Motivating students with learning disabilities: The role of parents.

Tracey Ann. Rilett
University of Windsor

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Motivating Students with Learning Disabilities: 
The Role of Parents

by

Tracey A. Rilett

A Thesis submitted to the 
Faculty of Graduate Studies and Research 
through the Faculty of Education at the 
University of Windsor 
in Partial Fulfillment of the Requirements 
for the Degree of Master of Education.

Windsor, Ontario, Canada

1997

Running head: MOTIVATION

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Abstract

The purpose of the present study was to examine the motivational practices of parents whose children have learning disabilities. A group of 123 parents responded to the Parental Motivational Practices Scale (Gottfried, Gottfried, & Fleming, 1994b) and 105 students, 38 with learning disabilities (LD) and 67 without learning disabilities (NLD), in grades 4 through 8, responded to the Student Attitude Measure (Wick, 1990a, 1990b, 1990c) and the Children's Academic Intrinsic Motivation Inventory (Gottfried, 1986a). The results indicate that mothers of LD students use more extrinsic practices than do mothers of NLD students. Interestingly, their use of extrinsic practices does not seem to hinder their use of intrinsic practices, as both groups of mothers use significantly more intrinsic practices than extrinsic practices. Moreover, their overall use of intrinsic practices are very similar. The LD students appear to have a lower sense of control over their performance and lower academic intrinsic motivation than do NLD students. The importance of parent-child relationships in maximizing motivation in students with learning disabilities is highlighted.
Dedication

I dedicate my research to parents and teachers who are interested in motivating children, both with and without learning disabilities, to enjoy learning for its own sake.
Acknowledgements

I would like to thank Dr. Noel Williams for agreeing to be my thesis sponsor and subsequently my first reader. His valuable advice regarding children with learning disabilities was appreciated. Dr. Williams' interest in the cognitive processes of children with learning disabilities is inspirational. My sincere gratitude goes to Dr. Larry Morton, my second reader, for his assistance with the statistical portion of my thesis and his guidance in giving my paper a specific direction. Thank you so much! In addition, I would like to thank Dr. Sylvia Voelker for joining my thesis committee on short notice and for her thoughts, suggestions, and rational explanations for using extrinsic practices with children who have learning disabilities.

I feel that it is essential to acknowledge several other people without whom I would have been unable to complete this thesis. Firstly, I would like to thank Dr. Adele Eskeles Gottfried for permitting me to use her Parental Motivational Practices Scale. Secondly, I would like to thank the Board of Education, which will remain anonymous, for permitting me to conduct my research within its schools. Thirdly, I cannot offer enough thanks to all of the principals, teachers, and especially, the students and parents who voluntarily took part in my investigation. Fourthly, I am deeply grateful to Michael Pigeon, my research assistant, for his help and time in administering a number of questionnaires to the students.

Finally, there are a number of other people who are deserving of recognition. I would like to thank Michael Pigeon, Melinda Hinch, and Susan Carpenter, my friends, for their continued support throughout this past year. I also extend thanks to Tamara Hodgins, my cousin, for her faith in me and for her encouragement which provides me with added confidence to pursue my academic aspirations. Moreover, I must thank my parents, Bonnie and Larry Rilett, and my grandmother, Dorthy Mitchell, for their support. At last, a special thanks is directed to my mother for editing my thesis (and all of my previous papers).
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Motivating Students with Learning Disabilities:

The Role of Parents

An abundance of research has focused on motivation over the past few decades, attempting to discover and explain the most effective ways to motivate children to learn, to retain information, and to enjoy learning (Weiner, 1990). In one stream of this research, researchers have examined how both teachers' (Middleton, 1995; Skinner & Belmont, 1993) and parents' (Ginsburg & Bronstein, 1993; Gottfried, Fleming, & Gottfried, 1994a) motivating behaviours affect children. Of particular interest for the present study, recent research has also included comparisons between learning disabled (LD) children and nonlearning disabled (NLD) children (Grolnick & Ryan, 1990; Wilson & David, 1994). Even though this research continues to accumulate, one interesting question has received little attention: Are there differences in parental motivational behaviours for LD and NLD children?

The purpose of the present study is twofold. The first area of interest is to reexamine the characteristics of LD and NLD students' attitudes toward school and learning, and their academic intrinsic motivation. The second area of interest and key purpose of the present investigation is to examine the patterns of parents' motivational practices for both groups of students. Specifically, parents' use of school-related intrinsic and extrinsic motivational practices with their children will be examined.

Intrinsic motivational practices are defined as practices that attempt to encourage children to enjoy academic learning (Gottfried et al., 1994a). Intrinsic motivational practices involve the encouragement of mastery (e.g., encouraging children to learn skills in all subjects, providing new activities when children are ready to learn more, and working with children when they are having difficulties), curiosity (e.g., encouraging children to explore and exposing children to new experiences), persistence (e.g., encouraging children to try harder finding solutions to difficult problems), and independence (e.g., encouraging
Motivation

children to find answers on their own). Extrinsic motivational practices are practices that place external consequences on children contingent on their academic performance. Extrinsic motivational practices involve the use of rewards when children are performing well in school (e.g., toys, money, gifts, tokens, and stickers) and negative control when children are not performing well in school (e.g., taking away a privilege, showing anger, discussing the usefulness of school, and conferencing with a teacher).

Ever since Skinner (1938) introduced the concept of extrinsic motivation, there has been disagreement among researchers about how learning occurs. Does learning occur as a result of intrinsic motivation or extrinsic motivation? Intrinsic motivation is based on internal satisfaction whereas extrinsic motivation is based solely on external rewards or reinforcers (Berlyne, 1950).

There exist three main theories on how motivation intrinsically works in young children. Bandura (1982) suggested that self-efficacy is an essential element in understanding academic motivation. Self-efficacy with regard to academic pursuits refers to a student's beliefs or perceptions about his or her capabilities to apply knowledge and skill to academic tasks. Secondly, attribution theory (Weiner, 1979) is concerned with how a student attributes causes of success and failure situations. Maladaptive failure attribution occurs when a student blames his or her failure on ability rather than effort. Finally, self-regulated learning hypothesizes that a student is more likely to be motivated to learn when dependent on oneself in the application of planning and integrating cognitive skills to academic tasks (Corno & Mandinach, 1983). Together these three theories seem to explain how a student internalizes his or her competency to learn.

The fundamental ideas of self-efficacy theory, attribution theory and self-regulated learning seem to be incorporated into cognitive evaluation theory (CET; Deci & Ryan, 1985). CET was first developed by Deci (1975) and later reworked by Deci and Ryan (1985). CET is based on the idea that perceived autonomy and competence influence
motivation (Ryan & Deci, 1996). Since its conception, CET has been one of the most intensely debated topics in the field of motivation (Cameron & Pierce, 1994, 1996; Eisenberger & Cameron, 1996; Kristjánsson, 1993; Lepper, Keavney & Drake, 1996; Kohn, 1996; Ryan & Deci, 1996). CET suggests that under certain conditions rewards may decrease, increase or have no effect on intrinsic motivation.

According to CET, inputs pertinent to the initiation or regulation of behaviour are perceived in one of three ways: informational, controlling, or am motivating (Deci & Ryan, 1992). Informational inputs are perceived as supporting autonomy and facilitating competence. Intrinsic motivation is apt to be sustained or strengthened by informational inputs. Controlling inputs are perceived as pressures to think, feel, or behave in particular manners. Intrinsic motivation is apt to be threatened and extrinsic motivation is apt to be increased by controlling inputs. Am motivating inputs are perceived as promoting or implying incompetence. Both intrinsic and extrinsic motivation are apt to be undermined by am motivating inputs.

Under the assumption that all humans have innate psychological needs to be competent and self-determining (Deci & Ryan, 1985), it is only obvious that learning is considered to be intrinsically motivated. Intrinsically motivated behaviour is "autotelic" (Csikszentmihalyi, 1975), which simply means that it is "done for its own sake". The curiosity and interest of children lead them to explore, manipulate, and inquire (Deci & Ryan, 1985). Through exploration and inquiry, children learn to take risks, develop skills, and experience intrinsic satisfaction.

Intrinsic motivation involving school-related skills and tasks is commonly referred to as "academic intrinsic motivation" (Gottfried, 1985). Gottfried further defines academic intrinsic motivation to encompass the enjoyment of school learning distinguished by a mastery orientation, curiosity, persistence, task-endogeny, and the learning of challenging, difficult, and novel tasks. Considerable research has revealed academic intrinsic motivation
to be significantly related to students' ability to academically achieve (Gottfried, 1985). Students with higher levels of academic motivation had lower levels of anxiety and more favorable perceptions of their competence. Furthermore, Gottfried (1990) discovered that children with high levels of academic intrinsic motivation at ages seven and eight were more inclined to have higher motivation levels at age nine. According to Deci and Ryan (1992), increased conceptual learning, creativity, flexibility, positive emotional health, and higher self-esteem have all been associated with intrinsically motivated activity.

Unfortunately, research studies involving the academic intrinsic motivation of LD students is lacking. An interesting discovery reported by Grolnick and Ryan (1990) is that teachers have said that they are more controlling of mainstreamed students with LD. A controlling educational atmosphere may inhibit students' innate psychological needs to be competent and self-determining. Grolnick and Ryan (1989) revealed that the intrinsic motivation and self-regulation of a child could be enhanced when the child is provided with a combination of personal involvement by significant others, encouragement to choose and initiate activities, and support for acknowledging one's own perspective (support of autonomy), both in the home and classroom. The following review of literature focuses on the academic intrinsic motivation of students with LD and their attitudes toward school and learning, and reexamines the roles that significant others play in enhancing these characteristics in students.

**Review of Literature**

Deci, Hodges, Pierson, and Tomassone (1992) conducted an investigation to discover whether self-perceptions of autonomy and competence, perceptions of support of autonomy and involvement in the social surroundings promote learning and adjustment in special education students as they have been found to do in regular education students (Grolnick, Ryan, & Deci, 1991). Deci et al. (1992) hypothesized that students with LD or
emotional handicaps (EH), who had been placed in special education classrooms, would have more academic improvement and adjustment when they understood how to attain desired school outcomes, felt competent in achieving school outcomes, accepted responsibility for their failures, and perceived their teachers and parents as supportive and interested in their work and autonomy.

Deci et al. (1992) studied a total of 457 students (336 male and 121 female), 321 were in junior or senior high school, aged 12 to 21, and 136 were in elementary school, aged 8 to 12. The participants were labeled as having either LD or EH and attended self-contained special education classes. The majority of the students were Caucasian and of middle to lower socioeconomic status (SES). There were no differences in racial or SES factors among LD and EH students, in elementary or junior and senior high school.

The participants answered all or parts of six simplified scales. The scales were modified in order for students with LD to answer them fully. Some of the scales measured the students' self-perceptions: self-regulation, academic coping, perceptions of control, and perceived competence. The remaining scales measured the students' perceptions of their parents and their teachers. The scales were all administered to groups of students in the classroom by two or more trained examiners. One examiner read the questions and the other was available to answer any questions and provide minimal help to the younger students.

One-way ANOVAs did not reveal any gender differences at the elementary level and very few differences at the junior-senior levels, therefore, the remaining analyses combined males and females together within four samples: LD elementary, EH elementary, LD junior-senior high school, and EH junior-senior high school. Correlation matrices did not show IQ and age to be adequate explanations of self-perceptions. However, competence seemed to be a central psychological factor for LD students 8 to 14 years and autonomy seemed to be central for EH students of the same age. The results
further suggested that elementary students are more influenced by their mothers and teenagers are more influenced by their teachers. Moreover, EH students are more influenced by support of autonomy factors (i.e., origin-promoting classrooms and parent support of autonomy) and LD students by involvement factors (i.e., parental involvement and teacher warmth). Multiple regressions for achievement revealed the self-perception and social context variables (i.e., home and school) to be fairly successful in predicting the students' performance on standardized achievement tests. Motivation variables were found to markedly predict self-perceptions and perceptions of the social context scores across all groups of students.

Deci et al. (1992) were successful in revealing meaningful patterns of self-perceptions and perceptions of social surroundings within the LD and EH student groups. These motivational variables also predicted achievement and adjustment in these special education students. Hence, intrinsic motivation appears to be important for LD and EH students to achieve and adjust in their social environment.

