ability (Cooley & Ayres, 1988; Grolnick & Ryan, 1990). This is the type of interaction effect that complicates research on these emotional variables because it is very difficult to interpret.

In spite of this problem, interventions specifically targeted at attribution training have been successful in enhancing perception of control in students with learning disabilities (Borkowski, Weyhing, & Carr, 1988; Schunck & Cox, 1986; Scott, 1988; Shelton, Anatopoulos, & Linden, 1985; Taylor et al., 1989). Again, few studies attempted to measure the effects of such interventions on a wide array of related variables from various domains.

Motivation

Motivation, self-management, and coping skills were clustered for review here, as they tend to overlap in the literature (Mehring & Colson, 1990; Osborne, 1985). Students with LD are lower in academic self-regulation and have lower motivation for on-task performance than their peers without disabilities (Grolnick & Ryan, 1990; Heavey, Adelman, Nelson, & Smith, 1989). However, college students with LD have demonstrated the ability to develop coping strategies to bypass or compensate for these deficits, suggesting a developmental maturation process, at least for this group of students (Cowen, 1988). Successful intervention studies have included self-management strategy training and self-evaluation procedures (Sander, 1991; Schloss, 1987; Shapiro, 1989; Smith, Young, West, Morgan, & Rhode, 1988).

Anxiety

Trait anxiety is defined as a persistent feeling of anxiety that may be unrelated to an environmental threat or specific hazard. This is the measure of anxiety with which psychologists are predominantly concerned. Empirical research on anxiety reports higher trait anxiety levels as well as lower autonomy levels in both children and adolescents with LD compared to their non-LD peers (Margalit & Shulman, 1986; Margalit & Zak, 1984; Stein & Hoover, 1989).

Further, increased trait anxiety levels are manifested in ways that can negatively impact outcomes in school. For example, Margalit and Raviv (1984) found that children with LD demonstrated a higher prevalence of minor somatic complaints than their nondisabled peers. No intervention studies specifically dealing with anxiety were available.

Temperament

Compared with their nondisabled peers, children with LD manifest less task orientation and social flexibility—two components of tempera-

ment (Bender, 1985, 1987; Keogh & Burstein, 1988)—paralleling the available evidence on observed on-task behavior in the classroom (McKinney & Feagans, 1984). Cardell and Parmar (1988) concluded that social ability/adjustment and persistence contribute to the definition of temperament in the child with LD. Still, few studies on temperament in students with LD are available, and no intervention studies related to temperament were located.

Loneliness

Research has suggested that both children and adolescents with LD are more likely to demonstrate higher levels of loneliness than their non-LD peers (Margalit, 1991a, 1991b; Margalit & Ben-Dov, 1992; Sabornie, 1994). In one early study, Sabornie and Thomas (1989) found no difference in loneliness levels between early adolescents with LD and those without LD. However, utilizing subgroups of students with LD formulated according to various psychological and behavioral implications of loneliness (Margalit & Levin-Alyagon, 1994; Parkhurst & Asher, 1992), several recent studies have shown that a majority of students with LD experience high levels of loneliness. No intervention studies targeted at loneliness were found.

Depression/Suicide

The literature related to suicide and depression was reviewed as a unit, since several empirical reports have suggested links between these two variables (Hayes & Sloat, 1988; Livingston, 1985; Maag, Rutherford, & Parks, 1988; Peck, 1985; Pfeffer, 1986). Students with LD do manifest a high risk of depression and an increased risk of suicide (Hall & Haws, 1989; Hayes & Sloat, 1988; Huntington & Bender, 1993; Rourke, Young, & Leenaars, 1989). Further, depression is more prevalent among adolescents with LD (Maag & Behrens, 1989; Wright-Strawderman & Watson, 1992).

Although research has indicated severe depression in children with LD as young as 8 years old, suicide and parasuicide (actual attempts at suicide) seem to increase with age, a finding that parallels the trend for the general population (Huntington & Bender, 1993). In spite of a growing body of evidence of such serious problems, no intervention studies were found in this area.

