

# The Role of Parenting for the Adjustment of Children With and Without Learning Disabilities: A Person-Oriented Approach

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*A person-oriented approach was used to examine the role of parenting in the associations between single learning disabilities and multiple learning disabilities and the adjustment difficulties in 8–11-year-olds. The results revealed that multiple, but not single, learning disabilities were associated with greater difficulties in emotional and behavioral domains. Children with multiple learning disabilities were overrepresented in the Negative parenting group characterized by mothers' high control and negative affection. Finally, whereas in the Negative parenting group, multiple learning disabilities were associated with high internalizing and externalizing problem behavior, in the Positive parenting group characterized by mothers' support and positive affection, no significant associations between multiple or single learning disabilities and adjustment problems were found.*

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Although many studies have demonstrated that children with learning disabilities (LD) are at greater risk for adjustment difficulties, still little is known about what role the child's proximate environment plays in the relationship between LD and adjustment<sup>1</sup>. According to a framework of developmental psychopathology, psychosocial difficulties of children with LD "are not necessary linear correlates of their academic constrains but should be viewed in consideration with a child's proximate environment" (Sorensen, et al., 2003, p. 10). Thus, individual variables such as the type of learning disability may interact with environmental factors such as parenting to produce adjustment outcomes (Speakman, Herman, & Vogel, 1993). However, no study has tried to address the role of environmental factors for the adjustment in children with different subtypes of LD. Of particular interest here was the role of parenting for the adjustment of children with multiple and single LD.

## ***Adjustment Difficulties in Children With Learning Disabilities***

Research during the past two decades has demonstrated that children with LD face many psychosocial challenges and experience emotional and behavioral problems (Sorensen et al., 2003), although not all studies have found this pattern (for a review, see Greenham, 1999). Tsatsanis, Fuerst, and Rourke (1997) identified seven distinct subtypes of psychosocial functioning among seven 13-year-olds with LD, with different subtypes being characteristic for children with a particular type of a learning disability; e.g., reading disability, arithmetic disability or both. Specifically, in their study, children with arithmetic disabilities were characterized by substantial

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1 Adjustment here is defined as "the agreement between the individual's behavior and the demands of environment . . . and is reflected in the individual's own satisfaction with the situation" (Magnusson, 1988, p. 59).

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internalizing problems while children with reading disabilities had only normal adjustment patterns.

Similarly, a recent study by Martinez and Semrud-Clikeman (2004) has shown that emotional and behavioral adjustment profile varies among children with different types of LD: namely, single and multiple LD. This study revealed that adolescents in the multiple reading and math disabilities category and math disability only category showed significantly more impairment on depression and immature behavior measures than adolescents with reading disability only or adolescents with typical achievement. The other study has provided evidence for higher levels of emotional problems, as well as behavioral difficulties and attention problems, among children with dyslexia cases (Heiervang, Stevenson, Lund, & Hugdahl, 2001). Overall, these results point to the fact that the heterogeneity of LD does matter and should be taken into account when analyzing adjustment difficulties.

### ***Parenting of Children With Learning Disabilities***

Learning disability, a hidden and unexpected handicap in a child with normal intelligence, presents a great parental stress (Dyson, 1996) and creates difficulties in the relationship between parents and child (Amerongen & Mishna, 2004). Parenting and its emotional context have been identified as key predictors of children's developmental outcomes (Darling & Steinberg, 1993; Rudy & Grusec, 2006). Parenting practices and emotional reactions are the most important features when one studies parenting of children with LD (Heiman, 2002). Parenting practices include "specific, goal-directed behaviors through which parents perform their parental duties and attain their socialization goals" (Darling & Steinberg, 1993, p. 488). Although socialization goals that parents of children with LD hold have been rarely investigated, there is some evidence that the child's education is one of the most important goals (for a review, see Russell, 2003). For example, Lithuanian parents of children (with and without LD) have stressed success in achievement as one of the most significant expectations for their elementary school children (Barkauskiene, 2005). Parents striving to achieve this goal become involved in children's learning and schooling behaviors. Pomerantz and Eaton (2001) proposed that parental involvement with low-achieving children may be understood in terms of parenting practices referred to as intrusive support. The authors further point out that parents' perception of low-achieving children as lacking competence leads to worry. Consequently, in order to buffer parental anxiety, this worry causes them to use intrusive support; e.g., assistance with or checking homework when the child does not ask for such help are examples of parental control. Though this was not studied among children with LD, it can be expected that children with LD, as well as low achievers, are recipients of high levels of control from their parents in learning situations at home.