The major shortcoming of Deci et al.'s (1992) study was the sample. Gender was not evenly distributed across the age range, possibly obscuring gender differences. In addition, the majority of the sample was Caucasian which implies that one must be cautious in generalizing the results across minority groups. Lastly, Deci et al.'s investigation did not compare special education students to regular education students.

Since there is an apparent unanimity among professionals that LD students possess low academic motivation and exhibit unfavourable attitudes toward learning and school, Wilson and David (1994) followed the suggestions of others (Deci et al., 1992; Ryan & Connell, 1989; Ryan, Connell & Deci, 1985) to investigate factors affecting intrinsic motivation. The purpose of Wilson and David's (1994) study was to investigate the nature and characteristics of academic motivation, of minority learning disabled (MLD) and nonminority learning disabled (NMLD) students, and how they view school and learning.
A total of 89 LD students participated in the study (Wilson & David, 1994), 53 male and 36 female, from grades four to eight. The MLD students accounted for 37.1% of the participants, the majority being Native American, Black, and Hispanic. The instruments administered to all the subjects were the School Attitude Measure (SAM; Wick, 1990a, 1990b, 1990c) and the Children's Academic Intrinsic Motivation Inventory (CAIMI; Gottfried, 1986a).

The SAM, a self-report inventory, attempts to measure students' attitudes toward learning and the school environment in general (Wick, 1990d). The five attitudinal subscales of the SAM are: (1) Motivation for Schooling, (2) Academic Self-Concept-Performance Based, (3) Academic Self-Concept-Reference Based, (4) Student's Sense of Control over Performance, and (5) Student's Instructional Mastery. A brief description of each subscale is outlined in Table 1. Table 2 shows sample items from each subscale. Wilson and David (1994) used three of the five available forms: E/F (60 items), G/H (75 items), and I/J (85 items) for students in grade 4, 5 to 6, and 7 to 8, respectively.

The CAIMI, also a self-report inventory, attempts to measure the student's perception of his or her orientation toward mastery, enjoyment of learning, curiosity, persistence, and willingness to learn difficult, challenging, and novel tasks (Gottfried, 1986b). The five subscales of the CAIMI are: (1) Reading, (2) Math, (3) Social Studies, (4) Science, and (5) General (i.e., general school work). The CAIMI has a total of 122 items. Sample items from each subscale are shown in Table 3.

The items were read aloud by trained research assistants to groups of two to six students. A factor analysis was performed on the SAM and CAIMI to investigate the interrelationships of the 10 subscales (Wilson & David, 1994). The SAM and the CAIMI were found to measure separate aspects of LD students' perceptions of the school environment. Factor 1 reflected students' attitudes toward the school environment and their perception of their overall ability to function within the school environment (viz.,
Table 1

Brief Description of the Student Attitude Measure Subscales

Scale 1: The Motivation for Schooling Scale is concerned with the student's view of the importance of school and his or her willingness to participate in the school environment.

Scale 2: The Academic Self-Concept-Performance Based Scale refers to the student's perception of his or her ability to adequately finish school tasks, academic confidence, expectations of success, feeling of importance as a member of the class, and response to poor performance.

Scale 3: The Academic Self-Concept-Reference Based Scale refers to the student's perceptions of how others' (e.g., teachers, family and peers) think of his or her performance in school and expectations for successful academic performance.

Scale 4: The Student's Sense of Control Over Performance Scale is concerned with the student's feelings of his or her control of school outcomes and whether they can change school outcomes, willingness to assume responsibility for outcomes, and whether there is an understanding of the relationship between their outcomes and their behaviour in school.

Scale 5: The Student's Instructional Mastery Scale contains items requesting the student to report his or her own perception of his or her actual school skills (e.g., the students are asked to assess whether they use their time effectively and efficiently, persist in school work, use feedback, and provide self-evaluation of their work).
Table 2

Sample Items From the Student Attitude Measure

Motivation for Schooling Scale:
- I get excited about school and look forward to it.
- In school, I try to volunteer for as many things as I can.

Academic Self-Concept-Performance Based Scale:
- I catch on fast to the work in school.
- I feel important when I am at school.

Academic Self-Concept-Reference Based Scale:
- The best students in class think I do good schoolwork.
- The things I hear about my work at school make me feel proud.

Student's Sense of Control over Performance Scale:
- I don't have any control over the grades my teachers give me.
- There is no way a student like me will get good grades.

Student's Instructional Mastery Scale:
- I like to take tests so I know what I've learned.
- Before I hand my work in, I go over it until I am sure it is right.
Table 3

**Sample Items From the Children's Academic Intrinsic Motivation Inventory**

<table>
<thead>
<tr>
<th>Subject Scales:</th>
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<tbody>
<tr>
<td>- I think it is interesting to do work in...</td>
<td></td>
</tr>
<tr>
<td>reading;</td>
<td></td>
</tr>
<tr>
<td>math;</td>
<td></td>
</tr>
<tr>
<td>social studies; and,</td>
<td></td>
</tr>
<tr>
<td>science.</td>
<td></td>
</tr>
<tr>
<td>- I enjoy doing hard assignments in...</td>
<td></td>
</tr>
<tr>
<td>reading;</td>
<td></td>
</tr>
<tr>
<td>math;</td>
<td></td>
</tr>
<tr>
<td>social studies; and,</td>
<td></td>
</tr>
<tr>
<td>science.</td>
<td></td>
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<table>
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<tr>
<th>General Scale:</th>
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<tr>
<td>- I like to learn.</td>
<td></td>
</tr>
<tr>
<td>- When I know I have learned something new, I feel good inside.</td>
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reflecting items on the SAM). Whereas, Factor 2 reflected the students' perception of their willingness to engage in learning specific curriculum in the classroom (viz., reflecting items on the CAIMI).

Wilson and David (1994) compared the LD students' scores on the SAM and the CAIMI to the standardization sample of NLD students' scores, included in their respective technical manuals. LD students were found not to differ in the areas of General School Motivation, Academic Self-Concept-Reference Based, and Student's Instructional Mastery. Therefore, the results appear to show that the school environment is seen as similar by the LD and NLD students. However, the LD students scored significantly lower on Student's Sense of Control Over School Performance and Academic Self-Concept-Performance Based, than the NLD students. These results suggest that LD students have fewer positive attitudes than do NLD students. The LD students' means for the Reading, Mathematics, Social Science, Science, and General subscales were all found to be significantly lower than the NLD students' means. The CAIMI results may be caused by the LD students' lower sense of control over school performance, as determined by the SAM scores.

Interestingly, grade seven and eight LD students' academic intrinsic motivation was significantly higher in science and general school work as compared to LD students' in grades four through six. Wilson and David (1994) offer possible explanations for these results. Firstly, the NLD students' scores, from the standardization sample, were lower in the seventh and eighth grades, therefore, causing the LD students' scores to look relatively higher. Secondly, the additional support received over the years might influence the LD students' growing motivation to learn, especially in functional areas like science. Finally, older LD students may find science activities interesting because they have a chance to apply basic knowledge.

An ANOVA revealed the scores on the SAM for Motivation for Schooling, Academic Self-Concept-Performance Based, and Student's Instructional Mastery to be
significantly higher as the grade levels increased. Minority status significantly affected MLD students' scores on two subscales; Academic Self-Concept-Reference Based mean scores were higher and the Student's Sense of Control means scores were lower. The MLD students' positive attitudes could be influenced by teachers and parents. Lewis and Lawrence-Patterson (1989) suggest that significant others may have lower expectations of LD students, hence, the MLD students may react defensively by responding positively. However, it is also possible that sociocultural influences exist which create a higher self-concept in the MLD student. The ANOVA performed on the CAIMI revealed grade level to have a significant effect, as the grade level increased the scores were higher. Minority status did not have any significant effect on the CAIMI subscales. Higher scores, in higher grades, may be due to learned strategies and participation in educational intervention programs over a number of years. Overall, the LD students had significantly lower academic intrinsic motivation than the NLD students across all five subject areas.

Fortunately, Pintrich, Anderman, and Klobucar (1994) conducted a similar study to determine whether relationships existed between cognition and motivation, in students with and without LD. Pintrich et al. hypothesized that LD students would have lower self-efficacy in reading and attribute failure to ability more than their NLD peers. LD students who had experienced a substantial amount of failure in the past were expected to be less inherently motivated and show higher levels of anxiety than students without LD. Furthermore, emphasis was directed towards discovering whether intraindividual differences in the patterns of relations between motivation and cognition would be evident.

A total of 39 grade five Caucasian students (30 males and 9 females) from two elementary schools participated in Pintrich et al.'s (1994) investigation. The school system previously identified 19 of the male students to be LD using the WISC-R (Wechsler, 1974) and the Woodcock-Johnson Psycho-Educational Battery (Woodcock & Johnson, 1977). The LD students scored in the normal range for IQ and had an achievement score of at
least two grade levels lower than the expected level. The LD students were all reading two or more grade levels lower than grade five. Although the LD students were mainstreamed, they spent one to two hours a day in a resource room. The remaining students, eleven males and nine females, had no apparent achievement difficulties and were learning in a traditional classroom.

Pintrich et al. (1994) utilized two self-report questionnaires. First, the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich & DeGroot, 1990) was modified to specifically address questions regarding motivation and attributions for success and failure of the students' reading. The modified MSLQ measured three areas of motivation: Intrinsic Orientation (i.e., interest in and liking of reading), Self-Efficacy (i.e., confidence in accomplishment of reading) and Anxiety (i.e., worry and concern of taking reading tests). The students also rated attributional items regarding their reactions to thriving or blundering at comprehending what they read and obtaining a good grade in reading. Success and failure of each of the two tasks were measured using six attributes: ability, effort, task difficulty, luck, paying attention, and getting help. The second measure used was the Index of Reading and Awareness (IRA; Jacobs & Paris, 1987). The students answered questions regarding their knowledge of reading comprehension strategies.

In order to compare LD and NLD students, a standard measure of reading performance was obtained by completing two comprehension tasks (Paris, Cross, & Lipson, 1984). The first measure required the students to read a short story and answer five multiple choice questions (non-cloze task), without looking back through the story. For the second measure, the students read a story with ten missing words (cloze task). The students had to complete sentences by choosing one answer from a possible four.

A researcher individually administered the questionnaires during a 40 minute time period. The questions were read aloud by the researcher for the MSLQ and the IRA. The
students finished by completing the standard measure of reading comprehension on their own.

A multivariate analysis of variance (MANOVA) was performed on the motivational (anxiety, intrinsic orientation, and self-efficacy), metacognition (IRA) and comprehension (non-cloze and cloze) measures for both LD and NLD groups of students. The NLD students scored significantly higher on both reading comprehension tasks which verified that the LD students had reading comprehension difficulties. In addition, the NLD students scored significantly higher in metacognitive awareness. Interestingly, there were no differences found between the two groups of students in the areas of intrinsic orientation, self-efficacy, or anxiety.

Attributions for success and failure differed by group, as revealed by a MANOVA. LD students were found to attribute their reading success to ability, easier tasks, luck and receiving assistance significantly more often than did NLD students. The two groups did not differ in their attributions of success to effort. The only significant differences concerning failure attributions were for luck and lack of assistance, LD students scored higher on both measures. The LD students were also found to attribute their success and failure experiences to external factors more than did their NLD peers. An important finding was that there was no indication for learned helplessness (i.e., attributing failure to lack of ability) in LD students.

The two reading comprehension tasks correlated with IRA scores and with each other. This was an expected finding that suggests students with greater metacognitive understanding about reading do better on comprehension tasks. A strong correlation between intrinsic orientation and self-efficacy implies students with a high interest will also feel competent. Negative correlations found between the two reading comprehension tasks and anxiety suggest that high anxiety is associated with poor performance. Lastly, there were no statistical differences in correlations found between LD and NLD groups.
Correlations among the attribution scales revealed students who attributed success to internal causes were less anxious, more interested, more self-efficacious, more knowledgeable with respect to metacognitive strategies, and performed better. Those students who attributed reading success to controllable factors were less anxious, more knowledgeable with respect to metacognitive strategies, and performed better. Furthermore, when the students attributed their failure to unstable or uncontrollable factors they were less interested and less efficacious.