Summary

This review of the literature related to the

Table 2
Summary of Social Development Research

Affective Variable	Recent Studies (1984-present)	Representative Conclusions	Intervention Studies (1984-present)	Representative Conclusions
Social Competence	75	Children and youth with LD demonstrate deficits in social competence (Calhoun & Beattie, 1987; Fine, 1987; Gresham & Elliott, 1987; Ritter, 1989a; Sater & French, 1989; Toro et al., 1990). These students exhibit less ability to maintain interpersonal relationships than peers without LD (Houck et al., 1989; LaGreca, & Stone, 1990; Roberts & Zubrick, 1993; Schneider & Yoshida, 1988; Shondrick et al., 1992; Stone & LaGreca, 1990; Wiener et al., 1990). Social incompetence has been noted as a significant cause of postsecondary maladjustment for persons with LD (Cartledge, 1987, 1989; Mellard & Hazel, 1992). However, some research has shown that there is a subgroup of adolescents with LD who are not rejected socially and are rated as very similar to their peers without disabilities (Sabornie, 1990; Sabornie & Kaufman, 1986).	6	Various social skills curricula and interventions have been successful in training students with LD to demonstrate selected social skills (Blackbourn, 1989; Carter & Sugai, 1989; Kohler & Strain, 1993; Nelson, 1988; Sugai, 1992; Warger, 1990). Research also suggests that social acceptance can be enhanced through mainstreaming (Fox & Weaver, 1989; Madge et al., 1990; Polirstok, 1989). Collaborative skill instruction, cognitive-behavioral interpersonal problem-solving programs and integrated treatment approaches involving family interventions have resulted in at least short-term positive interactions (Hundert & Houghton, 1992; Putnam, Rynders, Johnson, & Johnson, 1989; Vaughn & LaGreca, 1993; Vaughn & Lancelotta, 1986; Wilchesky & Reynolds, 1986).
Family Characteristics	7	Learning disabilities have been found to be strongly familial (Oliver et al., 1991), and children with LD have shown more family background difficulties such as deviant styles of parental communication than their nondisabled peers (Feagans et al., 1991; Green, 1990; Toro et al., 1990). Margalit and Almoguy (1991) characterized students with LD as members of more conflictual families.	0	No intervention studies found.
Adult Adjustment	16	Several researchers have pointed to the persistence of LD into adulthood (Gerber et al., 1990; Haring & Lovett, 1990; White, 1992) and resulting adjustment difficulties (Bruck, 1987; Sitlington et al., 1992; Sitlington & Frank, 1990). However, Scuccimarra and Speece (1990) found most mildly disabled high school graduates employed full time for minimum wage or higher and having positive perceptions of their social lives.	5	Seminar-type programs and strategies for use by high school counselors have been found helpful in easing social adjustment and facilitating transitions to college or the workplace (Arnold & Czamanske, 1991; Posthill & Roffman, 1991; Skinner & Schenck, 1992).

emotional development of students with learning disabilities points to major deficits in each of the component areas of this domain. Simply put, the majority to students with LD are not happy, and the noted deficits in every variable raise serious questions about current remediation efforts. Further, on all variables, deficits seem to persist into adolescence, with suicide presenting particularly acute problems at this stage. In spite of the observed severity and pervasive nature of these deficits, relatively few attempts have been made to enhance or improve these areas or study the significant secondary effects on any particular skill, either in the emotional domain or in the social or behavioral domains.

SOCIAL DEVELOPMENT

Three variables, presented in Table 2, were delineated within the domain of social development. In some ways, this was the most problematic domain, because the independence of the variables utilized in the research was not as clear as within the other domains under consideration. After considering the available evidence, we identified three variables for this domain: social competence, adult adjustment, and family characteristics.

Social Competence

Social competence was by far the most researched variable in the three domains because of the attention it has received in the literature

during the last 15 years. This variable included concerns such as social acceptance, social cognition, peer relationships, and sociometric status (Gresham & Elliott, 1989; Hoyle & Serafica, 1988; Jackson, Enright, & Murdock, 1987; Margalit, 1988; Roberts & Zubrick, 1993; Sabornie, Marshall, & Ellis, 1990; Zetlin, 1987).

