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Discourse processes underlying social competence in children with language learning disabilities

DENISE D. VALLANCE[a] AND MAXINE GALLANDER WINTRE[b]
[a]*C. M. Hincks Treatment Centre/Institute, University of Toronto, Department of Psychiatry; and* [b]*York University*

Abstract
Children with both a language impairment and a learning disability are at risk for poor social competence. Yet the processes that place these children at risk remain unclear. A developmental–organizational perspective was used to explore processes underlying risk for poor social competence among language learning disabled children. To this end, the relative influences of language learning disability and social discourse skills on social competence were examined in 50 language learning disabled (LLD) and 50 control (non-LLD) children aged 8–12 years. Findings indicated that social discourse skills mediated the relation between LLD status and children's social competence. Specifically, a domain of social discourse, figurative language, was the strongest mediator of the effect of LLD status on social competence. Additionally, differences were confirmed between the LLD and non-LLD group in two domains of social discourse, recreating sentences and figurative language, as well as social competence. Two other domains of social discourse, understanding ambiguous sentences and making inferences, did not discriminate the groups. The findings emphasize the importance of analyzing interrelations among domains to identify critical factors related to developmental outcomes.

Social competence typically is an area of concern for children with language learning disabilities. Though definitions vary, Gresham and Elliott (1987) define social competence to include those behaviors exhibited within specific situations that predict a child's standing on important social outcomes. Important social outcomes for school-aged children include acceptance by the peer group, ability to follow the rules of conduct within a classroom setting, and appropriate motivational orientations for achievement (Cicchetti & Howes, 1991; Gresham & Elliott, 1987). Thus the development of social competence within the school setting is an important stage-salient task for all school-aged children. Additionally, poor social competence leaves children at risk for the development of additional behavioral and emotional adjustment problems (Asher & Dodge, 1986; French & Wass, 1985; Hartup, 1983; Offord, Boyle, & Racine, 1990).

A large proportion of children with learning disabilities are rated by teachers, parents, and peers as exhibiting less social competence than their non-disabled peers (Bender & Wall,

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Address correspondence and reprint requests to: Dr. Denise Vallance, C. M. Hincks Treatment Centre/Institute, 114 Maitland Street, Toronto, Ontario M4Y 1E1, Canada.

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1994; Gresham & Elliott, 1987, 1990; Margalit & Levin–Alyagon, 1994; Vaughn & Haager, 1994). Moreover, although it has been increasingly acknowledged that learning disabilities are heterogeneous, nonetheless the majority of types of learning disabilities reflect a variety of language-based impairments (Bishop & Adams, 1990; Kamhi & Catts, 1989; Siegel & Ryan, 1984; Sawyer, 1992). Further, children who exhibit both a language impairment and a learning disability demonstrate the greatest risk for dysfunctional social and behavioral adjustment (Baker & Cantwell, 1987). This empirical evidence emphasizes that children with learning disabilities, in particular those with a language impairment, are at risk for poor social competence. Yet the processes by which this risk occurs remain unclear.

The broad objective of this study is to explore language-based processes that underlie risk for poor social competence in language learning disabled children (LLD) and control children (non-LLD). In an effort to uncover processes of risk, previous researchers have focused on examining isolated components of formal language structure and content (e.g., expressive and receptive vocabulary and receptive and expressive grammar skills) that characterize LLD in relation to social functioning (Benasich, Curtiss, & Tallal, 1993; Moffit, 1990). However, this narrow definition of language limits our understanding of the interface between language and social development. An alternative to examining discrete formal language skills is to focus on language use, that is, the social discourse skills that are necessary for communication within an interpersonal context (Bates, 1976; Lapadat, 1991; Liles, 1993; Prizant & Wetherby, 1990; Thomas & Fraser, 1994). Social discourse, for the purpose of this study, is defined as the appropriate use of language for the expression and understanding of meaning or communicative intent (Wiig & Secord, 1989a). The communication of intent requires attention to the structure and content of language while being cognizant of the communicative demands of the social context. Research suggests that children with LLD exhibit a range of deficits related to the use of language for social communication. Most notably, children with LLD exhibit difficulties expressing their understanding of ambiguous sentences (Wiig & Secord, 1989a; Wiig, Semel, & Abele, 1981), producing speech acts that express the apparent attentions of others (Chappell, 1985; Liles, 1993), making inferences (Liles, 1993; Oakhill, 1984), and understanding the meaning of figurative language (Jones & Stone, 1989; Nippold, 1985). By adopting a broader view of language development, that requires the use of formal aspects of language in response of the communicative demands of the social situation, there will be a greater potential for understanding the link between language impairment and social functioning in children with LLD.

