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Running Head: Perceived Control, Coping, and Learning Disabilities

Perception of Control and Coping Mechanisms of Children with Learning Disabilities

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Abstract

Coping behaviour, perceived control, and the self concept of elementary school children with learning disabilities educated in regular and special education classrooms was examined using a comparative design. In addition, the influence of teachers' classroom management orientation on children's self-perceptions and coping behaviour was investigated. Children attending a special school for students with learning disabilities were found to be more adaptive copers than children in special education classes in regular schools, children receiving resource room assistance, and children mainstreamed in regular classes. Children with learning disabilities were found to have positive perceptions of their global self-worth regardless of the type of class they were in, although they indicated less confidence in their academic abilities compared to their self-perceptions of physical appearance and athletic competence. In general, most children believed that they were responsible for their academic successes and at the same time perceived academic failure as unavoidable. The students who coped most effectively demonstrated the most realistic appraisals of their academic situation. They recognized that they could not control academic failure, however, they believed that the best way to succeed in school was by continuing to exert effort. Additionally, successful copers held high expectations for future academic success and believed that they possessed the capacities needed to achieve this success. Children who coped most effectively strongly endorsed beliefs in their capacity to have a positive relationship with their teachers. Children who were rated as effective copers had teachers whose instructional orientation promoted autonomous functioning in their students.

Résumé

Une étude comparative portant sur les comportements d'adaptation, la perception du contrôle et le concept de soi a été menée auprès d'enfants de niveau primaire ayant des troubles d'apprentissage, fréquentant des classes régulières ou spéciales. L'influence de l'orientation de la gestion de la classe par les professeurs sur la perception de soi et les comportements d'adaptation des élèves a aussi été investiguée. Les enfants qui fréquentaient une école spéciale pour élèves avec troubles d'apprentissage ont démontré plus de capacités d'adaptation que ceux intégrés dans des classes spécialisées des écoles régulières, que ceux recevant un support dans des classes ressources et aussi ceux intégrés dans des classes régulières. Il est apparu que les enfants ayant des troubles d'apprentissage avaient des perceptions positives quant à leur valeur personnelle globale indépendamment du type de classes qu'ils fréquentaient, quoiqu'ils démontraient moins de confiance en leurs capacités académiques comparées à leurs perceptions face à l'apparence physique et à la compétence athlétique. De facon générale, la plupart des enfants croyaient être responsables de leur succès scolaire tout en percevant l'échec académique comme inévitable. Les enfants composant le plus efficacement ont démontré une évaluation plus réaliste de leur situation académique. Ils reconnaissaient ne pouvoir contrôler l'échec scolaire, cependant, ils croyaient que la meilleure façon de réussir à l'école était de continuer à déployer des efforts. De plus, les enfants composant avec le plus de succès maintenaient des attentes élevées concernant leur succès académique futur et croyaient posséder les capacités nécessaires pour y arriver. Les enfants composant le plus efficacement croyaient fortement en leur capacité à établir une relation positive avec leurs enseignants. Les enfants, cotés comme composant efficacement, avaient des professeurs dont l'orientation d'enseignement favorisait le fonctionnement autonome de leurs étudiants.

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Chapter I

Introduction

In the early 1960's, the concept of learning disabilities was introduced to explain the enigma of children who appeared intelligent and capable, yet experienced difficulty in acquiring basic academic skills. These academic difficulties could not be explained by a general deficit in intellectual ability or significant impairment of sensory functioning, nevertheless these students were unable to learn satisfactorily using traditional methods of instruction (Adelman & Taylor, 1993; Lerner, 1993). The growing consensus is that children with learning disabilities constitute a heterogeneous group with regard to the nature and characteristics of the problems they experience (Kavale & Forness, 1992). The single unifying characteristic of this diverse population is that they all have experienced academic failure (Licht & Kistner, 1986).