Deficits in social competence are observable across the age range for students with LD (Calhoun & Beattie, 1987; Fine, 1987; Ritter, 1989a; Sater & French, 1989; Toro, Weissberg, Guare, & Liebenstein, 1990). Specifically, these students demonstrate more problems in interpersonal relationships and are less socially accepted than students without LD (Houck, Engelhard, & Geller, 1989; LaGreca & Stone, 1990; Roberts & Zubrick, 1993; Schneider & Yoshida, 1988; Shondrick, Serafica, Clark, & Miller, 1992; Stone & LaGreca, 1990; Wiener, Harris, & Shirer, 1990).

Research has also shown that some of these deficits may become more acute during the preadolescent years (Mellard & Hazel, 1992) as the peer group takes on increasing importance. Specifically, social incompetence has been noted as a significant cause of postsecondary maladjustment for persons with LD (Cartledge, 1987, 1989; Mellard & Hazel, 1992). In spite of this general conclusion, some research has indicated that there is a subgroup of adolescents with LD who are not rejected socially, but are rated as very similar to students without disabilities (Sabornie, 1990; Sabornie & Kauffman, 1986).

A variety of social skills curricula and/or interventions for social competence have been developed, and research has shown that students with LD can be successfully trained to demonstrate selected social skills (Blackbourn, 1989; Carter & Sugai, 1989; Kohler & Strain, 1993; Nelson, 1988; Sugai, 1992; Warger, 1990). However, as Vaughn and her co-workers (1993, 1994) have repeatedly suggested, improved performance on a particular set of social skills does not automatically increase either a person's social acceptance or his or her overall social competence. Therefore, these authors recommend interventions that are much more intensive and include peer confederates within the intervention design.

This recommendation seems to be supported by research suggesting that social acceptance can be enhanced through mainstreaming (Fox &

Weaver, 1989; Madge, Affleck, & Lowenbraun, 1990; Polirstok, 1989). While intensive interventions are possible, and have been described in the literature (Vaughn & LaGreca, 1988, 1993), no information is yet available on the long-term results of these interventions on the other variables considered here. For example, if intensive interventions can be designed that increase students' social acceptance during the school years, do those interventions also increase the postschool outcomes in terms of employment and social life, and decrease the depression and legal problems that many students with LD demonstrate? Much more research is needed in order to answer these questions.

Family Characteristics

Family functioning is the second of the identifiable research variables in the social development domain. The recent research has suggested a fairly clear relationship between LD and conflictual family climates (Feagans, Merriwether, & Haldane, 1991; Margalit & Almougy, 1991; Michaels & Lewandowski, 1990; Oliver, Cole, & Hollingsworth, 1991). Specifically, children with LD have demonstrated more family-background difficulties than their nondisabled peers (Feagans et al., 1991; Green, 1990; Toro et al., 1990). In a broader context, the U.S. Department of Education (1992) has documented that 37% of youth with disabilities came from single-parent homes, compared to only 30% of youth in the general population. Because the majority of single-parent families are mother-only families, and the vast majority of children with LD are male, concern has been expressed about the potential relationship between lack of a male role model in the home and the overabundance of males receiving LD services.

Based on a body of research on intact families from the family development literature, Green (1990) suggested that a disjointed parental communication style coupled with unclear behavioral contingencies in the home are related to learning disabilities. However, Green (1990) warned, as have most of the authors in this area, that the direction of causal effects is unclear; that is, we are not sure whether the presence of the child with LD upsets the normal communication patterns or if the usual communication patterns actually help create and support the behavioral syndrome, which we then refer to as a learning disability.

While additional research on family life with children with LD is forthcoming, currently some notable gaps deserve attention. First, there is a lack of research on these interaction variables in families that include an adolescent with LD. For this reason, we know very little about the developmental picture of these family interaction variables over time. Second, although many family interventions have proven successful with other populations with disabilities—developmental disabilities of young children is one prominent example—no intervention studies related to family characteristics are available in the literature for students with LD. This is curious and may reflect, once again, the limited focus on cognitive and academic behavioral historically in the field.