Theoretical and clinical evidence, as well as research with non-LLD children, support an association between discourse skill and social competence in children with LLD. Within the learning disability literature, it is commonly viewed that the primary language and cognitive processing deficits that characterize learning disabilities are associated not only with learning failure, but with the broader social and behavioral functioning of these children (Bruck, 1986; Rourke, 1989). More recently, it has been postulated that these primary processing deficits are more likely to have an indirect relation to children's social functioning, namely through impeding the development of related processes such as social–cognition or social discourse (Vallance, 1994). Attenuated social discourse skills are presumed to be related to social development given that social discourse is an important vehicle for social interaction (Prizant & Wetherby, 1990; Putting, 1982). Relationships with others are initiated and regulated through communication. Clinical observations reveal that the failure to communicate thoughts and needs, as well as the misinterpretation of messages, often leads to confusion, frustration, and social withdrawal in children with language impairments (Prizant et al., 1990). Children who are unable to process verbal messages are often mistaken by others as being lazy or recalcitrant, rather than having a language impairment (Paul & James, 1990). As well, these children have problems keep-

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ing peers engaged in social interactions due to difficulties in following the gist of conversations, to misinterpreting the hidden meaning conveyed in conversation, and formulating sentences to express the meaning they intend to communicate.

Finally, a connection between social discourse and social competence in children with non-LLD has been empirically demonstrated. Research on children who have not been identified with LLD indicates that the ability to communicate effectively is related to peer acceptance (Black & Logan, 1995; Kennedy, 1990) and friendship formation (Gottman & Parker, 1987; Parker & Gottman, 1989). Substantial theoretical and clinical evidence indicates a mutually dependent relationship between social discourse and social competence. As well, social discourse skills often have been hypothesized as contributing to difficulties with social adjustment in children with LLD (Lapadat, 1991; Wiig & Secord, 1989a). However, whereas deficits in social discourse and social functioning among children with LLD compared to non-LLD children have been described, the relations among LLD status, social discourse, and children's social competence has yet to be demonstrated empirically.

A developmental–organizational framework will be applied to explore potential mediational processes underlying risk for poor social competence in children with LLD and non-LLD children. This framework emphasizes the study of developmental relations among multiple domains of functioning, including linguistic, cognitive, social, emotional, behavioral, and biological (Cicchetti, 1991, 1993; Sroufe, 1990; Werner, 1957). The framework is based upon the increasing recognition that domains of development are integrated and exert mutual influences over one another (Cicchetti, 1991; Wachs, 1993). Thus, lags, anomalies, or even advances in one domain of development can potentially impact directly or indirectly on other areas of development. Furthermore, in contrast to the proliferation of empirical investigations that have been conducted with other atypical populations, the developmental–organizational perspective has seldom been applied to children with language impairments and learning disabilities. Yet the qualities inherent in the framework make it particularly conducive to studying children with LLD.

Within the context of the developmental–organizational approach it is hypothesized that: (a) children with LLD will exhibit significantly poorer social discourse skills and lower teacher ratings of social competence compared to non-LLD children; and (b) social discourse skills will mediate the relation between LLD group status and children's social competence. That is, LLD will predict children's poor social competence by virtue of the fact that the language impairments that characterize LLD manifest themselves as social discourse problems. It is poor social discourse skills, or the failure to express and understand meaning in social settings, that ultimately impedes children's social competence—not their formal language impairments per se.

Method

Participants

A total of 100 children aged 8–12 years participated in the study. One group of 50 children (*M* age in months = 121; range in months = 101–145) consisted of a school-based sample of children with language learning disabilities (LLD). This group consisted of 19 girls and 31 boys; 44 of these children were Caucasian, 1 East Indian, 1 West Indian, 2 Native Indian, and 2 Black. A second group of 50 children (*M* age in months = 125; range in months = 92–155) consisted of a school based sample of (non-LLD) control children. This group consisted of 25 girls and 25 boys; 43 of these children were Caucasian, 4 East Indian, 1 West Indian, 1 Asian, and 1 Black. Children were selected from schools in a suburban borough just outside a large metropolitan Canadian city. The school board, relying on Statistics Canada data of income level for their region, defined the socioeconomic status (SES) of the school populations targeted by the present study as being middle class. This was confirmed by the available data based on the family and household form (Offord & Boyle, 1990) collected as part of a larger bat-

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tery of family measures for the children with LLD.

Recruitment

The principals of schools participating in a larger study identified the children with LLD. The control children were recruited from the same grades and wherever possible, the same classes, as the children with LLD. Considering that there are only a few children with LLD in any given classroom and that only children in Grades 3 to 6 were targeted, it was necessary to obtain children from several schools. For participation in the study, children with LLD were sampled from a total of 17 schools; 10 of which contained children exclusively from general education classrooms receiving resource withdrawal, and 7 of which contained children from general education and partially integrated classrooms. Control children were sampled from the LLD schools, but not always from the same classes as the children with LLD. On average, 3 to 5 control children per class were recruited.