A variety of studies has investigated the influence of academic failure on children's general learning using different theoretical formulations. Constructs such as locus of control (Rotter, 1966), self-efficacy (Bandura, 1977), causal attribution (Weiner, 1979), self-concept (Harter, 1978; 1983), and learned helplessness (Abramson, Seligman, & Teasedale, 1978) have been employed to explain the impact of failure on children's cognitive, motivational, and affective functioning, that subsequently contribute to poor academic achievement. Despite the considerable theoretical and empirical attention that has been given to the study of the relationship between personality and affective factors and academic achievement, investigation of these variables among children with learning disabilities has tended to be fragmented, often focusing on only one variable (Bender, 1987). Furthermore, the findings in these studies have been inconclusive (Skinner, Wellborn, & Connell, 1990). Although a number of studies have reported poor self-esteem among children with learning disabilities (e.g., Cooley & Ayres, 1988; Rogers & Saklofske, 1985) others have not (e.g., Bear & Minke, 1996; Grolnick &

Ryan, 1990). While some evidence suggests that children with learning disabilities have a more external locus of control than their normally achieving peers (Ayres, Cooley, & Dunn, 1990; Boersma & Chapman, 1981; Butkowsky & Willows, 1980; Chapman, 1988; Rogers & Saklofske, 1985) other research has not found this pattern (Bender, 1987; Cooley & Ayres, 1988; Durant, 1993). Studies investigating the attributions for success and failure of children with learning disabilities suggest that there are individual differences in how these children respond to failure (Cullen & Boersma, 1982; Durant, 1993; Kistner, Osborne, & LeVerrier, 1988; Licht & Kistner, 1986; Licht, Kistner, Ozkaragoz, Shapiro, & Clausen, 1985; Speece, McKinney, & Appelbaum, 1985).

There is a growing body of research that examines individual differences in perceptions of control in relation to how children perceive stressful experiences in their lives and the coping mechanisms they employ to master, reduce, or tolerate the situation (e.g. Boekaerts, 1996; Compas, Banez, Malcarne, & Worsham, 1991; Folkman, 1984; Lazarus & Folkman, 1984). A central premise in this research is that the personal experience of stress is mediated by the significance or meaningfulness of the event for the individual (Folkman, 1984; Lazarus & Folkman, 1984). A situation or event may be perceived by one individual as stressful while for another person the same event may be perceived as neutral, positive, or even irrelevant. Stress is thus conceptualized as a transactional process and relationship between a person and a situation that is appraised as taxing or exceeding the person's resources and endangering their well-being (Folkman, 1984).

Coping can be viewed as a dynamic process that varies depending on the perceived demands of a particular situation (Band & Weisz, 1988) and the personal and social resources available to the individual (Parker & Endler, 1996; Zeidner & Saklofske, 1996). Coping involves anything a person does or thinks in order to manage the stress experienced regardless of how well or badly it works. Thus, not all coping efforts are

adaptive. Coping research examines the situational and personal factors that promote adaptation and adjustment in the individual (Zeidner & Saklofske, 1996).

A critical determinant for coping behaviour is the match between perceptions of control and the actual malleability of the situation. Whereas some theories maintain that believing that one has control is stress reducing, Folkman (1984) points out that unrealistic perceptions of control can lead to failure and further increase the amount of stress experienced. Thus, a key developmental task for children is learning to distinguish between situations where engagement and persistence pays off versus where it does not (Weisz, 1986).

Children with learning disabilities have been found to be less sensitive to social and situational cues and more apt to misinterpret them (Bryan, 1977; Kronik, 1988; Pearl, Donahue, & Bryan, 1986; Sabatino, 1962). Due to inaccurate appraisals of academic situations, they may be more likely to persist in absence of the personal resources needed to cope with the task and thus increase the likelihood of experiencing both stress and concomitantly failure (Cullen, 1985).

It remains important and illuminating to apply this line of research to how children with learning disabilities perceive their academic experiences and how these perceptions influence the manner in which they cope. Furthermore, researchers studying the coping processes of children and adolescents suggest that adult based theories require modifications by taking into account the developmental course of cognitive and emotional processes (Altshuler & Ruble, 1989; Band & Weisz, 1988; Compas, 1987a; 1987b; Compas et al., 1991; Ryan-Wenger, 1992).