A P-type cluster analysis (Pintrich, 1989) was performed to investigate whether intraindividual differences existed in the pattern of the relations among the motivational, metacognitive, and comprehension measures. The three clusters formed closely resembled group membership. The majority of Cluster 1 contained NLD students whereas, Cluster 3 contained all LD students. Cluster 2 was almost an equal split of NLD and LD students. Metacognitive awareness and cloze comprehension revealed the greatest differences among clusters, Cluster 1 being highest, followed by Cluster 2, and then Cluster 3. The only motivational measure resulting in a significant difference was that for intrinsic orientation. Cluster 2 appeared to be less interested than Clusters 1 and 3. Finally, Cluster 1 was less apt to attribute success to ability or task difficulty, less apt to attribute failure to bad luck or lack of assistance, and more apt to attribute success to factors under their control. Overall Cluster 1 students were significantly more inclined to attribute success to internal causes rather than external causes.

The weaknesses of Pintrich et al.'s (1994) investigation greatly fall within the selected sample. The sample was small and completely Caucasian, hence, generalizations are extremely limited. Only male students were in the LD sample, yet they were compared to both male and female NLD students. Furthermore, only motivational and metacognition variables affecting reading comprehension were studied, therefore, one should take caution in interpreting the results across subject areas.
Each of the aforementioned studies examined intrinsic motivation of LD children, however, only Deci et al. (1992) chose to consider the effects that significant others had on students' motivation. Skinner and Belmont (1993) also investigated the apparent role that significant others play in affecting the academic intrinsic motivation of students, namely the teacher's role. Over one school year, Skinner and Belmont were concerned with how teachers' behaviour affected students' engagement and in turn how the students' motivation affected the teachers' behaviour. Engagement was defined as continued involvement in activities and positive emotional tone, the opposite being referred to as disaffection.

Skinner and Belmont (1993) developed a model of motivation based on Connell and Wellborn's (1991) motivational analysis of self-system processes. The model proposed that the highest potential of student engagement would be reached when the social surroundings fulfilled the students' basic psychological needs to be competent, autonomous, and involved with people. Optimization of these three variables would be obtained by students if the teacher provides: (1) structure, such as clear expectations, (2) autonomy support, such as choice in learning activities, and making connections between activities and the students' interest, and (3) optimal involvement with the students, such as the teacher taking time to express affection towards, enjoy interactions with, and dedicate resources to their students. The opposite of structure, autonomy support, and involvement are chaos, coercion and rejection, or neglect, respectively.

A total of 14 teachers and 144 students, equally divided by gender and grade (i.e., Grades 3, 4, and 5), participated in the study. The majority of the participants were Caucasian (94%) and the minority were mainly African-American (6%). The teachers completed their questionnaires while trained interviewers helped the students complete their questionnaires in the regular classroom. During three 40 minute time periods, one interviewer read the questions while another was present to help the students.
Measures concerning teacher involvement, structure, and autonomy support were assessed through teachers' reports of their interactions with each child (Wellborn, Connell, Skinner, & Pierson, 1988) and students' reports of their interactions with their teachers (Belmont, Skinner, Wellborn, & Connell, 1988). Questions on the student questionnaire were geared as closely as possible to parallel the teacher questionnaire. Student engagement was measured by students' reports on their behaviour and emotion in the classroom and by the teachers' reports on students' behaviour and emotion in the classroom.

Correlations between the spring and fall of all the variables revealed high stability coefficients. The teachers and students reported higher levels of teacher structure, lower levels of involvement, and even lower levels of autonomy support with regards to teacher context. Teachers and students both reported high levels of student engagement at both times of testing. The students' perceptions of their teachers' behaviors were not different across teacher context, however, teachers' reports of their own behaviors differed. High correlations were discovered between student behaviour and emotion by both teachers and students.

Concurrent correlations between the student and teacher reports of teacher context found differences in the perceptions of teacher behavior during the fall testing, however, by spring autonomy and involvement were somewhat correlated. Student and teacher reports of student engagement were more significant for student behaviour than emotion. Correlations between teacher behaviour and student engagement revealed teacher involvement, structure, and autonomy support to be significantly related to students' behavioural and emotional engagement, during fall and spring. However, correlations of teacher structure and student emotional engagement were always lower. Frequently, the students' perceptions were higher and similar across the variables of teacher behaviour and
student engagement. The significant correlations suggest that teacher behaviour is linked to
student engagement.

Path analysis and time-lagged correlations found that when teachers were highly
involved with their students, the students experienced their teachers as more structured and
autonomy supportive. In contrast, less involved teachers were perceived by their students
as less involved, chaotic, and coercive. Students' perceptions of teacher structure seemed
to predict students' behavioural engagement. In addition, students' perceptions of teacher
involvement seemed to predict students' emotional engagement. The path analysis did not
reveal a causal link between the teachers' and students' reports. Interestingly, teachers'
reports of student engagement in the fall predicted teachers' reports of student engagement
in the spring. Teacher involvement and autonomy predicted student behaviour and
emotion.

Student behavioural engagement predicted subsequent teacher involvement,
autonomy support, and, to a lesser extent, structure. The correlations were positive which
suggest the students who were behaviourally engaged were subsequently given more
supports. Student emotion in the fall also positively correlated with teacher involvement
and autonomy in the spring. The positive relations indicate that students who seem to
show more interest in the classroom will receive attention and freedom from teachers. In
comparison, the path analysis did not indicate the same results, in fact the path analysis
found a negative link between student emotion and subsequent teacher autonomy support.
Skinner and Belmont (1993) suggested that the negative link implied that teachers respond
to children who express negative emotions by allowing them more choices and encouraging
them to follow their own interests.

A few shortcomings exist in Skinner and Belmont's (1993) investigation. Firstly,
the sample of students was primarily Caucasian which did not allow for minority
differences. Secondly, although there were equal numbers of male and female students,
gender differences were not considered. Thirdly, the study does not address whether different teaching methods have any bearing on classroom motivation. Finally, the researchers do not indicate or suggest how interactions between teachers and students with special needs may differ from the norm.

Grolnick and Ryan's (1990) study, however, did take into consideration the interactions of LD students and teachers. The purpose of Grolnick and Ryan's study was to examine the differences between LD students and low-achieving students with respect to perceived competence, self-regulation and control, and teacher-ratings of student competence, motivation, self-esteem, and adjustment. The researchers were also interested in the degree to which teachers are apt to prod or control students in order to enhance achievement.

A total of 148 students in grades three through six and their teachers participated in the study (Grolnick & Ryan, 1990). More than ninety percent of the students were Caucasian and were from lower to upper middle class families. Four groups, of 37 students each, were formed: LD, matched-IQ NLD, randomly selected (not matched for IQ) NLD, and low-achieving NLD. The students in the LD group were previously identified to have LD by the school district. The students in the low-achieving group scored below the 25th percentile on combined reading and math achievement scores as compared with their same aged peers. Gender and age were matched in each group.

Grolnick and Ryan (1990) had the students answer three school-related self-report measures regarding perceived competence in three areas (i.e., cognitive, social, and physical) and their feelings of self-worth, perceived self-regulation, and perceived control in three areas (i.e., cognitive, social, and physical). Control was measured on three levels: internal control, control by powerful others, and unknown control. The questions were read aloud to the students by one researcher in their classroom. Another researcher was available to answer questions and provide help to the students if needed.
The teachers answered two school-related scales. One scale measured teacher ratings of students' competence, motivation and self-esteem, and the extent to which the teacher uses prodding or controlling techniques (e.g., urging the student to complete school work). The second scale measured teacher ratings of students' adjustment in the classroom on three levels: acting out (i.e., aggressive, disruptive, and impulsive behaviour), shy-anxious (i.e., shy, withdrawn, and nervous behaviour), and learning problems (i.e., school work and performance difficulties).

In the initial analysis, ANOVAs revealed girls to be more autonomous than boys and sixth grade students to perceive control by powerful others higher than students in grades three through five. Numerous significant differences were revealed by the ANOVAs on the students' self-report measures. The LD students perceived themselves as less competent in the cognitive area than both the matched-IQ NLD and the randomly selected NLD students. No significant differences were shown between LD and low-achieving NLD students. LD students reported being less autonomous than the randomly selected NLD students. However, no significant differences were revealed with the matched-IQ NLD and low-achieving NLD students. LD students perceived more control by powerful others than the randomly selected NLD and low-achieving NLD students. No significant differences were indicated between the LD students and the matched-IQ NLD students.

The ANOVA results for teacher ratings were strongly significant. LD students were rated as less competent and having more learning problems than the other three groups of NLD students. Teachers also rated the LD students to be less motivated than the matched-IQ NLD and randomly selected NLD students. A small but significant effect was shown for teachers to rate LD students as less motivated than their low-achieving NLD students. Teachers reported being more controlling of LD students and rated them to have lower self-esteem than others students. According to teachers' rating, LD students exhibit
more aggressive, disruptive, and impulsive behaviours than low achieving NLD students. LD students were also rated by teachers as being more withdrawn than the randomly selected NLD group, however, they were rated similarly to the matched-IQ NLD and low-achieving NLD students.

Grolnick & Ryan (1990) were able to conclude that biased judgements of LD students' motivational and self-concept patterns may be developed when IQ is not controlled in research studies. This is apparent when looking at the comparisons between LD students and low achieving NLD students. They did not differ on self-perceptions of competence and autonomy, but both groups scored significantly lower than the randomly selected NLD students. Grolnick and Ryan also suggest that LD students may acquire their general self-perceptions outside of school, as no group differences were evident for both the general perceived competence and general control perceptions. Grolnick and Ryan's results seemed to indicate a continuing cycle between teachers and LD students. LD students seem to believe that powerful others control their school outcomes whereas teachers tend to provide more control to LD students who act-out in the classroom.

The shortcomings of Grolnick & Ryan's (1990) study dealt mainly with IQ. The randomly selected NLD students had a slightly higher IQ than the low-achieving NLD students. Achievement levels for the LD students and the low-achieving NLD students were not an exact match as the LD students did not take a comparable achievement test. In addition, schools prohibited individual IQ assessments on each student, hence, only group IQ assessments were obtained.

In a similar study, Gottfried, Fleming and Gottfried (1994a) investigated the role parents play in influencing the academic intrinsic motivation of their children. The researchers were specifically concerned with how parental encouragement of children's school-related intrinsic motivation affected children's academic intrinsic motivation and achievement. A total of 107 students participated in the study (57% male and 43%
female). The majority of the students were Caucasian. When the students reached nine
years of age, data on their mothers' parental motivational practices were collected.

The Parental Motivational Practices Scale (PMPS; Gottfried, Gottfried, & Fleming,
1994b) was utilized to measure mothers' use of intrinsic and extrinsic motivational practices
based on their child's performance in school (Gottfried et al., 1994a). The PMPS is a self-
report questionnaire containing 20 Likert type items. The PMPS has two subscales: Task
Endogeny and Task-Extrinsic Consequences. The Task Endogeny scale, consisting of 10
items, refers to eight items involving the encouragement of intrinsic motivation, plus one
item concerned with helping the child do work when not doing well, and one item on the
provision of home activities. The Task-Extrinsic Consequences scale refers to 10 items
involving the following: reward, punishment, encouragement to improve, and school
strategies. Sample items from each subscale are shown in Table 4. For the remainder of
the present study, Task Endogeny and Task-Extrinsic Consequences will be referred to as
Intrinsic Motivational Practices and Extrinsic Motivational Practices, respectively.

The CAIMI (Gottfried, 1986a) was used to assess the academic intrinsic motivation
of the students at the ages of nine and ten. The students' achievement was measured using
the Reading and Mathematics subscales of the Woodcock-Johnson Psycho-Educational
Battery (Woodcock & Johnson, 1977), at ten years. The CAIMI and the Woodcock-
Johnson were administered to the students at the time of their regularly scheduled yearly
assessment, at the university (as they were part of the Fullerton Longitudinal Study of
Development). The mothers were surveyed when their children were nine years old.
While the students were being tested, their mothers filled out questionnaires.