Diagnostic criteria

LLD group. Each child in the LLD group had to meet the following criteria to be included in the study: (a) IQ score within the average range of normal intelligence [i.e., full-scale IQ scores greater than 80 and less than 120 on the short form of the Wechsler Intelligence Scale for Children–Revised (WISC-R)], (b) English speaking background, without significant dialectical differences, (c) no hard signs of neurological damage, and not diagnosed as autistic or having pervasive developmental disorder, (d) not currently on medication (e.g., Ritalin for attention deficit disorder), (e) score on the Test of Language Development (TOLD) one standard deviation below the normative mean on two of the six TOLD subtests, or two standard deviations below the mean on one of the TOLD subtests, resulting in a composite score below 85 on the TOLD (cf. Beitchman, Nair, Clegg, Ferguson, & Patel, 1986; Cohen, Davine, Horodezky, Lipsett, & Isaacson, 1993; Gibbs & Cooper, 1989), (f) diagnosed as having a learning disability based on definitions put forth by the Canadian Association for Children with Learning Disabilities (C.A.C.L.D., 1982) and the American Interagency Committee on Learning Disabilities (1987). The operational definition of learning disability specified: (a) a discrepancy of at least one standard deviation (i.e., 15 points) between the full IQ score and an academic achievement score in reading, math, or spelling and (b) evidence of a specific processing deficit (e.g., visual–perceptual, phonological processing, auditory memory, expressive language, receptive language). The children were originally diagnosed through the school board from which they were obtained. However, only children who met the above explicit criteria were retained. Regarding the educational placement of the children with LLD, 77% (i.e., 38 children) were in general education classrooms receiving resource withdrawal, varying from 2 to 10 hr a week, while 23% of the children (i.e., 12 children) were in partially integrated classrooms and were integrated with children of their grade level for art, gym, and special events. Analyses of variance on demographic and performance variables revealed no significant differences between the children with LLD from regular and partially integrated classrooms.

Non-LLD group. Each child in the control group had to meet the following criteria to be included in the study: (a) no formal diagnosis of a learning disability, language impairment, or behavior disorder, (b) English-speaking background, without significant dialectical differences, (c) full-scale IQ score within the average range of normal intelligence, (d) composite score above 85 on the TOLD, with the maximum of one subtest one standard deviation below the normative mean. None of the non-LLD children were receiving resource withdrawal, nor were in partially integrated classrooms.

Measures

Intelligence. The short form of the WISC-R (Similarities, Vocabulary, Block Design, Object Assembly) was used to measure intellec-

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tual ability (i.e., IQ; Wechsler, 1974). The short form is recommended as a quick and reliable way of obtaining IQ information (Sattler, 1988). Further, the short form has been shown to correlate significantly with the full-scale version of the scale ($r(99) = .87$, $p < .0001$; Cohen, Gotlieb, Kershner, & Wehrspann, 1985). The standardization, reliability, and validity of the full scale version of the WISC-R are known widely (Sattler, 1988).

Language Skills. The Test of Language Development (TOLD-2; Hammill & Newcomer, 1988) was used to assess children's expressive and receptive syntactic and semantic language skills. The standardized test consists of six subtests: *Sentence Combining* requires the child to form one complex sentence, that is as short as possible, from two or more simple sentences read by the examiner. *Word Ordering* requires the child to form a complete correct sentence from a series of randomly ordered words read by the examiner. *Generals* requires the child to describe how three words read by the examiner are alike. *Malapropisms* requires the child to identify words in a sentence that sound like appropriate words but have strange meanings in the particular context. *Vocabulary* requires the child to decide if pairs of words, said by the examiner, have the same meaning, opposite meanings, or are totally unrelated. Finally, *Grammatic Comprehension* requires the child to recognize incorrect grammar in spoken sentences. The first three subtests assess expressive language skills, while the last three subtests assess receptive language skills.

According to Hammill and Newcomer (1988), averaged internal consistency coefficients are .95 for composite scores at different age levels and .88 for the subtests. Test–retest reliability coefficients were all above .80. The TOLD-2 is based upon the theoretical framework of Lahey (1988), and correlates highly with the Test of Adolescent Language (Hammill, Brown, Larsen, & Wiederholt, 1987). Finally, the TOLD-2 has been shown to differentiate between children who have been previously identified as having language difficulties and children with normal language development.