Still further, children's perceptions of stress inducing stimuli and coping behaviour are influenced by mediating variables including personal resources, social support, and environmental variables (e.g., Altshuler & Ruble, 1989; Boekaerts, 1996; Compas, 1987a; Rutter, 1983). Children's self-perception and motivation are highly

influenced by how 'significant others' react to them (Boggiano & Katz, 1991; Harter, 1978; Skinner et al., 1990), as well as by their own internal representations of themselves. For children with learning disabilities, classroom structure and teachers' feedback influence how they interpret and respond to failure (Deci, Hodges, Pierson, & Tomassone, 1992; Grolnick & Ryan, 1990; Licht & Kistner, 1986).

Therefore, the focus of this study is on the contextual (instructional setting, teacher and parental support) and personal (perception of control, self-concept) variables that influence the coping mechanisms of children with learning disabilities.

Chapter II

Literature Review

Learning Disabilities

Research and theories in the fields of psychology and education have generated much controversy and debate about the definition of the term learning disabilities, its etiology, classification, and identification (Gelzheiser, 1987; Hammill, 1990; Kavale & Forness, 1992; Speece, McKinney, & Appelbaum, 1985; Wilson, 1985). Learning disabilities were first conceptualized for children whose academic performance was not commensurate with their level of ability and who did not fit into other categories of exceptionality (Mercer, King-Sears, & Mercer, 1990). Several distinct lines of research have examined disturbances in perceptual-motor, psycholinguistic, and cognitive processes as the underlying causes of learning disabilities (Kavale & Forness, 1992; Lerner, 1993).

A growing trend in cognitive research has involved investigating learning disabilities as production deficits rather than as disturbances in basic psychological processes (Swanson, 1987). The focus of such research is not only on the identification of cognitive components and information processing capabilities of children with learning disabilities, but more importantly on the metacognitive processes that accurately and efficiently integrate and control component processes (Deshler & Lenz, 1989; Hresko & Reid, 1981; Wong, 1986). Metacognition is the awareness of the person, task and strategy variables affecting cognitive performance, and the use of that knowledge to plan, monitor, and regulate performance (Wong, 1986). From this research, children with learning disabilities are characterized as passive learners who are unaware of efficient problem-solving strategies or unable to apply them to monitor or regulate their academic performance (Ryan, Short, & Weed, 1986; Torgeson, 1977).

Additionally, research on learning disabilities has been extended to consider situational and educational factors that are thought to further interfere with cognitive and

motivational components of children's learning (Adelman & Taylor, 1993; Kavale & Forness, 1992; Lerner, 1993). Research focusing on students' motivation explains the passivity and lack of persistence of children with learning disabilities as a natural response to repeated academic failures (Chapman, 1988; Licht & Kistner, 1986; Pearl, Bryan & Herzog, 1983; Sabatino 1982). Repeated failures serve to foster doubts in these students about their abilities and to facilitate the development of their beliefs that their efforts are futile.

Further adding to the frustration experienced by children with learning disabilities are psychosocial variables that have been shown to be either primary factors contributing to academic problems or as being a result of having a learning disability (Gresham & Elliot, 1989). Researchers have found that elementary school age children with learning disabilities, as a group have significantly greater difficulty than their nondisabled peers interacting with parents, teachers, and peers (Gresham, 1988; Gresham & Elliot, 1989; McKinney, 1989; Pearl et al., 1986; Sater & French, 1989).

Bryan (1977) suggests that the social skill deficits of some elementary school age children with learning disabilities are the result of a weakness in sensitivity, attention, comprehension, and responsiveness to the subtle nonverbal cues communicated in social situations. She suggests that learning in social situations requires the same basic psychological processes involved in learning to read; attention, distinctive feature learning, visual and auditory discrimination, and mediational processes. This is consistent with the view that much of the difficulties that many children with learning disabilities encounter is in interpreting ambiguous or abstract information (Kronik, 1988). Some children with learning disabilities have trouble using their cognitive skills to detect ambiguity and use inferences to resolve confusion.