Another important dimension of parenting—the emotional dimension—varies as a function of characteristics such as the child's type of LD and related difficulties, child's gender, parents' education, well-being among families of children with LD (Antshel & Guy-Ronald, 2006; Heiman, 2002). In addition to the fact that parenting is an inherently affective endeavor (Dix, 1991), such parenting practices as involvement in children's homework may give rise to a negative affect (Pomerantz, Wang & Ng, 2005). Some studies on parents' involvement in homework in families of children with LD provide evidence of highly frustrated experiences (Bryan, Burstein &

Bryan, 2001) while others report overall positive affection and supportive interactions within these families (Goldberg, Higgins, Raskind & Herman, 2003; Heiman, 2002). No study has shown how the practices parents deploy and their affective reactions are aggregated into meaningful patterns in families of children with LD.

### ***The Role of Parenting for the Adjustment in Children With Different Subtypes of LD***

Few attempts have been made at elucidating the role of parenting practices and emotions for psychosocial functioning of children with LD. Some studies indicate differences between families of children with disabilities and families of children without disabilities; yet these were not necessarily related to negative outcomes for the children with LD (Michaels & Lewandowski, 1991). Other studies showed that children with LD were vulnerable to the differences in maternal, personal, and coping resources; and these predicted socio-emotional adjustment among children with LD (Al-Yagon, 2007).

Pomerantz, Wang, and Ng (2005) suggested that some patterns of parenting practices—e.g., control and intrusive support, especially when accompanied by negative affection—may have a detrimental impact on the child’s emotional functioning. Maternal exertion of control may lead children to be vulnerable to depressive symptoms because it communicates a message of incompetence and intrudes children’s individuality and autonomy (Pomerantz, 2001). The possibility to extend these results to children with LD warrants testing a hypothesis that the patterns of control and intrusive support, especially in conjunction with negative emotionality of parents, may have negative effects as compared to similar parenting behavior accompanied by positive feelings toward a child. In addition, the psychological qualities of children with different types of LD may interact with the practices parents deploy. Children with multiple LD have been described as more impaired (Martinez & Semrud-Clikeman, 2004); thus, the behavior of such children may elicit parents’ control and negative feelings that in turn foster a child’s adjustment difficulties; on the other hand, this interplay in the cases of single LD may bear less risk for a child’s outcomes. Therefore, parenting can be expected to have a moderating effect on adjustment for children with LD. The current study aimed at investigating whether patterns of parenting practices and affection toward a child would interact with a child’s LD status, resulting in either exacerbation or prevention of adjustment difficulties.

### ***A Person-Oriented Approach***

With some exceptions (Tsatsanis, Fuerst & Rourke, 1997), the majority of studies on psychosocial functioning of children with LD have adopted a variable-oriented approach. The focus of such studies has been on investigating associations between the variables under interests or the mean differences between particular groups with respect to certain variables. It has been suggested, however, that such an approach may not give a fruitful framework for psychological analysis, because it does not aim to describe people as “holistic and organized systems, functioning and developing as a totality” (Bergman & Magnusson, 1997, p. 291). The central focus of analysis in a person-oriented approach is to examine individuals as an individual constellation of behavior patterns, as evident in certain criteria variables.

A person-oriented approach includes several advantages in the research on learning difficulties, adjustment and parenting. First, it provides a tool to examine

the heterogeneity of adjustment difficulties evidenced in children, as well as different patterns of parenting. Second, a person-oriented approach provides also a tool to examine how common distinct patterns of adjustment difficulties or those of parenting are among LD children. Third, a person-oriented approach provides also a way to examine interrelations between the patterns of adjustment problems and those of parenting (Bergman, Magnusson & El-Khoury, 2003). A typical way to carry person-oriented research is to identify homogenous groups of participants on the basis of certain criteria variables by using clustering by cases analyses. Such analyses aim to identify groups of individuals who show a small amount of intra-group variation but differ substantially from other clustering groups.

By using a person-oriented analysis, the current study attempted to offer a complementary perspective in examining the contribution of parenting patterns for an explanation of differences in emotional and behavioral functioning of children with different categories of LD.

### AIMS

The present study examined the following research questions.

- 1) What patterns of adjustment difficulties, defined by internalizing and externalizing problems, do children show? Is a certain type of LD associated with a certain pattern of adjustment difficulties?
- 2) What patterns of parenting practices and affection do parents show? Do these patterns differ between parents of children from different LD group?
- 3) Do parenting practices and affection moderate the associations between LD and adjustment difficulties? In other words, does a certain kind of parenting prevent children with LD from ending up with low adjustment?