Social Discourse. The standardized Test of Language Competence–Expanded Edition (TLC-E; Wiig & Secord, 1989b) was used to measure children's social discourse skills (age range of 5 years to 18 years 11 months). The test is one of a few available standardized social discourse evaluation tools (Dennis & Barnes, 1990). All of the material in each subtest is presented to the child in both spoken and printed form to reduce the interference of short-term auditory memory limitations. The domains assessed in the measure are supported by three cognitive–linguistic models outlined by Dennis (1991), Chappell (1985), and Wiig and Secord (1989a). The models are based upon the assumption that social discourse skills require the ability to integrate diverse linguistic representational knowledge bases. Specifically, deficits in the areas of representation of mental, semantic, and intentional knowledge, or the failure to integrate these systems, could impair performance in the four domains of social discourse measured by the TLC-E.

The TLC-E is comprised of the following subtests. The *Ambiguous Sentences* subtest examines the child's ability to express two different meanings for a single sentence. For example, the child is given the sentence "I saw the girl take his picture" and asked to give two verbal interpretations of the sentence (e.g., take the picture of him or take the picture from him). The subtest *Recreating Speech Acts* examines the child's ability to construct a sentence from two or three words provided, in response to a visual social scenario. For example, a picture of two children observing food in a cafeteria would be presented, with the words "pie," "either," and "have." The picture suggests that one child is having difficulty deciding what to have for lunch. The subject must provide a sentence that someone might say in this context, with the words provided. This subtest examines the subject's ability to create socially appropriate sentences based upon an understanding of the thoughts, feelings, and intentions of individuals in a social context.

The *Making Inferences* subtest examines children's ability to make multiple inferences in response to descriptions of familiar home

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and school contexts or social scripts. The child is presented with an event such as "Mom went to the bakery to buy a cake," then the outcome of the event sequence is presented, "Later, mom made pudding for dessert instead." The goal for the subject is to choose, from a set of four available responses, two possible intervening events which would represent plausible reasons for the outcome of the event. Thus "Mom could have made pudding" because "the bakery did not have a cake" would be one reasonable inference, while the inference "Everyone was asleep" would represent an unreasonable inference. The subtest, *Figurative Language*, examines the ability to interpret metaphors in language. Correct interpretation is dependent upon the social context within which the sentence is said. For the expression "She is easily crushed," said in the context of a boy talking about his girlfriend, the child must, first, give a spontaneous verbal interpretation of the expression and, second, choose an accurate interpretation from a set of four possible expressions. The correct match would be "She must be handled with care," while an incorrect match would be a literal interpretation such as, "Her bones break easily." The other incorrect matches represent either the opposite meaning of the expression, "She can handle anything," or an unrelated sentence "She has a crush on me." The composite score was used as an indictor of children's overall social discourse skills.

According to Wiig and Secord (1989a), internal reliabilities range from .75 to .92. Interrater reliability was 97% for Recreating Sentences and 98% for Figurative Language. Subtest intercorrelations revealed moderate correlations (between .23 and .57 among subtests). These moderate correlations were expected because the content of each subtest relates to overall social discourse competence. High correlations were not expected between any two subtests because each subtest measures social discourse in a different context.

Regarding discriminant validity, Wiig and Secord (1989a) clearly developed their measure as an alternative to assessing the more formal qualities of language development such as syntax and semantics. Instead, the measure taps the ability to express and interpret a variety of language content areas across different communicative contexts. However, given that the TLC-E is a verbally based measure, it was expected to correlate moderately with other measures of language skill such as the verbal intelligence subscale of the WISC (Wiig & Secord, 1989a). Finally, the TLC-E has been used to measure social discourse skills in samples of head-injured children (Dennis & Barnes, 1990).

Social Competence. Social Competence within the school setting was measured using the Social Skills Rating Scale (SSRS; Gresham & Elliot, 1990). The 30-item standardized rating scale was completed by the children's classroom teachers. The scale yields a total score and three subscales scores measuring Cooperation, Assertion, and Self-Control. The subscales specifically assess behaviors underlying important social outcomes for school-aged children, including acceptance by the peer group, ability to follow the rules of conduct within a classroom setting, and appropriate motivational orientations for achievement (Cicchetti & Howes, 1991; Gresham & Elliott, 1987). For example, the Cooperation subscale includes behaviors such as helping others, sharing materials, and complying with rules and directions. The Assertion subscale includes initiating behaviors, such as asking others for information, introducing oneself, and responding to the actions of others. The Self-Control subscale includes behaviors that emerge in conflict situations, such as responding appropriately to teasing and in nonconflictual situations that require taking turns and compromising. For this study, only the composite score was used.

According to Gresham and Elliot (1990) coefficients for internal reliability range from .83 to .94. Substantial evidence for test–retest reliability was shown for the teacher ratings, with correlations of .85. High-content validity, construct validity, and criterion validity have been well established regarding this scale. Item development for the SSRS was based on a broad survey of the empirical literature on the assessment and training of social skills in children and adolescents with learn-

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ing disabilities. The SSRS correlates highly with Harter's Teacher Rating Scale and the Walker–McConnell Scale of Social Competence and School Adjustment (Gresham & Elliott, 1990).