Two areas were analyzed separately, general-verbal and math. Reading, Social
Studies, Science, and General subscales of the CAIMI were combined with the Reading
subscale of the Woodcock-Johnson to form one motivational factor and the two Math
subscases from each test instrument formed the other motivational factor. To create two
Table 4

Sample Items From the Parental Motivational Practices Scale

Intrinsic Motivational Practices (Task-Endogenous Scale):
- When my child is bored I try to provide new activities for him/her.
- I try to expose my child to new experiences.

Extrinsic Motivational Practices (Task-Extrinsic Consequences Scale):
- When my child does well in school, I usually reward him/her with a privilege.
- When my child does not do well on a school task, I usually have a conference with the teacher.
variables per factor, Reading scores were averaged with General scores and Science scores were averaged with Social Studies scores. Two variables, each based on the average of five items made up the Intrinsic Motivational Practice and Extrinsic Motivational Practice factors of the PMPS. A multivariate analysis did not indicate any gender differences on the mothers' motivational practices, nor on the CAIMI subscales at nine and ten years, nor on the Woodcock-Johnson Reading and Math scores at ten years. Therefore, all remaining calculations included both males and females. Variance-covariance matrices were calculated for the general-verbal and math areas using the EQS program (Bentler, 1989).

In the general-verbal matrix, the mothers' use of intrinsic and extrinsic practices were both found to significantly influence their children's general-verbal intrinsic motivation at age nine. Squared multiple correlations revealed the mothers' use of intrinsic motivational practices to be positively correlated to their children's academic intrinsic motivation. In contrast, extrinsic motivational practices were negatively correlated. As a result, age nine general-verbal intrinsic motivation predicted general-verbal intrinsic motivation and reading achievement at age ten. In addition, the two motivational practices were positively correlated. Indirect effects of the mothers' motivational practices, when the children were nine years old, predicted age ten motivation and achievement.

As in the general-verbal analysis, the math analysis found mothers' motivational practices to predict their children's academic intrinsic motivation at age nine. The intrinsic component was positively correlated with academic intrinsic motivation, whereas, the extrinsic component was negatively correlated. Both math intrinsic motivation and math achievement, at ten years of age, were influenced by math intrinsic motivation at nine years of age. Again, significant indirect effects were found between motivational practices. Finally, correlations of motivational practices revealed indirect positive relations with intrinsic motivational practices and negative relations with extrinsic motivational practices.
The weakest area of Gottfried et al.'s (1994a) study concerned the grouping of variables to form composites between the two motivational practices. The two motivational practices were found to be significantly correlated in a positive direction which was not indicated in the principal component analysis. Limitations also existed in the sample of mainly Caucasian middle class families. Perhaps differences may be found across ethnic English speaking families of various SES or in students with learning problems, therefore, the results of the study should not be generalized. Only the mothers' practices were considered in the study and not the fathers' practices. Furthermore, the students' perceptions of their parents' practices were not analyzed. Lastly, the findings do not indicate whether extrinsic motivational practices replace or are concurrent with intrinsic motivational practices.

The aforementioned studies seem to establish one pertinent point, academic intrinsic motivation is higher when students are given support and freedom of choice. Controlling environments only appear to hinder the LD and NLD students' academic intrinsic motivation. Deci et al. (1992) were able to supply evidence that intrinsic motivation variables are important for the achievement and adjustment of students in special education programs. In addition, motivational patterns of relations are different between students with special needs. Since students with LD generally have trouble learning and feeling competent, and experience a large number of academic failures (Licht, 1983) it is understandable why competence and involvement variables are found to be central to their motivation. Whereas, students with emotional handicaps are more apt to be reminded of their failures at self-regulation, which is why support-of-autonomy and autonomy are central to their motivation.

Wilson and David's (1994) results posit that LD students experience a lower sense of control over their performance on academic tasks than do NLD students, which explains why LD students report a lack of enthusiasm for participating in academic learning.
Rogers and Saklofski's (1985) study corroborates Wilson and David's finding that students with LD also tend to express poor self-concept and a low sense of control over their environment. However, LD students in higher grade levels reported higher attitudes toward school and academic intrinsic motivation relative to LD students in lower grade levels (Wilson & David, 1994). Interestingly, minority learning disabled students report more positive academic self-concept related scores than nonminority learning disabled students.

Even though students with LD have lower levels of metacognitive understanding of reading strategies than NLD students, they do not hold less positive motivational beliefs (Pintrich et al., 1994). Specifically, LD students and NLD students do not differ on self-reports of self-efficacy, intrinsic orientation, and anxiety. Moreover, LD students tend to attribute their success at reading tasks to ability, a positive attributional style, more than do their NLD peers. However, overall, students with LD frequently attribute success and failure to external causes which is not adaptive in terms of future success. Students who believe their success is due to internal causes have more positive motivational ideologies.

Teacher involvement seems to be pivotal to students' experiences in the classroom (Skinner & Belmont, 1993). The students' motivation is predicted by the teachers' autonomy support and optimal structure. Optimal support and structure, provided by the teacher, appears to satisfy the students' perceived needs for relatedness, competence, and self-determination, as students report being more enthusiastic and feeling happier in class. In turn, student motivation frequently predicts subsequent teacher behaviour.

The results of Skinner and Belmont's (1993) study imply that students who are behaviourally disengaged receive teacher responses that may hinder their intrinsic motivation, such as neglect, coercion and inconsistency. Teachers may act negatively toward behavioural disengagement because they feel incompetent, therefore, teachers may
choose to spend less time with the students, or teachers may apply external demands on the students to participate in academic tasks.

Skinner and Belmont's (1993) external demands seem to be similar to the controlling and prodding techniques used by teachers in Grotnick and Ryan's (1990) study. These techniques tend to push children to complete their school work. Teachers reported being more controlling of LD students than NLD students in order to promote performance. In turn, these controlling techniques appear to represent the extrinsic motivational practices defined by Gottfried et al. (1994a). Interpersonal involvement of the teacher seems to be especially important in promoting the academic intrinsic motivation of students.

Similarly, mothers' encouragement of children's intrinsic motivation is positively related to children's academic intrinsic motivation (Gottfried et al., 1994a). Whereas, mothers' extrinsic motivational practices are negatively related to children's academic intrinsic motivation. Furthermore, these motivational practices significantly influence subsequent motivation and achievement through their effects on earlier academic motivation. These findings suggest that mothers' motivational practices are particularly meaningful because they can facilitate or abate early academic intrinsic motivation which significantly influences future motivation and achievement.

Upon reviewing the recent studies involving intrinsic motivation, the present investigation will be addressing two research problems. The first question of interest is: Are there differences in LD and NLD students' characteristics on measures of attitudes toward school and learning, and academic intrinsic motivation? The second and key question of interest is: Are there differences in parental motivational behaviours for LD and NLD students' parents?

Based on past research findings (Wilson & David, 1994), it is hypothesized that LD students will score lower than will NLD students on the Student's Sense of Control Over
Performance Scale and on the Academic Self-Concept-Performance Based Scale of the SAM and on all five subscales of the CAIMI. In addition, since there is evidence that LD students need more control as teachers are more controlling of LD students (Grolnick & Ryan, 1990), a working hypothesis was logically adopted that parents of LD children will use more controlling mechanisms also (i.e., extrinsic motivational practices) compared to parents of NLD children.
Methodology

Participants

The principals from 22 schools (out of a possible 30) with a multicultural environment, in a southern, metropolitan region in Ontario, Canada, were approached to participate in the study. A total of 12 principals from 12 schools (7 regular and 5 compensatory), 23 teachers and 1 vice-principal agreed to have some or all of their students participate in the present investigation, providing parental consent was obtained prior to testing. Compensatory schools were previously defined and identified by the board of education as schools with a significantly large number of students from lower income families and single parent homes as compared to regular schools. All of the students who returned a signed Parent Consent Form (see Appendix A) permitting them to partake in the investigation were selected to participate in the study along with their parents.

A total of 106 (40 female and 66 male) students and 150 (105 female and 45 male) parents volunteered to participate. More parents participated than did students as sometimes both parents agreed to partake in the study along with their child rather than only one parent. One female student was eliminated from the study as she was absent on the day questionnaires were administered. Twenty-seven parents were eliminated because 17 parental surveys were not returned to school and 10 parents from 5 households did not indicate whether they were the child’s mother or father on their survey. Therefore, only the data from 105 (39 female and 66 male) students and 123 (87 female and 36 male) parents, which included 32 couples, were analyzed. The students ranged in age from 9 to 15 years and were drawn from a mix of regular and compensatory schools.

The board of education previously identified 38 of these students to have LD. A learning disability as defined by the participating board in the present investigation follows the Ontario Ministry of Education definition (see Appendix B). The students identified to
have LD were divided into three groups according to the extra support they received at school:

1. Self-Contained Classroom (SCC) - students in a segregated classroom 100% of the time,
2. Home School Program (HSP) - students in a special education classroom 50% of the time and in a regular classroom the other 50% of the time, and
3. Resource Program (RP) - students in a regular classroom 85% of the week but are withdrawn for assistance in specific areas for 15% of the week.

A total of 19 students were in a SCC, 3 in a HSP, and 16 in a RP. The SCCs were at three different levels: primary/junior (P/J), junior/intermediate (J/I), and intermediate (INT). The remaining 67 students served as the control group.

**Instruments**

**Attitudes Toward School and Learning.** The students' attitudes toward school and learning were measured using the School Attitude Measure (SAM; Wick, 1990a, 1990b, 1990c). The SAM consists of five subscales: Motivation for Schooling, Academic Self-Concept-Performance Based, Academic Self-Concept-Reference Based, Student's Sense of Control over Performance, and Student's Instructional Mastery (Wick, 1990d). A brief description of each subscale is outlined in Table 1 (p. 8). The students respond to each item based on their feelings. Table 2 (p. 9) shows sample items from each subscale.

The SAM can be administered to students in grades one through 12, using one of five forms depending on their grade level. The present study concentrated on 3 forms: E/F - grade 4, G/H - grades 5 and 6, and I/J - grades 7 and 8. The number of items on each of the forms are: E/F - 60, G/H - 75, and I/J - 85. An equal number of items for each of the five scales are on each form: 12, 15, and 17, respectively. Each response is on a 4-point Likert scale ranging from Never Agree to Always Agree. The items on Scales
1, 2, 3, and 5 are scored in a positive direction, but Scale 4 requires reverse coding as the wording of items are written in a negative direction.

Overall, the reliability of the SAM (Wick, 1990d) for levels E/F, G/H, and I/J seems to be moderately high. The reliability coefficients for Scales 1 through 5 on the three forms were as follows: E/F - .84, .80, .79, .72, and .79; G/H - .83, .87, .85, .75, and .83; and I/J - .82, .88, .87, .80, and .84, respectively. The total reliability coefficients for the three forms were: E/F - .91, G/H - .94, and I/J - .95.

The SAM has high face validity across all five scales (Wick, 1990d). The median scale reliability of .83 and the median intercorrelation coefficient among the SAM scales of .56 indicates some proportion of shared variance between the SAM scales. To identify construct validity Wick states that, "For an affective measure to be valid it must avoid a high correlation between performance on the affective measure and performance on a reading achievement test." (p. 43). Therefore, the SAM (an affective measure) has reasonable construct validity as the median reliabilities for the reading tests in the National Achievement Test (NAT) and the median reliabilities for the SAM Total were both at or above .90 and the correlations on performance between the SAM Total and NAT Reading Total for grades 4 through 8 ranged from .22 to .31.

**Academic Intrinsic Motivation.** The students' academic intrinsic motivation was assessed utilizing the Children's Academic Intrinsic Motivation Inventory (CAIMI; Gottfried, 1986a), which is comprised of five subscales: Reading, Math, Social Studies, Science, and General (i.e., general school work). The CAIMI is a 44 question self-report inventory totaling 122 items (Gottfried, 1986b). Each subject area scale includes 26 items. Eighteen items are in the General scale. Table 3 (p. 10) shows sample items.