Educational service providers, recognizing these tendencies in children with learning disabilities, have emphasized the importance of providing educational programs

that maintain a high degree of explicit structure, support, and control (Deci et al., 1992). The use of behaviour modification programs, emphasizing an external reward system, is often recommended to control behaviour and to increase students' motivation and achievement in school. Researchers found that teachers in regular classes reported using more controlling techniques with mainstreamed children with learning disabilities than with their peers (Grolnick & Ryan, 1990). Teachers' utilization of controlling strategies may provide benefits in terms of reducing confusion and maintaining on-task behaviour, however, for children with learning disabilities these strategies may serve to undermine personal initiative in that they reduce perceived control and increase dependence on external structure and motivation (Boggiano & Katz, 1991; Deci et al., 1992; Licht & Kistner, 1986; Rogers & Saklofske, 1985).

Taylor, Adelman, Nelson, Smith, and Phares (1989) found that children in special and regular education programs did not differ significantly in the extent to which they value having control over school related matters, however, the children in traditional special education programs were found to have significantly lower perceptions of control. The authors speculated that children who valued academic endeavors, yet perceived little control over them are likely to experience the greatest sense of frustration, which might lead to aggressive behaviour. However, Heavy, Adelman, Nelson, and Smith (1989) in testing this hypothesis did not find a significant difference in the perceived control of regular versus special education students but found that students with low perceptions of control were more likely to express feelings of anger toward school and to manifest inappropriate behaviours.

The relevance of these lines of research to the present study is that they point to the importance of investigating the interrelationship between social contexts, affective variables, feelings, beliefs, and attitudes and cognitive functioning. Clearly, children's skills and cognitive abilities play a significant role in determining academic and social

outcomes. However, the transactional nature of the educational process must be considered. Children's academic experiences and the way significant others' react to them may influence their feelings of control and self-worth as well as their perception and understanding of academic and social requirements, which subsequently affects motivation and academic performance (Deci et al., 1992; Grolnick & Ryan, 1990; Pearl et al., 1986).

Perception of Control

Locus of Control

Perceived control is one motivational variable that appears to have an affect on children's academic achievement. Research utilizing the construct of locus of control has focused primarily on contingency beliefs in terms of the generalized expectancy that reinforcement is either under one's own control (internal) or conversely, not under one's own control (external) (for reviews see Findley & Cooper, 1983; Stipek & Weisz, 1981; Weisz & Stipek, 1982). Typically, internal control refers to an individual's belief that an event or outcome is contingent on the individual's own actions or on a relatively stable characteristic such as ability. For perceptions of external control, outcomes are attributed to factors beyond the control of the individual, such as luck, task difficulty, and/or powerful significant others. Children with an external locus of control typically do not perceive a contingency between outcomes and actions and are therefore less likely to engage themselves or persist at academic tasks (Findley & Cooper, 1983; Stipek & Weisz, 1981).

The empirical approach commonly used to examine this theoretical position is to assess the relationship between children's scores on a measure of locus of control and scores on standardized intelligence and achievement tests (Stipek & Weisz, 1981). Reviews of studies examining the relationship between locus of control and academic achievement report that achievement correlates positively with an internal locus of control and negatively with an external locus of control (Findley & Cooper, 1983; Stipek & Weisz, 1981). This correlation is often interpreted as evidence that an external locus of control negatively

affects school achievement. However, the relationship may operate in reverse, in that school performance influences children's perception of control (Stipek & Weisz, 1981). These findings may in fact serve to demonstrate that children who do well in school take responsibility for their success whereas children who do poorly attribute responsibility to external factors.