Procedure

The intelligence, language skill, and social discourse measures were administered individually to the children with LLD and the non-LLD children in a quiet area in their school. Interviews lasted for approximately 1.5 hr and were conducted by a graduate student. Teachers of all children (i.e., control, withdrawn, and partially integrated) were asked to complete the Social Skills Rating Scale comparing the behaviors of the target child with the behaviors of the "typical children" of the same age and grade level. Finally, teachers were told that the purpose of the study was to examine social risk in children with and without learning disabilities; thus, they were unaware of the specific research interests in language development.

Results

Prior to analysis, data distributions were examined for skewness and kurtosis and to identify outliers. In all cases, data were normally distributed.

Initially, group differences were investigated for child characteristics, nonverbal intelligence, language skills, social discourse, and social competence to confirm that the groups were different on each of these domains as the literature suggests. Next, the model of social discourse as a mediator of the effect of LLD on children's social competence was examined.

Group differences

Chi-square analyses and analyses of variance were used to assess group differences for child sex, race, and age. The groups did not differ significantly with respect to sex, $\chi^2\,(1) = 1.46$, $p > .10$, race, $\chi^2\,(1) = .08$, $p > .10$, or age distribution, $F\,(1, 97) = 1.93$, $p > .10$. The approximate 2 : 1 ratio of boys to girls with LLD is consistent with the cited prevalence rates of referred LD children (Finucci & Childs, 1981). Because sex, race, and age did not differ between the groups, and because of the limited sample size, these factors were not covaried in subsequent analyses.

To examine group differences in nonverbal intelligence, a one-way analysis of variance (ANOVA), with group as the independent variable, was conducted on the Performance IQ scores of the WISC-R. There was a significant group effect for nonverbal intelligence scores (Table 1). Children in the LLD group had significantly lower performance IQ scores than children in the non-LLD group. As a result of this group difference in nonverbal intelligence, Performance IQ was covaried in all subsequent analyses.

To assess group differences in language skills, analysis of covariance (ANCOVA), with group as the independent variable and Performance IQ score as the covariate, was conducted on the expressive and receptive language scores. As expected, based upon the definition of the groups, the LLD group displayed significantly more impaired language skills than non-LLD children (Table 1). Note that children with LLD exhibit impairments in both expressive and receptive language skills which is consistent with previous findings from other large-scale studies (e.g., Beitchman et al., 1986; Cantwell & Baker, 1991; Cohen et al., 1993).

To examine group differences in social discourse, a one-way analysis of covariance (ANCOVA) with group as the independent variable and Performance Scale IQ score as the covariate was conducted on the composite social discourse score. As seen in Table 1, a significant main effect was revealed for group on this score of the TLC-E. The LLD group exhibited significantly poorer overall social discourse performance than the non-LLD group. As well, a multivariate analysis of covariance (MANCOVA) with group as the independent variable and Performance Scale IQ as the covariate was conducted on the four subtests. The multivariate effect revealed an overall group main effect, $F\,(5, 94) = 25.20$, $p < .0001$. The univariate results indicated a main effect for group for two subtests. The

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Table 1. *Group differences on intelligence, language skills, social discourse, and social competence*

	LLD ($n = 50$)		Non-LLD ($n = 50$)			
	$M \pm SD$	Range	$M \pm SD$	Range	$F(1, 97)$	Significance
Intelligence (WISC-R)						
Performance	99.0 ± 13.91	85–135	116.3 ± 15.10	85–152	35.18	$p < .0001$
Language Skills (TOLD-2)						
Expressive	70.06 ± 8.57	51–87	92.16 ± 9.10	85–119	96.59	$p < .0001$
Receptive	84.46 ± 6.64	71–102	101.38 ± 8.38	85–128	76.16	$p < .0001$
Social Discourse (TLC-E)						
Composite	73.97 ± 8.00	65–93	96.12 ± 12.29	76–132	42.90	$p < .0001$
Ambiguous Sentences	5.62 ± 2.32	3–13	8.50 ± 2.50	4–14	0.17	n.s.
Recreating Sentences	4.87 ± 1.68	3–9	8.14 ± 2.31	3–15	8.17	$p < .005$
Making Inferences	7.39 ± 2.36	4–13	10.12 ± 2.15	6–16	1.94	n.s.
Figurative Language	6.19 ± 2.42	0–12	10.66 ± 2.42	5–16	14.04	$p < .0003$
Social Competence (SSRS)						
Composite	91.56 ± 14.66	61–120	106.14 ± 13.13	82–128	11.42	$p < .001$

Note: Performance IQ was a covariate in the analyses on language skills, social discourse, and social competence.

LLD group exhibited significantly poorer performance on the recreating sentences and figurative language subtests than the non-LLD group. However, there were no differences between the groups on the ambiguous sentences and making inferences subtests when all of the subtests were considered simultaneously.