The development of the CAIMI was based on three studies by Gottfried (1985) that extended over a period of six years. The internal consistency of the CAIMI is very high as indicated by the coefficient alphas for each subject scale: for Reading, Math,
Social Studies, Science, and General scales the coefficient alphas were .90, .89, .91, .90, and .89 in Study 2 and .92, .93, .93, .91, and .83 in Study 3 (Gottfried, 1986b). Test-retest reliability was determined by retesting a random sample of participants in Study 2 after two months elapsed. Fairly high test-retest reliability is indicated as coefficients ranged from .69 to .75 (df = 136, p < .01). Coefficients were consistent across grade, sex and race for both internal consistency and test-retest reliability.

The intercorrelation coefficients ranged from .00 to .42 which indicates some proportion of shared variance among the scales (Gottfried, 1986b). The average correlation of .39 suggests that the average proportion of variance shared between the scales is .15. Overall, the CAIMI seems to measure curriculum areas unique to each scale.

In addition, the CAIMI (Gottfried, 1986b) has high construct validity as Gottfried (1985) found academic intrinsic motivation to be positively correlated to students' school achievement as assessed by both standardized achievement tests and teacher grades (r = .24 to .44, p < .05 to p < .001), students' perceptions of their academic competence (r = .49 to .62, p < .001), teachers' perceptions of students' academic intrinsic motivation (CAIMI: Reading, Math, and General scales, r = .27, .22 and .25, p < .01, respectively), and other measures of intrinsic versus extrinsic motivation (r = .17 to .64, p < .05 to p < .001). Further, Gottfried found the CAIMI to be negatively correlated to students' academic anxiety (r = -.38 to -.52, p < .001).

Gottfried (1986b) developed the CAIMI to measure enjoyment of learning, an orientation that emphasizes task mastery, curiosity, persistence, and the undertaking of challenging, difficult, and novel tasks. Responses on 24 questions are on a 5-point Likert scale ranging from Strongly Agree to Strongly Disagree and the remaining two questions are forced choice between an intrinsic and extrinsic alternative. The items are balanced to indicate both agreement and disagreement to minimize response bias then reversed for scoring purposes. The items are summed for each of the four curriculum
areas and for academic work in general to indicate the students' level of academic intrinsic motivation. The higher the score, the higher the student's academic intrinsic motivation and vice versa. The CAIMI is used for students in grades four through eight.

**Parental Motivational Practices.** The Parental Motivational Practices Scale (PMPS; Gottfried et al., 1994b) was used to measure parents' use of intrinsic and extrinsic motivational practices. The items on the PMPS were developed through pilot testing of mothers over recent years (Gottfried et al., 1994a). A principal-component analysis with varimax rotation was conducted on the pilot items. Only items that loaded as .40 or higher were selected to form the PMPS. As a result, the PMPS is a self-report questionnaire with a total of 20 Likert type items on a six-point scale, ranging from Not at all True to Very True or from Rarely to Always.

The PMPS has two subscales: intrinsic and extrinsic. The intrinsic motivational practices scale represents parents' encouragement of their children's academic intrinsic motivation (task-endogeny) and extrinsic motivational practices scale represents parents' use of task-extrinsic consequences subject to their children's task performance. Each subscale has 10 items. Table 4 (p. 23) contains sample items from each subscale. The correlation among the two scales is .10. Scoring is calculated utilizing an additive scale.

The reliability coefficient alpha for each subscale of task endogeny and task-extrinsic consequences was .83 (Gottfried et al., 1994b). Construct and criterion-related concurrent validity are supported with regards to intrinsic motivational practices being positively related to children's academic intrinsic motivation and achievement, and extrinsic motivational practices being negatively related to academic intrinsic motivation and achievement (Gottfried et al., 1994a).
**Procedure**

Approvals to conduct the present study were sought and granted in the following order: the Ethics Committee at the Faculty of Education, the University of Windsor (see Appendix C), the selected Board of Education Research Review Committee from a southern, metropolitan region in Ontario, Canada (see Appendix D), the principals (see Appendix E), the teachers (see Appendix F), and the parents of students (see Appendix G).

Once approval was obtained from the classroom teachers, a meeting was scheduled for the researcher to speak to the students about the purpose of the study and the questionnaires that the children would be answering. Sample questions were given and a brief question-answering time followed. Envelopes, containing the letter to the parents and two Parent Consent Forms, were given to the students to be returned to the teacher within one week. At this point, a date was set to return to the school to administer the questionnaires to the children who had returned a signed Parent Consent Form. A total of 294 Parent Consent Forms were sent home with students. Both children from dual and single parent homes were sought to participate with their parents. Students were only allowed to participate if either one or two parents agreed to participate with them.

To determine which level of the SAM to administer to the LD students, the researcher asked the teacher to indicate the student's corresponding grade level. Table 5 indicates a complete breakdown of the data. The researcher and a trained university assistant tested the students either individually or in small group settings, in a quiet area at the school they attended (i.e., library, extra room, office, or hallway away from traffic). The maximum size of a small group was 7 students per researcher. The students' teachers were not present during the testing period.

All of the students were given an identical set of instructions, which corresponded to the directions for administration included with the SAM and the CAIMI. To avoid modification of the questionnaires for LD students, the statements were read aloud by the
### Summary of Student Data

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>E/F Male</th>
<th>E/F Female</th>
<th>G/H Male</th>
<th>G/H Female</th>
<th>I/J Male</th>
<th>I/J Female</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/J (SCC)</td>
<td>2</td>
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<td>3</td>
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<td>6</td>
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<tr>
<td>J/I (SCC)</td>
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<td></td>
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<td>1</td>
<td>3</td>
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<td>7</td>
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<tr>
<td>INT (SCC)</td>
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<td></td>
<td>4</td>
<td>2</td>
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<td>6</td>
</tr>
<tr>
<td>4 (HSP)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4 (RP)</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>5</td>
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<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>5 (RP)</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>6 (RP)</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>13</td>
</tr>
<tr>
<td>7 (HSP)</td>
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<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>2</td>
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<td>9</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

**Total LD Students**  7      5      11      4      8      3   38

**Total NLD Students** 9      5      18      15     13     7   67

**Total Students**  16     10     29     19     21     10  105

*Note. SCC = self-contained classroom; RP = resource program; HSP = home school program.*
researcher to both LD and NLD students. A statement was also rephrased when the students indicated that they were unsure of the statement's meaning. Pencils were supplied to the students and they responded to the two questionnaires on the corresponding answer forms provided. Each questionnaire took between 15-25 minutes to answer and they were administered back to back. However, when fatigue was a factor, testing was stopped and rescheduled. Small breaks were also given when requested or when the researcher thought a break was necessary.

Upon completion of the questionnaires, the students were given a fancy, painted pencil. The students were not aware that they would be receiving a small token of appreciation for participating in the present study. At this time, the students were also given an envelope containing the appropriate number of PMPSs to bring home to their parents. A return date of one week was written on each package. The researcher returned to the school within two weeks to pick up the returned PMPSs. The collection of the data took five months (January through May) once approval from the school board was obtained.

A control group was included in the study to indicate whether a difference would be shown between the motivation practices of parents of NLD students and LD students. The mean age of the 67 NLD students in the control group was 11.07 (SD = 1.55). Since there were only three students in the HSP able to participate in the study, they were combined with the students in the RP. Consequently, the SCC and the RP each had a total of 19 LD students. The mean age of the students in the SCC was 11.32 (SD = 1.60) and the mean age of the students in the RP was 10.58 (SD = 1.17).

Analyses were conducted using Chi-Square Tests and Analysis of Variance. Pearson Product-Moment Correlations were obtained to examine relationships between parental motivational practices and children's attitudes toward school and learning, and
their academic intrinsic motivation. In June, a brief summary of the preliminary results was sent home to the parents (see Appendix H).
Results

The initial analysis, Chi-Square Tests on gender by group did not show any significant differences $\chi^2(2, N = 105) = 2.59$, $p > .1$. Nor did the groups differ in terms of age $F(2,104) = 1.23$, $p > .1$. In addition, there were no differences found on any of the ten dependent measures between the two LD groups’ (SCC and RP) scores, $p > .1$. Hence, the LD groups were combined to make one LD group for the remainder of the analysis. As a result, two groups of students, LD and NLD, were the focus of the One-way ANOVAs and the Pearson Product Moment Correlations along with their parents.

One-way ANOVAs

On the SAM, the LD students scored significantly lower on Student's Sense of Control than NLD Students, although both groups scored lower on this scale than on any other scale (see Table 6 and Figure 1). Table 7 and Figure 2 show LD students to score significantly lower on all five scales of the CAIMI than NLD students.

Both groups of mothers score similarly on intrinsic practices, however, mothers of LD students use significantly more extrinsic practices than mothers of NLD students (see Table 8). Overall, Figure 3 reveals mothers of both the LD and NLD students to use more intrinsic practices than extrinsic practices. Table 9 shows that fathers of both LD and NLD students score similarly on both scales of intrinsic and extrinsic practices. Overall, both groups of fathers use more intrinsic than extrinsic practices (see Figure 4).

Pearson Product-Moment Correlations (two-tailed tests)

Correlation coefficients are reported in Table 10. Here one can see a small but significant correlation between a mother’s use of intrinsic motivational practices and extrinsic motivational practices. It seems that mothers who use more intrinsic motivational
Table 6

Analysis of Variance for Factors of LD and NLD Students for the School Attitude

Measure (SAM)

<table>
<thead>
<tr>
<th>Scale</th>
<th>LD M</th>
<th>LD SD</th>
<th>NLD M</th>
<th>NLD SD</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation for Schooling</td>
<td>68.26</td>
<td>33.25</td>
<td>68.72</td>
<td>30.76</td>
<td>1, 103</td>
<td>0.01</td>
<td>.94</td>
</tr>
<tr>
<td>ASC-Performance Based</td>
<td>71.03</td>
<td>28.72</td>
<td>77.15</td>
<td>23.88</td>
<td>1, 103</td>
<td>1.37</td>
<td>.24</td>
</tr>
<tr>
<td>ASC-Reference Based</td>
<td>69.61</td>
<td>29.84</td>
<td>76.43</td>
<td>24.63</td>
<td>1, 103</td>
<td>1.60</td>
<td>.21</td>
</tr>
<tr>
<td>Student’s Sense of Control</td>
<td>41.84</td>
<td>28.55</td>
<td>60.69</td>
<td>26.64</td>
<td>1, 103</td>
<td>11.52</td>
<td>.00*</td>
</tr>
<tr>
<td>Student’s Instructional Mastery</td>
<td>71.18</td>
<td>27.32</td>
<td>75.21</td>
<td>26.81</td>
<td>1, 103</td>
<td>0.54</td>
<td>.47</td>
</tr>
</tbody>
</table>

Note. Means are based on percentile ratings; ASC = Academic Self-Concept; n = 38 for LD students; n = 67 for NLD students.

*p < .05.
Figure 1. Mean percentile ratings of LD and NLD students for the Student Attitude Measure (SAM).
### Table 7

**Analysis of Variance for Factors of LD and NLD Students for the Children's Academic Intrinsic Motivation Inventory (CAIMI)**

<table>
<thead>
<tr>
<th>Scale</th>
<th>LD</th>
<th>NLD</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>44.79</td>
<td>28.72</td>
<td>58.12</td>
<td>30.06</td>
<td>1, 103</td>
</tr>
<tr>
<td>Mathematics</td>
<td>38.71</td>
<td>27.91</td>
<td>50.97</td>
<td>28.93</td>
<td>1, 103</td>
</tr>
<tr>
<td>Social Studies</td>
<td>39.47</td>
<td>29.29</td>
<td>59.22</td>
<td>29.16</td>
<td>1, 103</td>
</tr>
<tr>
<td>Science</td>
<td>42.26</td>
<td>28.58</td>
<td>57.37</td>
<td>29.64</td>
<td>1, 103</td>
</tr>
<tr>
<td>General</td>
<td>43.08</td>
<td>29.09</td>
<td>56.60</td>
<td>27.87</td>
<td>1, 103</td>
</tr>
</tbody>
</table>

*Note.* Means are based on percentile ratings; n = 38 for LD students; n = 67 for NLD students.