### METHOD

#### **Participants**

The participants were 204 primary school (second to fourth grade) children attending mainstream education schools. *The group of children with LD* consisted of 102 children (68 boys, 34 girls). Children's ages ranged from 8 to 11 years ( $M = 9.2$ ). This group was recruited from 37 schools in Vilnius. All children from this group were assessed by a psycho-educational evaluation because of primary learning problems, and were receiving services of special education because of LD<sup>2</sup>. This group, in turn, was subdivided in two subgroups according to the type of learning disability each child had: 63 children with multiple LD (their learning problems encompass reading and mathematics) and 39 children with single LD (their learning problems cover reading only<sup>3</sup>). *The comparison group* was randomly selected from the classes that

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2 According to the educational policy of the Lithuanian Ministry of Education and Science, the national criteria for defining learning disability follow the approach of discrepancy between IQ (assessed by WISC-III<sup>1</sup>) and achievement (assessed by the Curriculum Based Assessment method). The criteria for a diagnosis of 'learning disability' include the presence of an average IQ level (no less than 85), information processing deficits (e.g., auditory perception, visual perception, long-/short term memory, processing speed), and being at least 1 year behind grade level in academic achievement in reading, math or both as expected for age, schooling and intelligence. Assessment procedure is carried out by multidisciplinary team which includes psychologist, speech therapist, special education specialist and child psychiatrist.

3 Type of LD was determined by two criteria: 1) child achievement in reading and math, and 2) individual

contained children with LD. It consisted of typically achieving children ( $n = 102$ ) from 8 to 11 years old ( $M = 9.3$ ). The groups did not differ on IQ measures (full scale IQ mean score as assessed by WISC-III<sup>IT</sup> was 94 and 103 for LD and comparison groups, respectively) and family status. Groups were matched for gender because of high correlation between gender and the variables of interest in the adjustment domain.

### **Procedures**

After obtaining an approval from the schools' administrators, we sent letters of information and consent forms, together with questionnaires, to the parents of target children. Parents were asked, if they agreed to participate, to complete questionnaires at home and return them to the classroom teachers. The response rate in the group of children with LD and the comparison group respectively was 88.2%, and 85.7%. Further, children who returned a signed parental consent and questionnaires filled in by parents were administered other measures of the study.

### **Measures**

*Child Behavior Checklist.* The Child Behavior Checklist/4–18 (CBCL/4-18; Achenbach, 1991b) was used to obtain the information on children's adjustment difficulties. CBCL/4-18 is a standardized instrument designed to obtain parents' reports of children's competence and behavior. For the current study, only behavioral items were used. The 112 behavioral items (and one open-ended item), scored on a three-step response scale (0-2), produce a score on eight narrow band syndromes, two broad band factors (internalizing and externalizing), and a total problem score, with higher scores representing an endorsement of greater behavioral and emotional problems. Internalizing problems grouping includes the following syndrome scales: withdrawal, somatic complaints, and anxious/depressed. The scales, such as delinquent behavior and aggressive behavior, are grouped under the name of externalizing problems, while other scales—e.g., attention problems—do not belong to any of these two broad band scales. The correlations range between parental ratings and teacher ratings (TRF/4-18; Achenbach, 1991b) of children's behavior in the current study was 0.23-0.47. The reliability measures (Cronbach alpha coefficients) of the CBCL/4-18 scales used in the present study were the following: withdrawal, 0.69; somatic complaints, 0.76; anxious/depressed, 0.82; attention problems, 0.72; delinquency, 0.57; and aggressive behavior, 0.86.

*Involvement in Child's Learning Scale.* This scale (Barkauskiene, 2003) was used to assess the parenting practices deployed in children's everyday learning situations at home. The scale consists of 19 items that tap different types of mothers' and fathers' involvement with a child's learning at home. It has four subscales: (1) homework support (6 items); (2) homework control (2 items); (3) parent-child discussions about schooling and learning activities (6 items); and (4) child encouragement (5 items). For the purposes of the present study, the first three subscales as indicators of parenting practices were used. Sample items included (a) for homework support, "You help your child to do homework when she/he asks you"; (b) for homework control, "You remind your child about the time she/he has to prepare her/his homework"; and (c) for parent-child discussions, "You talk with your child about the books she/he

reads and discuss them.” All types of practices were assessed using a 4-item response option ranging from “Never” to “Always.”. The internal consistency (Cronbach alpha) was as follows: the homework support subscale, 0.74; the homework control subscale, 0.56; and the parent-child discussion subscale, 0.69.

*Feelings toward the Child Scale.* This scale (Barkauskiene, 2003) has 11 items that assess parents’ feelings and perceptions of a child’s impact on them relative to the impact “most children his/her age have on their parents.” The scale consists of the two subscales: (1) positive feelings, (5 items) and (2) negative feelings, (6 items). Four-point scale ranging from “not at all” to “very much” is used. The internal consistency (Cronbach alpha) of the positive and negatives feelings subscales was 0.75 and 0.79, respectively.