To examine group differences in social competence, a one-way analysis of covariance (ANCOVA) with group as the independent variable and Performance IQ as a covariate was also conducted on the social competence total score of the SSRS. A significant main effect was revealed for group. Children in the LLD group displayed significantly less social competence, based upon teachers' perceptions, than children in the non-LLD group (see Table 1).

Relations between social discourse and social competence

To examine the relation between social discourse skills and social competence, Pearson Product Moment correlations were computed. The social discourse composite score ($r = .52$, $p < .0001$) was correlated with children's social competence. Additionally, the subtest scores of the social discourse measure also were correlated with children's social competence. The correlations with social competence were as follows: ambiguous sentences ($r = .34$, $p < .0005$), recreating sentences ($r = .36$, $p < .0002$), making inferences ($r = .36$, $p < .0002$), and figurative language ($r = .50$, $p < .0001$).

Social discourse as a mediator of the effect of LLD status on social competence

Based upon the statistical technique developed by Baron and Kenny (1986), a variable functions as a mediator to the extent that it accounts for the relation between an independent variable and an outcome variable. Although this technique provides a test of whether the data are consistent with the model, it does not demonstrate causality. Social discourse skill may be identified as a mediator of the relation between LLD status and social competence if, given a significant rela-

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tion between group status and social discourse skill, the effect of LLD status on children's social competence is significantly lessened or eliminated when social discourse skill is introduced as a significant predictor into the model. Regression analyses were conducted to examine this mediator model, with the effects of Performance IQ partialed. A multiple regression analysis revealed that LLD status and social discourse skills were significantly related $F\ (1, 97) = 60.49,\ p < .0001,\ R^2 = .55$, suggesting that having a LLD has a negative effect on children's social discourse performance. On Step 1 of a hierarchical regression, LLD status was entered into the model and found to be a significant predictor of social competence $F\ (1, 96) = 13.26,\ p < .0003$, suggesting that having a LLD has a detrimental effect on children's social competence, even after the influence of nonverbal intelligence has been controlled. On Step 2, the social discourse composite score was entered into the model and accounted for significant additional variance $F\ (1, 96) = 8.36,\ p < .004$. The result of adding social discourse to the model was the reduction to nonsignificance of the previous significant relation of LLD status with social competence, $F\ (1, 96) = 1.04,\ p > .31$. This finding suggests that social discourse mediates the effects of a LLD on children's social competence. The total model predicted 28% of the variance, $F\ (1, 96) = 11.92,\ p < .001$ (Table 2).

Table 2. *Mediators of effect of LLD status on social competence*

	Variables in Equation	β	Model R^2
Composite Social Discourse			
Step 1	LLD status	–.38**	.22***
Step 2	LLD status	–.13	.28***
	Social Discourse	.39**	
Components of Social Discourse			
Step 1	LLD status	–.38**	.22***
Step 2	LLD status	–.32**	.22***
	Ambiguous Sentences	.13	
Step 3	LLD status	–.30**	.22***
	Ambiguous Sentences	.11	
	Recreating Sentences	.04	
Step 4	LLD status	–.26*	.24***
	Ambiguous Sentences	.12	
	Recreating Sentences	.02	
	Making Inferences	.12	
Step 5	LLD status	–.14	.28***
	Ambiguous Sentences	.05	
	Recreating Sentences	.01	
	Making Inferences	.05	
	Figurative Language	.31*	

*$p < .05$; **$p < .01$; ***$p < .001$.

Though the content of each subtest of the TLC-E relates to overall social discourse competence, at the same time each subtest measures social discourse in a different context (Wiig & Secord, 1989a). Therefore, each of the four subtests could be considered to measure unique social discourse skills. It was of interest to determine which subtests best accounted for the relation between LLD and children's social competence. To do this, multiple regressions and a five-step hierarchical regression analysis was conducted, with the effects of Performance IQ partialed.

Multiple regression analysis revealed that LLD status and all of the subtests of social discourse measures were significantly related, including the ambiguous sentences subtest, $F\ (1, 97) = 16.34,\ p < .0001,\ R^2 = .29$, the recreating sentences subtest, $F\ (1, 97) = 38.50,\ p < .0001,\ R^2 = .39$, the making inferences subtest, $F\ (1, 97) = 15.38,\ p < .0002,\ R^2 = .30$, and the figurative language subtest, $F\ (1, 97) = 49.34,\ p < .0001,\ R^2 = .46$. These results suggest that having a LLD has a negative effect on children's performance on all components of social discourse. On Step 1 of the hierarchial, LLD status was entered into the model and found to be a significant predictor of social competence $F\ (1, 93) = 13.26,\ p < .0003$, again suggesting that having a LLD has a detrimental effect on children's social competence, even after the influence of nonverbal intelligence has been controlled. On Step 2, the ambiguous sentences subtest score was entered into the model, $F\ (1, 93) = 1.58,\ p > .21$, followed by the recreating sentences subtest score on Step 3, $F\ (1, 93) = .11,\ p > .73$, and the making inferences subtest score on Step 4, $F\ (1, 93) = 1.39,\ p > .24$. These factors did not contribute significantly to the overall model. However, on Step 5, when figurative language was entered into the model, it predicted a unique amount of additional variance