*p < .05.
Figure 2. Mean percentile ratings of LD and NLD students for the Children's Academic Intrinsic Motivation Inventory (CAIMI).
Table 8

Analysis of Variance for Factors of LD and NLD Students' Mothers for the Parental Motivational Practices Scale (PMPS)

<table>
<thead>
<tr>
<th>Scale</th>
<th>LD</th>
<th>NLD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Extrinsic Practices</td>
<td>33.84</td>
<td>9.29</td>
</tr>
<tr>
<td>Intrinsic Practices</td>
<td>48.91</td>
<td>6.08</td>
</tr>
</tbody>
</table>

*Note. Means are based on raw scores; n = 32 for LD students' mothers; n = 55 for NLD students' mothers.

*p < .05
Figure 3. Mean raw score ratings of LD and NLD students' mothers for the Parental Motivational Practices Scale (PMPS).
Table 9

Analysis of Variance for Factors of LD and NLD Students' Fathers for the Parental Motivational Practices Scale (PMPS)

<table>
<thead>
<tr>
<th>Scale</th>
<th>LD</th>
<th>NLD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Extrinsic Practices</td>
<td>28.25</td>
<td>10.61</td>
</tr>
<tr>
<td>Intrinsic Practices</td>
<td>47.38</td>
<td>4.93</td>
</tr>
</tbody>
</table>

Note. Means are based on raw scores; n = 8 for LD students' fathers; n = 28 for NLD students' fathers.

*p < .05.
Figure 4. Mean raw score ratings of LD and NLD students' fathers for the Parental Motivational Practices Scale (PMPS).
Table 10

Correlations Among Mothers' Motivational Practices (Raw Scores) and Students' Attitudes Toward School and Learning (Percentile Ratings)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Female Extrinsic Practices</td>
<td>1.00</td>
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<td></td>
<td></td>
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<tr>
<td>2. Female Intrinsic Practices</td>
<td>.27**</td>
<td>1.00</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. SAM - Motivation for Schooling</td>
<td>.03</td>
<td>.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SAM - ASC Performance Based</td>
<td>.21</td>
<td>.22*</td>
<td>.52**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. SAM - ASC Reference Based</td>
<td>-.04</td>
<td>.24*</td>
<td>.54**</td>
<td>.75**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SAM - Sense of Control</td>
<td>.00</td>
<td>.09</td>
<td>.29**</td>
<td>.37**</td>
<td>.32**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>7. SAM - Instructional Mastery</td>
<td>.07</td>
<td>.20</td>
<td>.63**</td>
<td>.68**</td>
<td>.62**</td>
<td>.28**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. ASC = Academic Self-Concept; n = 87 mothers for variables 1 and 2; N = 105 students for variables 3 through 7.

*p < .05. **p < .01.
practices are also likely to use more extrinsic motivational practices. Also, mothers' intrinsic motivational practices are correlated with two subscales on the SAM: Academic Self-Concept-Performance Based and Academic Self-Concept-Reference Based (see Table 10, p. 47) and with the General scale on the CAIMI (see Table 11). This pattern indicates that mothers who use more intrinsic motivational practices are likely to have children scoring higher on the SAM - Academic Self-Concept-Performance Based, the SAM - Academic Self-Concept-Reference Based, and the CAIMI - General.

The correlations reveal that fathers are just as likely to use intrinsic motivational practices as extrinsic (see Table 12). Fathers have a much stronger correlation than mothers in their use of both motivational practices. Fathers' intrinsic and extrinsic motivational practices are not correlated with any subscales on the SAM (see Table 12) or the CAIMI (see Table 13).

Mothers' use of extrinsic motivational practices is strongly correlated with fathers' use of extrinsic motivational practices (see Table 14). This appears to indicate, for pairs of parents, that mothers are just as likely to use extrinsic motivational practices as fathers. In addition, Table 14 shows mothers' and fathers' use of intrinsic motivational practices to be moderately correlated. It seems that mothers who use more intrinsic motivational practices are also likely to be paired with fathers who use more intrinsic motivational practices.
Table 11

Correlations Among Mothers' Motivational Practices (Raw Scores) and Students' Intrinsic Motivation (Percentile Ratings)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Female Extrinsic Practices</td>
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<td>2. Female Intrinsic Practices</td>
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<tr>
<td>3. CAIMI - Reading</td>
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<td>4. CAIMI - Math</td>
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<td>.39**</td>
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<td></td>
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</tr>
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<td>5. CAIMI - Social Studies</td>
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<td>.64**</td>
<td>.45**</td>
<td>1.00</td>
<td></td>
<td></td>
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<tr>
<td>6. CAIMI - Science</td>
<td>-.12</td>
<td>-.07</td>
<td>.60**</td>
<td>.51**</td>
<td>.69**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>7. CAIMI - General</td>
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<td>.21*</td>
<td>.57**</td>
<td>.55**</td>
<td>.50**</td>
<td>.55**</td>
<td>1.00</td>
</tr>
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</table>

*Note. n = 87 mothers for variables 1 and 2; N = 105 students for variables 3 through 7.

*p < .05. **p < .01.
Table 12

Correlations Among Fathers' Motivational Practices (Raw Scores) and Students' Attitudes Toward School and Learning (Percentile Ratings)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Extrinsic Practices</td>
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<tr>
<td>Male Intrinsic Practices</td>
<td>.48**</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SAM - Motivation for Schooling</td>
<td>.18</td>
<td>.13</td>
<td>1.00</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>SAM - ASC Performance Based</td>
<td>.20</td>
<td>.11</td>
<td>.52**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SAM - ASC Reference Based</td>
<td>.14</td>
<td>.07</td>
<td>.54**</td>
<td>.75**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAM - Sense of Control</td>
<td>.09</td>
<td>.18</td>
<td>.29**</td>
<td>.37**</td>
<td>.32**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>SAM - Instructional Mastery</td>
<td>.16</td>
<td>.07</td>
<td>.63**</td>
<td>.68**</td>
<td>.62**</td>
<td>.28**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. ASC = Academic Self-Concept; n = 36 fathers for variables 1 and 2; N = 105 students for variables 3 through 7.

*p < .05. **p < .01.
Table 13

Correlations Among Fathers' Motivational Practices (Raw Scores) and Students' Intrinsic Motivation (Percentile Ratings)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Male Extrinsic Practices</td>
<td>1.00</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Male Intrinsic Practices</td>
<td>.48**</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. CAIMI - Reading</td>
<td>-.12</td>
<td>.09</td>
<td>1.00</td>
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<td>4. CAIMI - Math</td>
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<td></td>
<td></td>
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<tr>
<td>5. CAIMI - Social Studies</td>
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<td>-.16</td>
<td>.64**</td>
<td>.45**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CAIMI - Science</td>
<td>-.07</td>
<td>-.17</td>
<td>.60**</td>
<td>.51**</td>
<td>.70**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>7. CAIMI - General</td>
<td>.05</td>
<td>.11</td>
<td>.57**</td>
<td>.55**</td>
<td>.50**</td>
<td>.55**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. \( n = 36 \) fathers for variables 1 and 2; \( N = 105 \) students for variables 3 through 7.

*\( p < .05 \). **\( p < .01 \).
### Table 14

**Correlations Among Mothers' and Fathers' Motivational Practices (Raw Scores) From the Same Family**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Male Extrinsic Practices</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 36)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Male Intrinsic Practices</td>
<td>.48**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 36)</td>
<td>(n = 36)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Female Extrinsic Practices</td>
<td>.74**</td>
<td>.28</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 32)</td>
<td>(n = 32)</td>
<td>(n = 87)</td>
<td></td>
</tr>
<tr>
<td>4. Female Intrinsic Practices</td>
<td>.17</td>
<td>.48**</td>
<td>.30**</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>(n = 32)</td>
<td>(n = 32)</td>
<td>(n = 87)</td>
<td>(n = 87)</td>
</tr>
</tbody>
</table>

**\(p < .01\).**
Discussion

The findings of the present study both corroborate and extend those of previous research. The first area of interest was to reexamine the characteristics of LD and NLD students’ attitudes toward school and learning, and their academic intrinsic motivation. The respective hypothesis for this reexamination was more than partially supported. LD students scored lower on the Student’s Sense of Control Over Performance Scale of the SAM and on all five subscales of the CAIMI than did NLD students.

These results were expected as Wilson and David (1994) also found LD students to report a lower sense of control over performance and lower academic intrinsic motivation than NLD students, using the identical test instruments. Past research has shown LD students to be less motivated when they felt that their success, failure, or both in school was due to uncontrollable factors (Pintrich et al., 1994; Rogers & Haklofski, 1985), such as achievement outcomes being controlled by powerful others (Grolnick and Ryan, 1990). Consequently, LD students may report lower academic intrinsic motivation because they feel that they don’t have any control over their school achievement.

However, contrary to what was hypothesized and found by Wilson and David (1994), the LD students did not score lower on the Academic Self-Concept-Performance Based Scale of the SAM. This suggests that LD students and NLD students have similar positive attitudes towards school and learning (e.g., feeling special at school, confidence in achievement, and catching on fast to school work). In support for this finding, Pintrich et al. (1994) found LD and NLD students to hold equally positive beliefs. Specifically, the two groups of students did not differ on reports of self-efficacy (i.e., academic confidence) or anxiety (i.e., concern of taking tests).

Various possibilities exist that may contribute to the difference found in the present investigation as compared to Wilson and David's (1994) study. Firstly, the curriculum taught in Canadian schools may be different from the curriculum taught in American
schools. Secondly, the teachers in both studies may have received different education and training. Thirdly, the LD students in the present study may have been integrated into regular classrooms more often than the LD students in Wilson and David's study. As a result, a combination of these possibilities may lead to the experience of more structure (i.e., clear expectations), autonomy support (i.e., choice in learning activities), and optimal involvement (i.e., teachers enjoying interactions with their students). Skinner and Belmont (1993) revealed the optimization of these three variables to result in students being more autonomous, competent, and involved with people which may explain why LD students reported more positive attitudes toward school and learning in the current study.

These possibilities may also shed light on why Wilson and David (1994) found LD students in higher grade levels to report higher academic intrinsic motivation as compared to LD students in lower grade levels, a finding that was also not evident in the present study. Wilson and David (1994) suggested that continued assistance over the years might influence LD students' developing motivation to learn, especially in practical subject areas like science. LD students may find science interesting to learn because they have an opportunity to apply knowledge.

The idea of applying knowledge directly links itself with the prior suggestion that the use of different curriculum by teachers may be why LD students were found to have similar positive attitudes towards school and learning. Over the past few years, Ontario schools have implemented curriculum that requires "child-centered" learning (also referred to as "active" learning or "hands-on" learning) by the students. The students are required to actively participate in the classroom: inquiring, making decisions, creating, and exploring. It is conceivable that child-centered learning allows teachers the opportunity to provide more interesting activities at all grade levels. A goal of child-centered learning is for teachers and students to decide collaboratively on each topic of study. Further, teachers are encouraged to obtain a variety of resources and learning materials from the
community and students are encouraged to bring resources from home, ultimately, creating a positive atmosphere in the classroom where everyone contributes to the learning process.

Finally, another possible explanation for this discrepancy between studies may be the simple fact that Wilson and David (1994) compared LD students to the standardization sample included in the SAM and the CAIMI technical manuals, whereas, the present study compared LD students to a control group of NLD students within the same school settings.

The second area of interest and key purpose of the present investigation was to examine the patterns of parents' intrinsic and extrinsic motivational practices that they use with their LD and NLD children. The respective hypothesis was partially supported as mothers of LD children were found to use more controlling mechanisms (i.e., extrinsic motivational practices) as compared to mothers of NLD children. However, fathers of LD and NLD children did not differ in their use of controlling mechanisms.