## RESULTS

### *Patterns of Internalizing and Externalizing Problems*

The first aim of the present study was to examine the patterns of adjustment difficulties among children under study. Accordingly, an optimization-partitioning clustering-by-cases analysis (MacQueen’s k-means method) was carried out separately for the variables representing internalizing and externalizing domains of adjustment. The cluster analysis was carried out according to the procedure recommended by Bergman, Magnusson, and El-Khoury (2003). First, each criterion variable was standardized in order that differences in standard deviations would not affect distances in forming the clusters. Second, outliers that exceeded the standardized scores -3.0 or 3.0 were identified and forced within this range. Third, the optimization-partitioning-clustering-by-case analysis (MacQueen’s k-means method) was carried out (SPSS, SPSS Reference guide, 1990; SPSS 14.0). The number of clusters was determined on the basis of three criteria: (a) Bayesian information criterion (BIC, Schwartz, 1978) statistics—lower BIC is preferred for the better fit; (b) theoretical interpretation of the clusters, and (c) the number of cases in each cluster.

To examine the patterns of internalizing problems, we used the measures of withdrawal, somatic complaints, and anxious/depressive behavior as the criterion variables. The BIC indices showed that the fit of the three-cluster solution (BIC = 288.79) was better than those of the two-cluster (BIC = 298.90), and the four-cluster (BIC = 292.16) solution. In the three-cluster solution, the first group was characterized by elevated problems with somatic complaints, but there were no problems with other subscales. This group was labeled “Somatic complaints” (n = 32). The second group had high levels of withdrawal, somatic complaints, and anxious/depressive problems; and it was labeled as “High internalizing problems” (n = 37). The last group was characterized by low scores on all measures of internalizing problems and had the biggest number of individuals. It was labeled “Low internalizing problems” (n = 128). Group differences on the criterion variables are presented in Table 1.

Table 1

*Means (M) and Standard Deviations (Sd) of the Standardized Criterion Variables for the Internalizing Problems Groups (N = 197)*

Criterion variable		Internalizing problems groups		
		Somatic complains (n = 32)	High internalizing problems (n = 37)	Low internalizing problems (n = 128)
Withdrawal <sup>1</sup>				
M		0.16 <sup>bc</sup>	1.39 <sup>ac</sup>	– 0.46 <sup>ab</sup>
SD		0.50	0.89	0.65
Somatic complains <sup>1</sup>				
M		1.19 <sup>c</sup>	0.75 <sup>c</sup>	– 0.56 <sup>ab</sup>
SD		0.69	0.93	0.45
Anxious/depressive <sup>2</sup>				
M		0.11 <sup>bc</sup>	1.56 <sup>ac</sup>	– 0.52 <sup>ab</sup>
SD		0.52	0.66	0.54

Note. Group means with different superscript show a statistically significant difference ( $p < 0.001$ ) when tested with Tamhane<sup>1</sup> or Bonferroni<sup>2</sup> procedure.

In the examination of externalizing behavior patterns, three criterion variables were used: attention problems<sup>4</sup>, delinquent behavior, and aggressive behavior. A comparison of the BIC indicates that BIC values were very similar for the three-cluster (BIC = 284.55) and the four-cluster (BIC = 287.60) solutions. Further analysis showed the four-cluster solution was theoretically clearer and more meaningful than the three-cluster solution, and the difference in the BIC value for these two solutions was very small. In the four-cluster solution, the first group was characterized by higher scores on delinquent and aggressive behavior scales, while the score on attention problems scale was low. This group was labeled as “Rule breaking behavior” (n = 43). The second group had higher scores on the attention problems subscale only and was labeled as “Attention problems” (n = 44). The third group was characterized by high scores on all criterion variables. It was labeled “High externalizing problems” (n = 30). The last group had low scores on all subscales and was labeled “Low externalizing problems” (n = 82). Group differences on the criterion variables are shown in Table 2.

4 Attention problems subscale was included as the construct representing externalizing problems, given the fact that attention problems are manifested as externalizing behavior and have a high correlation with measures of externalizing problems in younger children (Zukauskienė, 2002).



Table 2

Means (M) and Standard Deviations (Sd) of the Standardized Criterion Variables for the Externalizing Problems Groups (N = 199)

Criterion variable		Externalizing problems group			
		Rule breaking (n = 43)	Attention problems (n = 44)	High externalizing problems (n = 30)	Low externalizing problems (n = 82)
Attention problems					
M		- 0.21 <sup>bcd</sup>	0.66 <sup>acd</sup>	1.45 <sup>abd</sup>	- 0.76 <sup>abc</sup>
SD		0.50	0.58	0.79	0.53
Delinquent behavior					
M		0.87 <sup>bcd</sup>	- 0.29 <sup>acd</sup>	1.31 <sup>abd</sup>	- 0.78 <sup>abc</sup>
SD		0.65	0.41	0.85	0.43
Aggressive behavior					
M		0.33 <sup>cd</sup>	0.06 <sup>cd</sup>	1.69 <sup>abd</sup>	- 0.82 <sup>abc</sup>
SD		0.60	0.53	0.70	0.38

Note. Group means with different superscript show a statistically significant difference ( $p < 0.05$ ) when tested with Tambane procedure.