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F (1, 93) = 5.39, $p < .02$. The result of adding the significant effect of figurative language to the model was the reduction to nonsignificance of the previous significant relation of LLD status with social competence, F (1, 93) = 1.08, $p > .30$. This finding suggests that figurative language, a component of social discourse, is the best mediator of the effects of LLD on children's social competence. The total model predicted 28% of the variance, F (1, 93) = 5.85, $p < .0001$ (Table 2).

Qualitative analyses of errors on figurative language subtest

Frequencies of types of errors made in the interpretation of figurative language by children with LLD and control children also were calculated. Results revealed that among children with LLD, 29% of errors represented a literal meaning, 20% of errors represented an opposite meaning, and 23% of errors represented an unrelated meaning. Chi-square analyses indicated that there were differences among the types of errors used by children with LLD, χ^2 (2) = 10.06, $p < .01$. Children with LLD are more likely to make literal errors as opposed to errors representing the opposite meaning or an unrelated meaning when they fail to interpret accurately the meaning of metaphors. Analysis of errors among non-LLD children indicated that 14% of errors represented a literal meaning, 12% of errors represented an opposite meaning, and 11% of errors represented an unrelated meaning. Chi-square analyses indicated that there were no differences among the types of errors used by the non-LLD children, χ^2 (2) = 4.66, $p > .10$.

Discussion

A developmental–organizational framework provided a model for the examination of the social discourse processes underlying risk for poor social competence in children with LLD and non-LLD children. As predicted, social discourse skills, and more specifically, figurative language comprehension, solely accounted for LLD's effect on children's social competence. This demonstration delineates critical developmental processes that place children with LLD at risk for poor social competence in the school setting.

Specifically, the findings support the premise that the primary language processing deficits that characterize LLD have an indirect effect on children's social functioning, namely through impeding their broader communicative skills. Thus, though children with LLD are defined by their language impairments in the ability to process discrete formal components of language structure and content, it is not their LLD status as such that contributes to their poor social functioning. Rather, it is their inability to use language for communication in a social context. Indeed, the most direct and immediate effects of communicative incompetence would seem to be on one's ability to function effectively interpersonally in a social situation, such as a school setting. The failure to comprehend the thoughts, feelings, and intentions of others embedded in social language could impede the establishment and maintenance of friendships, as well as one's ability to follow the rules of conduct in a school setting. The facilitation of mutual understanding during social discourse, and ultimately successful social interactions, rest on the ability to share intents. Understanding the hidden meaning in the language of others allows children both to predict the behavior of others, and to choose responses that will allow them to engage with peers and adults in a socially effective manner. For example, knowing the current slang of the peer group is critical to social acceptance, especially during the pre-adolescent and adolescent years. Youth who do not demonstrate proficiency in the slang of a particular clique are often excluded (Schwartz & Merten, 1967).

The fact that the subtest evaluating children's understanding of figurative language, in particular, metaphor comprehension, accounted for the most variance in the mediator model compared to the other subtests, is of particular interest. The ability to understand metaphors is perhaps one of the most critical tests of metalinguistic expertise, that is, the insight into the nature of language and how it serves and is used by speakers (Nippold, 1985). Metaphoric phrases require interpretation beyond the literal meaning derived from

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the words that make up the expression (Winner, 1988). Specifically, metaphor comprehension is an interactive process that involves coalescing the metaphorical linguistic phrase with the linguistic and situational context in which it occurs (Vosniadou, 1989). According to Winner (1988) the comprehension of metaphors consists of three cognitive steps: (1) the listener must infer that the message is not intended as a literal statement; (2) the listener must discover the relation between the content of the message (what is said) and the intention (what is meant); (3) the listener must discover the intended message. Situational context provides children with clues about the metaphor's implied meaning (Vosniadou, 1989). Evidence indicates that children with learning disabilities, including the children in this study, tend to perceive and interpret only the literal, concrete meaning of words when they encounter metaphors (Wiig & Secord, 1989a). In contrast, Winner (1988) suggested that when young children fail to understand metaphors, it is seldom due to children's mistaken inference that the metaphor was intended as a literal statement. This implies that the misinterpretation of metaphors by children with LLD may be more than just a delay in language development but rather a deficit. The predominance of literal interpretation errors of metaphors by children with LLD compared to non-LLD children provides additional evidence to support the idea that children with LLD struggle with the understanding of the intended or often "hidden" meaning conveyed during social discourse.