Adult Adjustment

The adult adjustment of students with LD was viewed as an important variable based on the reported persistence of LD into adulthood, as well as the recent legislative and research focus on the transition period during the postschool years (Gerber, Schnieders, Paradise, Reift, Ginsberg, & Popp, 1990; Haring & Lovett, 1990; Smith, 1988; White, 1992). The transition literature has painted a negative picture of students with LD, and researchers continue to mention the adjustment problems faced by adolescents and adults with LD (Bruck, 1987; Sitlington & Frank, 1990; Sitlington, Frank, & Carson, 1992). Problems include a less-than-satisfactory social life, more legal troubles, higher unemployment and

Table 3
Summary of Behavioral Development Research

Affective Variable	Recent Studies (1984-present)	Representative Conclusions	Intervention Studies (1984-present)	Representative Conclusions
Adaptive Behavior	15	Significant behavioral deficits have been found in children with learning disabilities (Bender & Smith, 1990; Leigh, 1987; Richman & Blagg, 1985; White et al., 1990). McKinney (1989) associated the persistent pattern of maladaptive behavior with continued underachievement over time.	8	Applied interventions include self-management procedures (Smith et al., 1988); adaptability instruction (Agron et al., 1989); collaborative counseling (Misra & Welch, 1992); peer- and self-monitoring (Fowler, 1986); and group evaluation of peer-mediated behavior (Salend et al., 1992).
Misconduct	6	Bryan et al. (1989) described adolescents with LD as being at higher risk for being involved in crimes and illegal activities than their achieving classmates. While Adelman and Taylor (1990) highlighted the importance of understanding intrinsic motivation for deviant and devious behavior, Pearl and Bryan (1992) pointed out the susceptibility of adolescents with LD to succumbing to peer pressure to engage in misconduct.	7	Interventions such as social, metacognitive and strategy training (Larson & Gerber, 1987; Omizo et al., 1987); motivational intervention (Carroll, 1987); differential reinforcement of low rates of responding (Heitzman & Alimena, 1991); and group counseling and group-oriented time-out (Omizo & Omizo, 1987; Salend & Gordon, 1987) have been effective in decreasing misconduct episodes among students with LD.
Impulsivity	15	Researchers have found that children with LD exceeded normative measures of impulsivity/attentional skills (Eliason & Richman, 1988; Glosser & Koppell, 1987) and were less able to narrow their attention (Richards et al., 1990). However, Harrison and Romanczyk (1991) saw no relationship between impulsivity and academic progress in the classroom setting.	8	Verbal mediation and self-instruction have been effective in improving attentional skills among students with LD (Campbell, 1986; Graybill et al., 1984; Weithorn & Kagen, 1984). Rooney and Hallahan (1988) and Snider (1987) used self-monitoring interventions to increase attentional levels in students with LD.
Attention Deficit-Hyperactivity	8	Merrell (1990) found significant differences between learning disabled and average elementary boys on teacher ratings of hyperactivity and self-control favoring the average group. Schworm and Birnbaum (1989) found that differences between students diagnosed as hyperactive or ADD and those diagnosed as having learning disabilities were often qualitative rather than quantitative.	1	Loffredo et al. (1984) reported significant success of group relaxation training and parental involvement for decreasing hyperactivity in boys with LD.

underemployment, and some level of increased risk for suicide.

However, as in most of the other areas under consideration, there seems to be a subgroup of the population with LD who do not suffer these problems. For example, Scuccimarra and Speece (1990) found postschool young adults employed full time and demonstrating positive perceptions on their social lives. While few interventions have been conducted with students with LD beyond the school years, some research has indicated that transition programs designed to facilitate the transition into college and/or the workplace have been successful (Arnold & Czamanske, 1991; Posthill & Roffman, 1991; Skinner & Schenck, 1992). To date, the literature has offered no interventions for the postschool years that concentrate on improving social lives, personal satisfaction with one's social life, or general social interaction skills.

Summary

As these studies underscore, the social development of many students with LD, compared to their peers, is less than satisfactory. Thus, all the available research on social competence, family characteristics, and adult adjustment points to problems. Further, there is some indication that social competence problems persist over time, leading to adult adjustment problems, which are increasingly documented. Moreover, in the one area where social competence interventions were available, the results are not encouraging. In spite of the number of intervention studies conducted, the research has shown little success, at least in terms of improving the overall social acceptance and/or the general social competence of students with LD (Vaughn & LaGreca, 1993).