**Internalizing and Externalizing Problems and LD**

Further, we aimed at analyzing the association between the membership in the internalizing and externalizing problem behavior pattern and the LD subgroup. Examination of the LD subgroup membership revealed subgroup differences in the internalizing problem patterns ( $\chi^2(4) = 12.71, p < 0.05$ ) and externalizing problem patterns ( $\chi^2(6) = 03.18, p < 0.01$ ). To examine these patterns in greater details, we analyzed the frequency tables consisting of LD and problem behavior groupings by log-linear model. In these models we included only main effects of LD and problem behavior groupings and calculated the standardized adjusted residuals. Such residuals provide an estimate that the frequency of participants in a certain cell would differ from that because of chance (expected frequencies:  $-1.96 < \text{standardized adjusted residual} > 1.96$  are statistically significant at .05 level). Children with multiple LD were statistically significantly over-represented in the “High internalizing problems” group (adj. res. = 3.0), and typical achievers constellated in the “Low internalizing problems” group (adj. res = 3.0). For externalizing problem patterns, children with multiple LD were over-represented in the “Attention problems” (adj. res. = 2.3) and “High externalizing problems” (adj. res. = 2.8) groups. Children without LD were overrepresented in the “Low externalizing problems” group (adj. res. = 2.5).



Table 3

Means (*M*) and Standard Deviations (*Sd*) of the Standardized Criterion Variables for the Parenting Practices / Affection Groups (*N* = 203)

Criterion variable		Parenting practices/affection group		
		Positive affection and involvement ( <i>n</i> = 70)	Negative affection and high control ( <i>n</i> = 69)	Low involvement ( <i>n</i> = 64)
Positive feelings				
<i>M</i>		0.60 <sup>bc</sup>	– 0.59 <sup>ac</sup>	– 0.02 <sup>ab</sup>
<i>SD</i>		0.87	0.88	0.87
Negative feelings				
<i>M</i>		– 0.33 <sup>b</sup>	0.83 <sup>ac</sup>	– 0.54 <sup>b</sup>
<i>SD</i>		0.74	0.87	0.76
Homework control				
<i>M</i>		– 0.32 <sup>b</sup>	0.74 <sup>ac</sup>	– 0.44 <sup>b</sup>
<i>SD</i>		0.92	0.76	0.87
Homework support				
<i>M</i>		0.55 <sup>c</sup>	0.33 <sup>ac</sup>	– 0.95 <sup>b</sup>
<i>SD</i>		0.72	0.77	0.80
Parent-child discussions				
<i>M</i>		0.86 <sup>bc</sup>	– 0.21 <sup>ac</sup>	– 0.71 <sup>ab</sup>
<i>SD</i>		0.73	0.75	0.80

Note. Group means with different superscript show a statistically significant difference ( $p < 0.001$ ) when tested with Bonferroni procedure.

### ***Internalizing and Externalizing Problems and LD***

Further, we aimed at analyzing the association between the membership in the internalizing and externalizing problem behavior pattern and the LD subgroup. Examination of the LD subgroup membership revealed subgroup differences in the internalizing problem patterns ( $\chi^2(4) = 12.71, p < 0.05$ ) and externalizing problem patterns ( $\chi^2(6) = 03.18, p < 0.01$ ). To examine these patterns in greater details, we analyzed the frequency tables consisting of LD and problem behavior groupings by log-linear model. In these models we included only main effects of LD and problem behavior groupings and calculated the standardized adjusted residuals. Such residuals provide an estimate that the frequency of participants in a certain cell would differ from that because of chance (expected frequencies:  $-1.96 < \text{standardized adjusted residual} > 1.96$  are statistically significant at .05 level). Children with multiple LD

were statistically significantly over-represented in the “High internalizing problems” group (adj. res. = 3.0), and typical achievers constellated in the “Low internalizing problems” group (adj. res. = 3.0). For externalizing problem patterns, children with multiple LD were over-represented in the “Attention problems” (adj. res. = 2.3) and “High externalizing problems” (adj. res. = 2.8) groups. Children without LD were overrepresented in the “Low externalizing problems” group (adj. res. = 2.5).