This key finding somewhat parallels the results of Grolnick and Ryan (1990), as they found teachers to use more controlling mechanisms with LD students than NLD students. Moreover, teachers use more controlling mechanisms with LD students who act inappropriately. Thus, students that act inappropriately in class tend to receive teacher responses that may hinder their intrinsic motivation, such as teachers spending less time with students or applying external demands on students to participate (Skinner & Belmont, 1993) and complete academic tasks (Grolnick & Ryan, 1990). Perhaps LD children exhibit acting-out behaviours at home as they have been reported to do at school. In turn, mothers may utilize more controlling mechanisms with their LD children. This inference is closely linked to Grolnick and Ryan's (1989) finding that parental autonomy support (e.g., encouraging problem-solving and decision-making skills, and offering choices versus motivating school-related tasks by means of pressure, punishment, or rewards) was positively correlated to children's autonomy and was negatively correlated to children's acting-out behaviours and learning problems.
Motivation

The most intriguing outcome of the present study was that even though mothers of LD children exhibit more extrinsic motivational practices, their use of intrinsic motivational practices was not hindered. It is feasible to assume that the use of more extrinsic practices would result in the use of fewer intrinsic practices. However, contrary to speculation, mothers' use of intrinsic motivational practices did not suffer in the current investigation. The results indicated that mothers of both LD and NLD children use similar patterns of intrinsic motivational practices. Perhaps mothers realize that they use more extrinsic motivational practices with their LD children (e.g., to get an immediate desired response) but they make an extra effort to continue using intrinsic motivational practices because they want to avoid the future use of controlling mechanisms. Simply stated, mothers want their LD children to learn to act appropriately, to understand the importance of education, to feel competent in themselves, and to enjoy learning for its own sake.

In contrast, fathers of LD and NLD children use similar patterns of both intrinsic and extrinsic motivational practices. Fathers of LD children may not use more extrinsic motivational practices with their LD children, as mothers have been shown to do, merely because fathers do not experience the same interactions with their children. In fact, Grolnick and Ryan (1989) found fathers to spend less time interacting with their children and spent less time involving themselves with child rearing (e.g., interest in, knowledgeable about, and taking an active role) as opposed to mothers. Hoover-Dempsey and Sandler (1997), in their review of theory and research, posit that parental involvement in children's education depends on parents' beliefs that they can change their children's academic outcomes. It is possible that fathers of LD children have this ideology, hence, they do not increase their use of extrinsic motivational practices.

The results on the current investigation are interesting for two other reasons. Firstly, the correlations indicated that mothers who use more intrinsic practices are also likely to use more extrinsic motivational practices. It is possible that mothers feel guilty for
using extrinsic motivational practices, hence, they try to compensate by using more intrinsic motivational practices when their children's actions warrant their use. The findings also suggest that mothers who use more intrinsic motivational practices are likely to have children scoring higher on the SAM - Academic Self-Concept-Performance Based, the SAM - Academic Self-Concept-Reference Based, and on the CAIMI- General. Previous research supports these findings, as parents' use of intrinsic motivational practices has been found to be positively correlated to children's academic intrinsic motivation and achievement (Ginsburg & Bronstein, 1993; Gottfried et al., 1994a) and parents' support of autonomy has been found to be positively correlated to children's autonomy and competence (Grolnick & Ryan, 1989; Ryan & Deci, 1991).

Secondly, when both parents participated from the same family, two fascinating dimensions of findings were unveiled. Mothers were just as likely to use extrinsic motivational practices as fathers. Moreover, it seems that mothers who use more intrinsic motivational practices are also likely to be paired with fathers who use more intrinsic motivational practices. The similar patterns of both intrinsic and extrinsic motivational practices by couples may be vicariously learned as both parents live in the same household. Alternatively, Grolnick, Ryan, and Deci (1991) suggest that parents share the same values, therefore, share the same expectations of their children. Along the same train of thought, spouses may also experience similar interactions with their children, thereby, using similar motivational techniques when they respond to their children.

In sum, the interpersonal involvement of teachers (Deci et al., 1992; Skinner & Belmont, 1993) and mothers (Deci et al., 1992; Gottfried et al., 1994a) seems to be especially important in promoting positive attitudes toward school and learning, and the academic intrinsic motivation of LD students. The present findings extend past research by indicating differences in the motivational patterns between mothers who have LD children
and mothers who do not have LD children. From the present findings, it could be
hypothesized that mothers' motivational practices used with LD children could possibly
enhance or abate their future academic intrinsic motivation and achievement as they have
been found to do in NLD children (Gottfried et al., 1994a).

Future research should address several issues to extend the findings of the current
investigation. Since the present sample was drawn from a multicultural environment,
minority differences were not taken into consideration, maybe, different patterns of
motivational practices would be evident between minority parents of LD and NLD
children. Wilson and David (1994) found minority differences to effect students' attitudes.
Minority LD students reported more positive academic self-concept related scores than
nonminority LD students. Culturally taught behaviours might influence the way minority
parents motivate their LD children, hence, influence the way minority LD children feel
about themselves.

Pintrich et al.'s (1994) findings indicate that various pathways of motivation and
cognition may lead to the same achievement outcome. Depending on children's learning
disabilities, different educational interventions could be matched with different pathways of
motivation and cognition to achieve similar motivational outcomes. Future research is
warranted that investigates both parents' motivational practices and the affects these
practices have on children's academic intrinsic motivation and achievement over a period of
several years, ideally studying from birth. Finally, since CET (Deci & Ryan, 1985) claims
that perceived autonomy and competence influence motivation, LD students' perceptions
of their teachers and parents should be researched with respect to their teachers' and
parents' use of motivational practices.

An assortment of recommendations for professional practice can be drawn from
the present study. Educators need to be aware of the possible parental influences that may
affect the school-related attitudes and intrinsic motivation of LD children. It seems that
controlling contexts may interfere with children developing positive attitudes toward school and learning, and greater academic intrinsic motivation, hence, leading to poorer achievement (Gottfried et al., 1994a; Grodick & Ryan, 1989) and adjustment (Deci et al., 1992; Grodick & Ryan, 1989; Grodick & Ryan, 1990) in the classroom. Consequently, educators should promote and recommend the involvement of parents in education. Teachers and parents may need instruction on how to emphasize their use of intrinsic motivational practices, such as encouraging persistence, effort, curiosity, and exploration and providing assistance as needed in academic tasks.

Perhaps at a future date, these findings may be used to assist in developing a program that will teach or train adults (i.e., parents, guardians, teachers, educational assistants, and principals etc.) motivational techniques that could be used to enhance children's attitudes toward school and learning, and their academic intrinsic motivation. Ultimately, teachers and parents should work collaboratively to optimize positive attitudes toward school and learning, and the academic intrinsic motivation in children with learning disabilities because of its inherent importance for adjustment and future motivation along with academic achievement.

Aside from the motivational findings of the current study, one general recommendation for professional practice was reached: adults must be made aware of the importance of research in education. For instance, even though the board of education was enthusiastic about the present research many principals indicated that they did not feel the same way. Almost a dozen principals were not willing to have any students participate from their schools. The principals gave many reasons to justify not participating: (1) "I'm not interested. It is a bad time for us, as teachers are changing their classes.", (2) "I've been involved in enough studies over the years and I think I have done my share.", (3) "It is bad timing. There are too many things going home with the students which will cause parents, teachers and students confusion. Maybe next year you could come back and do
your study.", (4) "I've been involved in another study already this year. I don't want to tax myself or any of my teachers with another one.", and (5) "It is too much work for me to organize.". In contrast, all of the teachers that were approached gave their approval immediately.

However, principals were not the only roadblock to obtaining sufficient data to acquire meaningful results. There was an outstanding number of parents who were not willing to participate either. Out of all letters sent home, only one-third came back with a positive response and over half of the letters were not even returned. The lack of participation could be interpreted in a number of ways: (1) parents and students may simply have no interest in the study, (2) parents may not want their patterns of motivational practices to be examined or compared with other parents, or (3) parents may be too busy at work or home to partake.

Interestingly, a variety of comments were written by parents on a number of the returned surveys. Some parents indicated general practices and feelings about their child's work (i.e., "I help her when she needs help." and "I'm proud of my child's work.") whereas, other parents gave more specific examples of their intrinsic and extrinsic motivational practices (i.e., When may child does well in school ... "I usually congratulate him [intrinsic] and express how happy I am [intrinsic].", and "I usually give her a hug [intrinsic] and some money [extrinsic] and tell her I'm proud [intrinsic]."). Unfortunately, one mother reported that it was not her or her husband's responsibility to assist in educating their child (i.e., "This survey was a waste of time. Teachers make more money than me and my husband, its their job."). One parent indicated that they were not able to assist their child (i.e., When my child does not do well on a task, I usually ... "I don't no English to help."). Finally, a couple of comments indicated that some parents do realize the importance of educational research (i.e., "Good Survey. There should be more like it." and "Good luck on your work.").
Motivation

A few shortcomings exist in the present study. The LD and NLD students were not matched with respect to gender or age, therefore, differences may be evident on these two factors that were not found in the present study. The SAM and the CAIMI were not counterbalanced, hence it is possible that the SAM, which was administered first, may have positively or negatively influenced the way students responded on the CAIMI. Further, the sample of fathers was quite small, thus, discretion should be used in generalizing the results of fathers' motivational practices. Although the outcomes were consistent with the predictions, the results are correlational in nature, hence, one must be cautious in interpreting the results to indicate that parental motivational practices cause children's positive or negative attitudes toward school and learning, and their academic intrinsic motivation. Finally, different teaching methods were not addressed between teachers of LD and NLD students nor were the perceived interactions between teachers and students, or parents and children.

Nevertheless, researchers, psychologists and educators must consider the interactions within the classroom and the home when investigating the attitudes and intrinsic motivation of LD children, as teachers and parents' intrinsic motivational practices seem to have a positive effect on children's attitudes toward school and learning and their academic intrinsic motivation, whereas extrinsic motivational practices seem to have a negative effect. Although, the present findings posit controlling mechanisms may be harmful, the conclusions do not warrant the elimination of extrinsic motivational practices, especially when parents and teachers are attempting to establish guidelines for children. In addition, Ginsburg and Bronstein (1993) suggest that it would not be realistic to make the assumption that children are intrinsically motivated in all school-related tasks, consequently, some circumstances may justify the use of extrinsic motivational practices. Finally, if rewards or reinforcers are used to motivate children then parents and teachers should present them in an environment that supports autonomy (Ryan & Stiller, 1991). Ideally,
according to CET (Deci & Ryan, 1992) children are then apt to perceive these rewards and reinforcers as informational inputs, hence, sustaining or strengthening their intrinsic motivation rather than perceive them as controlling inputs which may threaten their intrinsic motivation.
References


Gottfried, A. E., Gottfried, A. W., & Fleming, J. S. (1994b). *Parental motivational practices scale*. (Available from Adele E. Skesey Gottfried, Department of Educational Psychology and Counseling, California State University, Northridge, CA 91330.)


Motivation


Appendix A

Parent/Guardian Consent Form

PART 1 - Participation of Student

I hereby grant my child (print your child's full name) permission to participate in the research study involving the possible relationships between children's academic intrinsic motivation, children's attitudes towards school and learning and parental motivational practices. The purpose of this research is to investigate the roles that both mothers and fathers play in enhancing the academic intrinsic motivation of students with learning disabilities and their attitudes towards school and learning. In the Fall of 1997, the completed thesis will be available to interested readers at the school board office.

- I understand that my child's participation in this study will involve answering questions about his/her academic intrinsic motivation (Children's Academic Intrinsic Motivation Inventory) and his/her attitudes towards school and learning (School Attitude Measure) during school hours.

- It is understood that my child's name will not appear on either questionnaire. To protect confidentiality, my child's scores will only be identified by a subject code.

- I understand that my child will be given the chance to ask questions before, during, and after the study and will be free to withdraw from the study, or to leave answers blank at any time.
PART 2 - Participation of Parent/s and/or Guardian/s

I/we (print your full name) ___________________________ and (print your full name) ___________________________ am/are willing to participate in the research study involving the possible relationships between children’s academic intrinsic motivation, children’s attitudes towards school and learning and parental motivational practices.

- I/we understand that my/our participation in this study will involve answering questions concerning my/our motivational practices, at my/our convenience.

- It is understood that the names of parents will not appear on the questionnaire. To protect confidentiality, parental scores will only be identified by a subject code.

- It is understood that parents are free to withdraw from the study, or to leave answers blank at any time. Afterwards, parents may contact the researcher through Dr. Noel Williams, at (519) 253 4232, Extension 3800, if wishing to discuss any questions that were on the survey.

- Parents are free to disclose any concerns to Dr. Larry Morton, Chair of the Research Ethics Committee of the Faculty of Education, at (519) 253 4232, Extension 3800.
Note: Please sign on each line provided if both parents are willing to participate in the study with their child. If only one parent is willing to participate in the study with their child, simply sign on one line and leave the other line blank.