BEHAVIORAL DEVELOPMENT

An analysis of the behavioral development research revealed four relatively discrete variables. Thus, adaptive behavior, misconduct, impulsivity, and attention deficit-hyperactivity disorder seem to represent the most commonly observed symptoms of poor behavior among individuals with learning disabilities (see Table 3). Since less than optimal behavior in any of these areas could interfere with learning, it is important to review the relevant research.

Adaptive Behavior

Adaptive behavior has been referred to in the

literature as school survival skills, on-task behavior, adaptive functioning, school-appropriate behavior, and personal/social behavior (Bender, 1989; Ritter, 1989b; Zigmond, Kerr, & Schaeffer, 1988). In this review, we included studies that deal with aspects of independent functioning and generalized adjustment to sociocultural demands and expectations.

The available research clearly indicates that children and adolescents with LD demonstrate significant adaptive behavioral deficits (Bender & Smith, 1990; Leigh, 1987; Richmond & Blagg, 1985; White, Saudargas, & Zanolli, 1990). McKinney (1989) associated the persistent pattern of maladaptive behavior with underachievement over time. Further, Weller and her coworkers (1994) have documented the continuation of problems in adaptivity into the young adult years. There is no indication of development trends on these variables in the literature, however, a number of interventions have attempted to improve task orientation in students with LD, including behavior management to increase task orientation, adaptability instruction, collaborative counseling, self-management procedures, peer- and self-monitoring, and group evaluation of peer-mediated behavior (Agran, Martin, & Mithaug, 1989; Fowler, 1986; Misra & Welch, 1992; Salend, Whittaker, & Reeder, 1992; Smith et al., 1988). While these interventions are generally successful in alleviating the presenting classroom behavior problem, and thus in enhancing the child's adaptability, few studies have looked at their long-term effects.

Misconduct

Misconduct includes acting-out or disruptive behaviors, delinquency, violent crime, and negative aggression (Pearl, Bryan, & Herzog, 1990; Perlmutter, 1987; Safran & Safran, 1987). Although younger children with LD demonstrate some inappropriate behaviors in the classroom, overt hostility, delinquency, and violence appear to increase during the years immediately prior to adolescence. Bryan, Pearl, and Herzog (1989) described adolescents with LD as being at higher risk for involvement in crimes and illegal activities than their achieving classmates. While Adelman and Taylor (1990) highlighted the importance of understanding the intrinsic motivation for deviant and devious behavior, Pearl and Bryan (1992) pointed out the susceptibility of

adolescents to succumbing to peer pressure to engage in misconduct based on misperception of social cues and a desire for peer relationship. These findings demonstrate the interactive effects between variables in several domains.

Recent interventions undertaken with older children with LD have focused on social metacognitive and strategy training, motivational intervention, differential reinforcement of low rates of inappropriate behaviors, group-oriented time-out, and group counseling for the problems demonstrated on the school campus (Carroll, 1987; Heitzman & Alimena, 1991; Larson & Gerber, 1987; Omizo & Omizo, 1987; Omizo, Omizo, & Suzuki, 1987; Salend & Gordon, 1987; Salend, Whittaker, Raab, & Giek, 1991). These interventions have generally been successful in decreasing the problem behavior, but again long-term follow-up is lacking. The available interventions tend to be based on school problems rather than legal issues. No interventions were identified within the literature for problems associated with delinquency and other legal problems.

Impulsivity

Impulsivity encompasses attentional skill deficits and impulsive responding (Harvey, Weintraub, & Neale, 1984; Shaywitz, Schnell, Shaywitz, & Towle, 1986). Several recent studies have found that children with LD exceed normative measures of impulsivity and exhibit lower attentional skills (Eliason & Richman, 1988; Glosser & Koppell, 1987; Richards Samuels, Turnure, & Ysseldyke, 1990). Surprisingly, Harrison and Romanczyk (1991) found no relationship between impulsivity and academic progress in a classroom setting. Few studies have attended to impulsivity among older students with LD. Verbal mediation, self-instruction, the use of frequency-modulation auditory trainers, and self-monitoring interventions have been successful in increasing attentional levels and decreasing impulsivity in students with LD (Blake, 1991; Campbell, 1985, 1986; Graybill, Jamison, & Swerdlik, 1984; Rooney & Hallahan, 1988; Snider, 1987; Weithorn & Kagen, 1984).