### ***Patterns of Parenting Practices and Affection***

To examine patterns of parenting, a clustering-by-cases analysis was carried out with the following criterion variables: homework support, homework control, parent-child discussions, positive feelings, and negative feelings. An examination of the cluster solutions obtained revealed the best fit for the three-cluster solution. The BIC value for this solution (BIC = 707.35) was lower than those for two-cluster (BIC = 711.52) and four-cluster (BIC = 714.43) solutions. In this solution, the first group was characterized by undifferentiated feelings toward the child and low levels of parenting involvement relative to the others in the sample. This pattern was labeled as “Low involvement” (n = 64). In the second group, the scores on positive feelings, homework support, and parent-child discussions scales were high; and scores on negative feelings and homework control were low. This pattern was labeled “Positive affection and involvement” (n = 70). The last group was characterized by the high scores on negative feelings, negative control, and homework support; but by low scores on positive feelings and parent-child discussions. It was labeled “Negative affection and high control” (n = 69).

To examine whether the LD subgroup membership would be associated with parenting patterns, frequency tables were again analyzed by using log-linear models and computing, standardized adjusted residuals, as described previously. The results showed subgroup differences in the patterns ( $\chi^2(4) = 27.07, p < 0.001$ ). Children with multiple LD were statistically significantly overrepresented in the “Negative affection and high control” group (adj. res. = 4.4), and typical achievers were overrepresented in the “Positive affection and involvement group” (adj. res. = 3.8).

### ***Parenting Role in the Associations Between Internalizing and Externalizing Problems and LD***

Our major research question was whether parenting practices in learning situations and maternal affection would moderate the associations between LD and adjustment difficulties as defined by the patterns of internalizing/externalizing problems. To examine this, we created a frequency table according to categorical variables for LD subgroup and adjustment difficulties, as well as a categorical parenting variable. This frequency table was again analyzed by log linear model to examine the extent to which participants were over- and underrepresented in each cell. Table 4 displays the results of this analysis.

Table 4  
 Frequency and Standardized Adjusted Residuals Table of the Categorical Variables for Learning Disability Type, Adjustment Difficulties Group, and Parenting Group

Adjustment difficulties group	Parenting group											
	Positive affection and high involvement				Negative affection and high control				Low involvement			
	MLD	SLD	NLD	NLD	MLD	SLD	NLD	NLD	MLD	SLD	MLD	NLD
No internalizing problems	13 (-0.14)	10 (0.46)	32 (2.32)	14 (0.07)	8 (-0.26)	9 (-2.71)	5 (-2.08)	5 (-1.02)	31 (2.65)	5 (-2.08)	5 (-1.02)	31 (2.65)
High internalizing problems	2 (-0.98)	0 (-1.59)	2 (-1.69)	13 (4.51)	5 (1.53)	6 (-1.12)	4 (0.22)	2 (-0.19)	3 (-1.11)	4 (0.22)	2 (-0.19)	3 (-1.11)
Somatic complains (0.96)	3 (-0.22)	4 (1.24)	1 (-1.88)	6 (1.37)	2 (-0.14)	5 (-0.19)	1 (-1.19)	3 (0.72)	7	1 (-1.19)	3 (0.72)	7
Rule breaking behavior	2 (-1.22)	4 (0.64)	6 (-0.46)	7 (1.11)	2 (-0.53)	4 (-1.20)	2 (-1.07)	2 (-0.40)	14 (2.88)	2 (-1.07)	2 (-0.40)	14 (2.88)
Attention problems	8 (1.50)	1 (1.15)	3 (-1.62)	10 (2.42)	8 (2.91)	4 (-1.25)	2 (-1.14)	1 (1.04)	7 (0.09)	2 (-1.14)	1 (1.04)	7 (0.09)
High externalizing problems	3 (-0.13)	0 (-1.43)	1 (-1.80)	12 (4.89)	2 (-0.12)	8 (1.31)	1 (-1.13)	1 (-0.63)	2 (-1.21)	1 (-1.13)	1 (-0.63)	2 (-1.21)
Low externalizing problems	6 (-0.92)	9 (1.50)	25 (3.08)	5 (-1.26)	3 (-1.06)	3 (-2.88)	4 (-1.39)	6 (0.45)	20 (2.15)	4 (-1.39)	6 (0.45)	20 (2.15)

Note. Numbers indicate observed frequencies; standardized adjusted residuals are in parentheses. Abbreviations: MLD – children with multiple learning disabilities; SLD – children with single learning disabilities; NLD – typically achieving children (no learning disabilities).

In the parenting group characterized by negative affection and high control, multiple LD children were overrepresented in high internalizing (adj. res. = 4.5) and in high externalizing problem behavior (adj. res. = 4.9) groups. Moreover, in this parenting group, multiple and single LD children were overrepresented in attention problems (adj. res. = 2.4 and adj. res. = 2.9, respectively) group. In contrast, for the parenting group characterized by positive maternal affection and involvement, no significant association was detected between patterns adjustment and two types of LD. Here children without LD were overrepresented in normal adjustment groups, e.g., low internalizing (adj. res. = 2.3) and externalizing (adj. res. = 3.1) problems.