The finding that the comprehension of figurative language was the single best mediator of LLD's effect on children's social competence also is consistent with evidence that socially and emotionally disturbed language impaired children exhibit a greater prevalence of language deficits related to language comprehension as opposed to language expression (Cantwell & Baker, 1991; Cohen et al., 1993). Thus, the study underscores the possible central role of language interpretation, not language expression, in influencing social behavior in children with LLD. However, further research is required to support this finding.

Finally, initial group comparisons revealed results consistent with previous investigations of samples of children with LLD. That is, a clearly defined group of children with LLD exhibited significantly less developed social discourse performance and social competence. When potential correlated variance among the four social discourse subscales was controlled, only the ability to recreate sentences and comprehend figurative language discriminated the groups. These results are consistent with the fact that these two subtests, in particular, have heavy demands for the ability to infer the intentions and emotional states of others and are suggested as the best indicators of social discourse skill (Wiig & Secord, 1989a). The strength of these results rest, partially, on the use of a relatively "pure" control group. In contrast to past studies on learning disabilities, an effort was made in this study to screen the control group for both language impairments and learning disabilities, rather than assuming their absence among a sample of children obtained from regular classrooms.

Though both children with LLD and non-LLD children with nonverbal intelligence within the average range were carefully selected, nevertheless children with LLD exhibited significantly lower intelligence than the control group children. Lower nonverbal IQ scores (albeit still within the average range) in children with language impairments has been documented consistently (Cohen et al., 1993; Silva, McGee, & Williams, 1983). Additionally, evidence indicates that children with language impairments demonstrate motor, visual, and nonverbal cognitive impairments in addition to their linguistic deficits (Johnston, 1988; Tallal, Sainburg, & Jernigon, 1991). It cannot necessarily be assumed that cognitive impairments are constraining language development given that children with LLD tend to display mixed profiles of strengths and weaknesses in language processing. Rather, a reciprocal process may exist whereby language impairments may lead to, as well as be an outcome of, cognitive deficits (Johnston, 1988) since language is both a tool and product of thought (Vygotsky, 1962). In any case, the results suggest that among children with LLD, impairments in the higher levels of language processing and conceptual understanding,

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could possibly be at the root of their impaired social discourse skills and ultimately their poor social competence. For example, metaphor comprehension has been related to verbal and perceptual analogical reasoning in children (Nippold & Sullivan, 1987). Clearly, further inquiry into the interface between language and nonverbal cognition in children with LLD is warranted, as information gleaned could have implications no only for children with LLD but could contribute to our understanding of the complex interrelationship among these processes in normal development as well.

Specific suggestions for future research would include measuring social discourse within a spontaneous conversational context, rather than the performance task of social discourse used in this study. Specifically, assessing children's ability to follow the rules that regulate discourse, such as turn-taking, topic initiation and maintenance, and conversation cohesion and repair would be of interest. Additionally, multiple indicators of social competence (e.g., self-rating by children, parent ratings, behavioral observations) in addition to teacher ratings employed in this study would enhance validity and reliability. Behavioral observations by raters uninformed of the children's LLD status would help eliminate the problem that teachers and parents often are not "blind" to the LLD status of the children, knowledge which may influence ratings of children's social behavior and enhance differences between LLD and non-LLD groups. Finally, confirmation of the proposed models describing developmental pathways to social competence in LLD and non-LLD children would ultimately benefit from a longitudinal study.

The results of this study have broad implications for the use of the developmental–organizational framework in future research and practice with children with LLD. The findings underscore the utility and need for more integrated research when investigating processes underlying social risk for children with LLD. In the past, studies has been conducted to demonstrate deficits in language, social discourse, and social competence in children with LLD compared to non-LLD children. However, this study represents one of the few attempts to apply a developmental–organizational framework to uncover processes that mediate LLD's effects on children's social competence. Specifically, the findings indicate that the ability to understand the hidden meaning of language within a social context, illustrated through figurative language comprehension, is an important mediator of LLD. Thus, by examining the dynamic organization and interaction of domains, factors critical in influencing development outcomes can be revealed and serve as targets for effective assessment and intervention. Results from this study suggest that routine assessment and monitoring of broader social discourse skills, in addition to discrete structural and semantic language skills, in children with LLD is necessary. By focusing only on the skills assumed to be related to the children's primary learning disability, assessment and intervention plans may not fully address the child's social needs. Finally, these results can be cautiously interpreted to suggest that attention should be given to assisting children with LLD in improving skills related to the interpretation of figurative language, such as metacognition and social problem solving, in order to facilitate their interpretation of the intentions of others during conversation.

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