Attention Deficit-Hyperactivity Disorder (ADHD)

Our review of the ADHD variable included studies dealing with the individual components of hyperactivity—motor excess or self-control—as well as ADHD itself. Significant differences,

qualitative rather than quantitative, have been found between average students and those with LD on ratings of hyperactivity and self-control (Merrell, 1990; Schworm & Birnbaum, 1989).

It is possible that implementation of a standard-score discrepancy criterion in the field of learning disabilities during the last two decades has interacted with attention deficit-hyperactive behaviors and resulted in some degree of confusion in education related to children with attention deficit disorders. Whereas children with attention problems would have been included in LD classes during the late 1970s, some of these students may now be excluded because, in spite of demonstrable attention problems, they do not manifest significant discrepancy as required by most state definitions of LD. This exclusion has led to the formation of a group of highly concerned and motivated parents who are demanding appropriate services for their children (i.e., C.H.A.D.D., or Children with Attention Deficit Disorders). In other words, by implementing the discrepancy criterion, we may have “created” another disability—ADHD. It remains to be seen what the exact relationship between ADD and LD is.

With the majority of the research dealing with elementary-aged children, there is a notable lack of data on hyperactive behaviors among older students with LD. Further, only one intervention study was found that was not based on either behavioral or medical interventions. It reported the success of group relaxation training and parental involvement in decreasing hyperactivity in boys with LD (Loffredo, Omizo, & Hammett, 1984).

Summary

The available research related to the behavioral development of individuals with learning disabilities has focused on adaptive behavior, misconduct, impulsivity, and attention deficit-hyperactivity disorder. Most studies have verified significant differences between the behavioral characteristics of learners with LD and those without disabilities, but only a few studies used adolescents as subjects even though both maladaptive behavior and misconduct seem to remain constant or to increase with age. In sum, in spite of the obvious ramifications of other variables on the overall make-up of children and adolescents with learning disabilities, little intervention research has been conducted to improve or increase students' skill in this area.

IMPLICATIONS

A number of research implications may be derived from the growing body of research on the social-emotional development of students with LD. First, there is increased evidence that some students with learning disabilities suffer from a wide array of social-emotional problems that are not limited to the deficits traditionally discussed in the literature. For example, we have known for a number of years that this population demonstrates deficits on such variables as self-concept and attributions for success, as well as deficits in socially acceptable behaviors (Bender & Golden, 1988, 1990), social skills, and social acceptance (Vaughn & LaGreca, 1988, 1993). However, serious problems in interpersonal skills, adaptivity, loneliness, depression, legal acumen—leading to trouble with the law—and suicide appear to be much more common than previously supposed among students with LD. And these variables have only recently been investigated. Clearly, problems of this nature should command more attention. We need to follow up on existing studies and ascertain the extent of these problems among students with LD; that is, whether they characterize the majority of that group or merely a small subgroup.

Second, there is growing evidence that social-emotional problems result in negative outcomes both during school and during the early adult years (Bruck, 1987; Sitlington & Frank, 1990; Sitlington et al., 1992). As Weller et al. (1994) pointed out, these problems tend to exacerbate the difficulties of young adults with LD, including less-than-optimal employment outcomes, more legal troubles, and unsatisfactory personal and social lives.

The model presented here suggests that any deficit in these variables can affect successful outcomes in any of the domains. For example, it is unclear whether (a) juvenile delinquency is a result of the cognitive processing deficits that caused the learning disability, (b) academic failures that led to the need for money and unemployment, (c) deficits in social competence that led to job loss, (d) habitual inappropriate behaviors throughout the school years, or (e) unusual anxiety and/or loneliness that resulted in a need for attention. Given the proposed model and the potential interactions it represents, any of the above factors could lead to juvenile delinquency. Consequently, any service delivery plan must include attention to each of these potentially causal factors.

The model also indicates that we can no longer merely administer the traditional cognitive assessment and achievement batteries and assume we are capturing the most important variables in the child's life. Rather, if we are to facilitate successful outcomes, our perspectives on what to measure must expand. Specifically, in discussions of possible successful outcomes for a child with LD, we must investigate all the variables that may have an effect on the child's long-term development and general success in life. This will require casting a wider net in our assessment activities.