In the parenting group characterized by low involvement, no significant associations were found between problematic adjustment in either internalizing or externalizing domains and categories of single and multiple LD. In this parenting group, children without LD were overrepresented in low internalizing (adj. res. = 2.7) and externalizing (adj. res. = 2.2) problem groups. However, in the case of low involvement of parents, high rule-breaking behavior was typical for children without LD.

To examine the moderating effect of parenting, we again (1) analyzed the frequency tables by using log-linear models that included main effects of LD type and problem behavior groupings for each parenting group and (2) calculated the standardized adjusted residuals. Comparison of the residuals from each parenting group (Table 4) revealed that standardized adjusted residuals for multiple LD and adjustment difficulties (high externalizing, high internalizing and attention problems) groupings and single LD and attention problems grouping exceed a value of 1.96 in the case of negative but not positive parenting pattern. This comparison provides evidence for moderation of parenting on the association between LD and adjustment problems.

## DISCUSSION

The aim of this study was to extend the knowledge about the association between LD and adjustment given the role of parenting and to use a person-oriented approach. Therefore, the following research questions were studied: (1) What patterns of adjustment difficulties do children with different categories of LD show? (2) What parenting patterns defined by parenting practices and affection are typical for parents of children with different types of LD? and (3) Does parenting moderate the association between adjustment difficulties and specific subtypes of LD? First, the results showed that multiple LD was associated with greater difficulties in emotional and behavioral domain; second, the results showed negative parenting pattern characterized by high control and negative maternal affection was incident to children with multiple LD; and third, parenting moderated an association between (1) multiple LD and high internal, external problem behavior; (2) attention difficulties; and (3) a relationship between single LD and attention problems.

The first aim was to isolate the patterns of adjustment in both internalizing and externalizing domains distinctive for the subgroups under study. The obtained results revealed (1) that the pattern of elevated internalizing problems was the most prevalent among children in the category of multiple LD and (2) that no pattern of internalizing problems was typical for children with single LD. Thus, the latter

finding of the current study is congruent with the growing body of data providing evidence that among elementary school children with reading problems, only internalizing psychopathology is not a predictor of their academic difficulties status (Miller, Hynd & Miller, 2005; Sideridis, Mouzaki, Simos, & Protopapas, 2006). The results of an examination of the behavioral domain of functioning provide the data about the heterogeneity of externalizing problems among children with multiple LD, but not with single LD. Two patterns of adjustment difficulties in the externalizing domain were specific for children with multiple LD: the pattern of high externalizing problems and the pattern of elevated attention problems only. Though attention problems are considered the most prevalent difficulty in the population of children with LD (Stanford & Hynd, 1994), our study suggests this pattern to be associated with multiple LD solely.

Overall, these results resemble the recent data on socio-emotional adjustment among adolescents with LD (Martinez & Semrud-Klikeman, 2004) indicating that adolescents with multiple LD tend to display more problematic adjustment as compared to peers with single LD. Since the present study deployed a sample of younger children and different methodology, it extends the findings of Martinez and Semrud-Klikeman by providing the evidence that such a pattern of emotional and behavioral difficulties in children with multiple LD may be developing already from middle childhood. This suggests that the severity of learning disability may be considered as a stable risk factor for psychosocial functioning from childhood to adolescence. Generally, the results obtained suggest that having multiple, but not single, LD does present higher barriers in the emotional and behavioral functioning domains.

The next aim of the present study was to examine the parenting patterns as defined by parenting practices (in learning situations at home) and affection toward the child. The clustering-by-cases analyses showed three patterns of parenting. The first group consisted of mothers who showed positive affection and involvement mostly characterized by homework support and discussions with child. The second group was composed of mothers who showed negative affection, but also high involvement characterized by high control in homework, but lower levels of support and discussions with the child. And finally, the third group consisted of mothers whose parenting profile was characterized by low involvement with a child's learning at home and undifferentiated emotional reactions to a child. Further examination of the relationship between these parenting patterns and children's LD group membership revealed that exercising a high control in learning situations with their children at home along with expression of negative feelings toward a child was incident for mothers of children with multiple LD. Mothers of typically achieving children (more often than expected by chance) showed positive affection and involvement with their children's learning at home. No relationship was found between parenting pattern and single LD.