________________________________________  _____________
Signature of Parent/Guardian                  Date

________________________________________  _____________
Signature of Parent/Guardian                  Date
Appendix B

Definition of Learning Disabilities

A learning disorder evident in both academic and social situations that involves one or more of the processes necessary for the proper use of spoken language of the symbols of communication, and that is characterized by a condition that:

(a) is not primarily the result of:

- impairment of vision;
- impairment of hearing;
- physical handicap;
- mental retardation;
- primary emotional disturbance;
- cultural difference;

(b) results in a significant discrepancy between academic achievement and assessed intellectual ability, with defects in one or more of the following:

- receptive language (listening, reading);
- language processing (thinking, conceptualizing, integrating);
- expressive language (talking, spelling, writing);
- mathematical computations;
(c) may be associated with one or more conditions diagnosed as:

- a perceptual handicap;
- a brain injury;
- minimal brain dysfunction;
- dyslexia;
Appendix C

Letter to the Ethics Committee

Dear Dr. Morton:

Recently, I was granted approval from the Graduate Studies Committee to pursue my thesis petition in order to fulfill my requirements for the Master of Education Degree. The title of my thesis petition is "The Academic Intrinsic Motivation of Students with Learning Disabilities and Their Attitudes Toward School and Learning: The Role of Parents". Dr. Noel Williams will serve as my Thesis Advisor.

I have enclosed an outline of the purpose and procedures of my investigation. In addition, the following items will be found:

- the Request for Research Approval Form;
- the Statement of Approval Form;
- the letter to the Chairperson of the selected Board of Education Research Review Committee;
- the letters to the Principals, Teachers, and Parents;
- the Consent Forms; and
- the Research Proposal.

Participation in this study will be completely voluntary and will preserve the confidentiality of the students, the parents, and the schools. A copy of the results will be given to the Board of Education which will be made available for the participants of the study to peruse.
If there are any concerns, ethical or otherwise, please feel free to contact me at the above phone number or address. Thank you for taking the time to address the ethical issues of this research study.

Respectfully submitted,

Tracey Rilett

B. A. (Hons.) Psychology, B. Ed.
Appendix D

Letter to the Board of Education Research Review Committee

Dear Dr. Berek:

Recently, I was granted approval from the Graduate Studies Committee and the Research Ethics Committee of the Faculty of Education, University of Windsor, to pursue my thesis in order to fulfill my requirements for the Master of Education Degree. It would be my privilege if your Board of Education would permit me to conduct my Master of Education research within its elementary schools. Specifically, I would like students in grades four through six who have been identified to have learning disabilities, by your board, to participate in my investigation.

The title of my thesis petition is "The Academic Intrinsic Motivation of Students with Learning Disabilities and Their Attitudes Toward School and Learning: The Role of Parents". Dr. Noel Williams has agreed to serve as my Thesis Advisor. I have enclosed an outline of the purpose and procedures of my investigation. In addition, the following items will be found:

- the Statement of Approval from the Research Ethics Committee, of the University of Windsor;
- the Letters to Inform the Principals, Teachers, and Parents;
- the Consent Forms; and
- the Research Proposal.

The test instruments that I plan to administer will be available to you upon request. Participation in this study will be completely voluntary and will preserve the confidentiality of the students, the parents and the schools. A copy of the results will be given to your
Board of Education which will be made available for the participants of the study to peruse.

If there are any concerns, ethical or otherwise, please feel free to contact me at the above telephone number or address. Thank you for taking the time to address the ethical issues of this research study.

Respectfully submitted,

Tracey Rilett
B. A. (Hons.) Psychology, B. Ed.
Appendix E

Letter to the Principals

Dear School Principal:

Recently, the Research Review Committee of your Board of Education granted me the approval to approach you regarding the participation of your students in my Master of Education Thesis. Specifically, I would like students aged 9 to 14, who have been previously identified to have learning disabilities by your board, and their parents to partake in my investigation. In addition, I would also like an equal number of same aged students, who do not have learning disabilities, and their parents to participate in this study.

I am a graduate student working on my Master of Education Degree, at the University of Windsor. I am interested in researching the possible relationships between the academic intrinsic motivation of students with learning disabilities, their attitudes towards school and learning, and their parents’ motivational practices. This thesis will be supervised by Dr. N. Williams of the Faculty of Education.

I am requesting written permission, from yourself, the teachers, and the parents of students, to have the pupils participate in the study. After receiving authorization from yourself and the teacher(s), I plan to schedule two appointments to meet with the students. At the first meeting I would like to introduce myself to the students and to distribute parent consent forms. During the second meeting, I intend to group administer two pencil and paper questionnaires: one involving children’s motivation and the other involving their attitudes towards school and learning. I would also like to send home, with the students, a survey concerning motivational practices for their parents to complete.

Participation in the study will be completely voluntary and will preserve the confidentiality of parents, students, teachers and schools. The students will be given the opportunity to ask questions before, during, and after their participation in the study.
Furthermore, the students and the parents will be free to withdraw from the investigation at any time. The test instruments are available to you upon request.

I am anticipating that you will find the study a worthwhile investigation. Please feel free to contact me at the above address or telephone number if you have any inquiries concerning my study or if your school is willing to grant me authorization to begin my study. Your permission and assistance in forwarding the enclosed letter to the appropriate teacher(s) is greatly appreciated.

Thank you for your time and consideration of my research request.

Sincerely,

Tracey Rilett

B. A. (Hons.) Psychology, B. Ed.
Appendix F

Letter to the Teachers

Dear Teacher(s):

I am a graduate student working on my Master of Education Thesis, at the University of Windsor. I am interested in researching the possible relationships between the academic intrinsic motivation of students with learning disabilities, their attitudes towards school and learning, and their parents' motivational practices. Specifically, I would like students aged 9 to 14, who have been previously identified to have learning disabilities by your board, and their parents to partake in my investigation. In addition, I would also like an equal number of same aged students, who do not have learning disabilities, and their parents to participate in this study. This study has been approved by your board's Research Review Committee and will be supervised by Dr. N. Williams of the Faculty of Education.

I am requesting written permission, from yourself, the principal, and the parents of students, to have the pupils participate in the investigation. After receiving your authorization, I plan to schedule two appointments with you to meet your students. During the first scheduled meeting, I would like five to ten minutes to introduce myself to the students and to distribute parent consent forms. At the second meeting, I intend to group administer two pencil and paper questionnaires, one on motivation (approximately 20 to 30 minutes) and the other on attitudes towards school and learning (approximately 30 to 40 minutes). In addition, I plan to send home a survey on motivational practices for their parents to complete. A third session may be scheduled if you prefer that I administer the questionnaires on two different occasions.

Participation in the study would be completely voluntary and will preserve the confidentiality of parents, students, teachers and schools. The students would be given the opportunity to ask questions before, during and after their participation in the study.
Furthermore, the students and the parents will be free to withdraw from the study at any time.

I am anticipating that you will find the study a worthwhile investigation. Please feel free to contact me at the telephone number if you have any inquiries concerning my study. Your permission would be greatly appreciated.

If you are willing to grant me authorization to begin my study within your school please call me anytime (day or evening) before February 18, 1997 to schedule the first meeting at your convenience. Your assistance in allowing me to administer the tests and in collecting the returned Parent Consent Forms and the completed surveys by the parents is appreciated.

Thank you for your time and consideration of my research request.

Sincerely,

Tracey Rilett
B. A. (Hons.) Psychology, B. Ed.
Appendix G

Letter to the Parents

Dear Parent/Guardian:

I am a graduate student working on my Master of Education Thesis, at the University of Windsor. I am interested in studying the possible connections between the school motivation of students with learning disabilities, their feelings towards school and learning, and the different ways parents try to motivate their children. Specifically, I would like elementary school students, who have been identified to have learning disabilities by your Board of Education, and their parents to take part in my study. In addition, I would also like an equal number of same aged students, who do not have learning disabilities, and their parents to participate in this study. This study has been approved by your Board of Education Research Review Committee and will be supervised by Dr. N. Williams of the Faculty of Education.

I am requesting your written permission to have your child participate in my study. Your child's participation would involve answering two questionnaires concerning: (1) their school motivation and (2) their feelings towards school and learning. Arrangements will be made for the students to answer these questionnaires during school time.

In addition, an essential part of my study involves your participation. I would like one or both parents, if possible, to answer a short survey about how you try to motivate your child. This survey would be sent home with your child to be answered at your convenience. Upon completion, you would simply return the answered survey back to school, within a week.

Participation in the study will be completely voluntary and will preserve the confidentiality of all children, parents, and schools. The students would be given the opportunity to ask questions before, during, and after their participation in the study. You
will also be able to contact me if you have any questions about the survey. Furthermore, students and parents are free to withdraw from the study at any time.

I hope that you will find this study worthwhile. The results of this study may be helpful in showing parents how to successfully motivate their children to enjoy school and learning. Please feel free to contact me through my Thesis Advisor, Dr. Noel Williams, at the above telephone number if you have any questions concerning my study.

The return of one signed Parent/Guardian Consent Form to the school, within a week, will indicate your willingness to participate in the study as explained above. A copy of the Parent/Guardian Consent Form is included in this package for you to keep. Your assistance is very much appreciated. Thank you for your time and consideration of my study request.

Sincerely,

Tracey Rilett

B. A. (Hons.) Psychology, B. Ed.
Appendix H

A Brief Summary of Results: "Motivation Study"

The following letter is a brief description of the preliminary results that were found in the motivation study. During the months of January through May, students and parents from 12 schools were involved in answering questionnaires about motivation. A total of 105 elementary school students and 123 parents (87 female and 36 male) participated in the study.

This study involved students with and without learning disabilities, as identified by your Board of Education. The control group consisted of 67 students without learning disabilities. The students with learning disabilities (LD) were first divided into three groups: (1) students in a self-contained classroom, (2) students in a home-school program, and (3) students in a resource program. There were no differences found between any of the three LD groups, therefore, they were put together as one group (38 students) for the remainder of the analysis.

The first questionnaire answered by the students was concerned with their feelings about school and learning. There were no differences found between the LD group and the control group in the following areas: (1) their motivation for working hard at school in the past, present, and future; (2) their own feelings about their school performance and confidence; (3) how they feel others think about their performance (such as teachers, parents, and peers); and (4) self-reports of their actual school skills. However, the results revealed the LD group to believe less in their ability to direct or change school outcomes than the control group. As a whole, the majority of the students seemed to enjoy school and learning.

The second questionnaire completed by the students was concerned with their school motivation. School motivation is defined as the enjoyment of school learning
identified by ability, curiosity, persistence, and the learning of new and challenging tasks. The LD group showed lower school motivation than the control group in all five areas: Reading, Mathematics, Social Studies, Science, and General School Learning.

The survey answered by the parents measured extrinsic and intrinsic motivational practices. *Extrinsic practices* include regulating the child's behaviour by using rewards, punishment, talking about the usefulness of school, showing anger, encouraging one to do better, and having conferences with the teacher. *Intrinsic practices* include encouraging children to be persistent, to try hard, to learn skills in all subjects, to be curious, and to explore.

The findings revealed that all parents use both types of motivational practices at one time or another. Mothers of the LD group tended to use slightly more extrinsic practices than mothers of the control group. There were no differences found between mothers' intrinsic motivational practices nor between fathers' intrinsic and extrinsic motivational practices for both groups of students. Overall the results were very positive, as most of the parents in the study appeared to motivate their children much more through intrinsic practices than extrinsic practices. Basically, most parents are using strategies that encourage children to "stick with it", even when activities are difficult; to always try their best; to learn skills in each subject area; to ask questions; and to search for information. In addition, assistance and home activities are being provided by parents when they are needed.

A more detailed description of the results will be available for your viewing at your School Board of Education Office and at the University of Windsor, in the Leddy Library, by December 1997. The tentative title for this study is "*The Academic Intrinsic Motivation of Students With and Without Learning Disabilities and Their Attitudes Toward School and Learning: The Role of Parents*".
Again, thank you for your involvement with this study. Your approval, participation, suggestions, and comments were greatly appreciated.

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