A third implication of this model is the need to expand the marker variables or "subject characteristics" variables that are measured for research populations with LD. The field has struggled with this issue for over a decade (Rosenberg et al., 1993), and recommendations for inclusion of new variables cannot bring joy to active researchers. However, as shown repeatedly in this literature overview, the interactions between the variables discussed in the three domains, and the interaction with cognitive/academic variables, necessitate some standardized marker-variable requirement for these variables as well.

A number of the variables from these three domains are relatively simple to assess. For example, many teacher rating scales contain acceptable reliability and validity for research purposes, and result in subscale assessments of numerous of the variables described here, including peer relationship, behavior problems, and attention/adaptivity. Further, certain "self-concept" measures provide assessments of depression, anxiety, and peer relationships. Thus, incorporating these two types of measures as standard assessments for all research purposes would not greatly inconvenience data collection.

Next, when reviewing the composite picture presented by the studies discussed here, we are forced to ask, "How should our instruction/remedial efforts during a student's last years of school best be spent?" For example, our secondary-level instructional efforts—both behavioral interventions and metacognitive techniques—have been shown to be successful for increasing performance on discrete academic behaviors. However, given the persistent problem of generalization in all intervention research, even with the success of our current academic remediation

approaches, we find that many student with LD do not succeed after the school years are completed. Would these students not be better served if remedial efforts were broadened to include each of the variables in this model, as well as selected academic remediation? Continued concentration on academic remediation as the fundamental goal of the schools seems myopic in view of this recent and growing evidence of negative outcomes in each domain.

Finally, we need much more research on how these deficits "play out" in the lives of students with LD over the long term. Perhaps an example is in order. The information developed lately on certain variables—loneliness and depression/suicide—is much more recent and in many ways more unsettling than the earlier results on variables such as self-concept and attribution. Specifically, the demonstration by Sabornie (1994) that students with LD tend to be more lonely than a well-matched group of non-LD students may suggest that more attention should be paid to this type of measure. Similarly, Margalit and Levin-Alyagon (1994) confirmed that 59% of their sample of students with LD were clustered into groups that were either "lonely" or "highly lonely."

Given this growing awareness of the loneliness of students with LD, we need information on the correlates and potential results of their loneliness. For example, research is needed that relates the loneliness of students with LD to the apparent lack of a meaningful social life that many of these persons experience as young adults in the postschool period (Phil & McLarnon, 1984). Such research might also shed light on the intransigent problems related to increasing the social acceptance of students with LD. Research has demonstrated that while particular social skills can be taught to students with LD, those improved behaviors do not automatically result in increased social acceptance. Does the loneliness of students with LD act as a mitigating variable that inhibits our efforts in social skills instruction?

A second possibility is an interaction between loneliness and social skills learning: that is, lonely children would presumably interact less with other children, resulting in less opportunity to observe and/or practice appropriate social skills, even after successful social skills interventions. The consequence might be deficits in social skills

and increasing social isolation for these students. Study of the correlates and interactive effects of these social-emotional variables is crucial. This will require sophisticated multivariate techniques in comprehensive research designs, which include measures of a number of these variables.

Further, we need to explore the relationship between loneliness and employment outlook for these students. For example, do students with jobs experience less loneliness than students without? Answering such questions requires developmental studies during the later school years combined with high-quality longitudinal research on the social-emotional problems of youth with LD, which is currently notably lacking.

Also, we need to determine the relationship between loneliness and depression/suicide in students with LD. The tentative conclusions of Huntington and Bender (1993) that students with LD may be more prone to depression and suicide than non-LD peers is a possibility that cannot be ignored. Therefore, we must gather information as soon as possible to either confirm or refute these early data.

These are merely some of the types of interactive research questions that are posed by the model presented in this article. We believe that this inclusive model will enable the field to view the students with learning disabilities more holistically and, at the very least, consider a majority of the various issues that can impede successful outcomes. We believe this more comprehensive view is essential to our understanding and our ability to help these students.

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Requests for reprints should be addressed to: William N. Bender, The University of Georgia, College of Education, Department of Special Education, 577 Aderhold Hall, Athens, GA 30702.