These results reveal the tendency for parents of children with multiple LD to hold up the most negative behavior as compared to parents of children with lesser or no difficulties in achievement. Thus, little evidence emerged to suggest that parenting behavior patterns in learning situations at home might be stimulated by a child's characteristics, such as severity of learning difficulties. The following possible

hypothetical explanations might be provided for this association. One of them can be based on the assumptions provided by Pomerantz and Eaton (2001). They found that an increase in children's achievement difficulties elicits worrying in mothers and their intrusive support. According to the findings of the current study, the parenting pattern of mothers of children with merely multiple LD was characterized (1) by support for homework, (2) by high control, and (3) by such feelings as embarrassment, anxiety, harassment, and disappointment because of the child's learning difficulties. As such, our study offers initial empirical data in support of this assumption's relevance to explain differences in parenting patterns between parents of children with LD and parents whose children display no difficulties in achievement. However, findings from the current study do not allow explaining parenting behaviors of children with single LD in the light of suggestions of Pomerantz and Eaton (2001). Another explanation can be grounded on the notion of Gurland and Grolnick (2005) that controlling parenting may stem from parents' perception of environmental threat. In other words, such threats as (1) high demands for competitiveness, (2) future possibilities, and (3) a child's multiple LD inability to master standards may make their mothers react sensitively; i.e., with feelings of anxiety, embarrassment and harassment. There may also be the application of controlling behavior. Overall, the results of the current study show that severity of LD should be given attention when trying to understand parenting behaviors in addition to adjustment difficulties seen in children.

The final and major task of the present study was to examine the role of parenting as a possible moderator of the association between adjustment difficulties and subtypes of LD. The results showed that (1) patterns of parenting as related to child's learning at home and (2) emotional reactions children receive from their mothers do play a role in the association between adjustment difficulties and LD. Specifically, a negative parenting profile of high maternal control and negative affection was associated with elevated internalizing and externalizing problems and attention difficulties for children with multiple LD. However, when the parenting profile was different, i.e., characterized by positive feelings and a mother's behaviors of support and discussion with a child, no relationship has emerged between multiple LD and adjustment problems. The same picture was detected in attention problems in children with single LD. This provides the evidence that the association between multiple LD and emotional and behavioral difficulties, as well as single LD and attention difficulties, is moderated by parenting. There are at least two possible explanations for this finding. First, according to the results from the current study, children with multiple LD as compared to those with single LD were more vulnerable with respect to externalizing and internalizing adjustment problems. Thus it may be speculated that negative parenting acts as a trigger and exacerbates already existing vulnerability in emotional and behavioral domains of children with multiple LD. In other words, negative parenting that does not create safe and trustful ties between parent and the child with multiple LD sharpens problems that in cases of positive parenting are possible to outfight (Al-Yagon, 2007; Amerongen & Mishna, 2004; Sorensen et al., 2003). The second explanation assumes that a mother's behavior of high control and negative feelings toward a child, along with some support, may communicate a double message of help and pressure, and create an enmeshment in child-mother communication which, in turn, leads to various problem behaviors

(Aunola & Nurmi, 2005). This possible explanation relates to the role of parental control. According to Pomerantz, Grolnick, and Price (2005), parental control shapes children's orientation toward achievement and creates motivation pattern which in turn, according to Sideridis (2007) constitutes a cognitive diathesis for depression and anxiety among children with LD.

These results add to the findings on the relationship between LD and behavioral difficulties by showing that parenting—as expressed by proximal indicators like parenting practices—is an important moderator in addition to broader family factors. Some of these are maternal resources, maternal depression, child neglect, or family environment factors like family size, socioeconomic deprivation and a stimulating environment (Trzesniewski, Moffitt, Caspi, Taylor, and Maughan, 2006; Al-Yagon, 2007). Overall, the findings obtained support the notion of developmental psychopathology where the adjustment of a child with learning disabilities is seen as an outcome of multiple factors (Morrison & Cosden, 1997).

This study has several limitations that should be considered. First, the study used cross-sectional data. Thus, its findings reflect current associations and no inference can be made about the direction of effects. Longitudinal data would provide the information about the contribution of maternal behavior to children's outcomes. Second, mother-reported questionnaires were used to measure the child's behavior and parenting variables. Although these measures provide information about their attitudes, two shortcomings should be given attention. First, observational measures of a mother's behavior in interaction situations with the child would provide more reliable information about their actual behavior. Second, because fathers were not included in the analysis, information about parenting remains asymmetric. It is possible that the discrepancy between mothers' and fathers' parenting behaviors may exist and have a contribution to the children's adjustment, especially those with LD. Third, the study included information only about a child's LD status, but no measures about a child's other characteristics that may have more fully explained the link between parenting and adjustment. Finally, the current study was carried out in a particular country, Lithuania. Bearing in mind that the child's achievement as a value has a different priority across countries, it is possible that mothers' parenting practices might have differed in various other socio-cultural environments and created a different context with regard to risk and protection for children with LD (Keogh & Weisner, 1993).

Overall, the results from our study supported the hypothesis concerning the important role that parenting plays in moderating the adverse effects of multiple LD on children's adjustment: parenting behavior and affection do matter for children with LD, in particular.



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