Despite some contradictory evidence (e.g., Bender, 1987; Cooley & Ayres, 1988; Durant, 1993; Kistner, Osborne, & LeVerrier, 1988), researchers studying children with learning disabilities report that these children generally have a more external locus of control orientation than their normally achieving peers (e.g., Ayres, Cooley, & Dunn, 1990; Boersma & Chapman, 1981; Butkowsky & Willows, 1980; Licht & Kistner, 1986; Pearl et al., 1983; Rogers & Saklofske, 1985; Sabatino, 1982). However, it is important to note that even when successful, children with learning disabilities are less likely to interpret this as a reflection of their abilities. They continue to attribute their performance to external factors, and consequently have lower expectations for future success than normal achievers (Boersma & Chapman, 1981; Butkowsky & Willows, 1980; Pearl et al., 1983).

Few studies have investigated differences in locus of control among children with learning disabilities as a function of differences in instructional programs or differences between academically successful and unsuccessful students. Rogers and Saklofske (1985) investigated these factors in elementary school age children (7-12 years old), using the Nowicki-Strickland Locus of Control Scale for Children (Nowicki & Strickland, 1973) to measure general locus of control and the Intellectual Achievement Responsibility Questionnaire (Crandall, Katovsky, & Crandall, 1965) to measure academic locus of control. They found that children who were more recently enrolled in a special education resource room program (5-8 hours weekly) had significantly higher expectations for future success than children with more than 6 months of experience in such programs. Although this may suggest that contextual variables can impact on self-perceptions, it is not clear

what elements within the special program produced this influence. Furthermore, children with an external locus of control and high academic self-concept were found to be more academically successful than children with internal orientations and low academic self-concept. One explanation is that blaming external sources for academic failure may be an adaptive coping mechanism for these children. Conversely, children who blame themselves for academic failures reinforce poor self-perceptions which serves to further interfere with school learning. The authors question whether the structure in remedial settings is more facilitative for children with an external orientation compared to the internalized responsibility required in regular classrooms. Children with learning disabilities who are externally oriented may respond better to highly structured conditions, whereas those who are more internally oriented may function best in classrooms that promote students' responsibility and independence (Rogers & Saklofske, 1985).

A major weakness of the locus of control research reviewed is that children's control orientation was conceptualized as a static unchanging quality similar to fixed personality trait. Explaining children's perception of control and their relation to academic outcomes in terms of a single, bipolar dimension of internal/external contingency beliefs, ignores the complexity of factors influencing children's beliefs about themselves as students, their understanding of what is required of them to do well in school and their motivation to do it (Chapman, Skinner, & Baltes, 1990; Skinner et al., 1990).

Attribution Theory and Learned Helplessness

Attribution theory differs from locus of control theory in the distinction made between contingency and control. Although effort and ability are both internal causal attributions, children behave differently in achievement situations depending on which of these causes they attribute the outcomes of their actions (Stipek & Weisz, 1981). Attribution theory maintains that perceptions of causality are determined by variables specific to a given situation: locus of causality, control, and stability (Weiner, 1979). Locus

of causality can be internal or external, reflecting the perceived contingency of outcomes and characteristics or actions of the individual. The control dimension provides a distinction between internal, controllable (e.g., effort) and internal, uncontrollable (e.g., ability) causal factors. Stability categorizes causes as either stable (invariant) or unstable (variant). The stability dimension is considered to be of primary importance in determining future behaviour because it affects one's expectations for future success (Weiner, 1979). Failure attributed to stable factors (e.g., low ability) decreases the expectation for future success more than failure due to an unstable cause (e.g., poor effort). Attributions to unstable causes suggest that future outcomes can be modified or controlled.

On this basis, several researchers have successfully developed procedures to teach children to attribute failure to lack of effort, as effort is a controllable and variant factor (Chapin & Dyck, 1976; Dweck, 1975). However, for children with learning disabilities the situation is more complex in that attribution of failure to lack of ability may be realistic, and training to increase persistence may serve to augment helplessness if the individual is not successful due to the lack of cognitive skills required by the task (Cullen, 1985).

Studies investigating learned helplessness have found differences in children's cognitive, motivational, and emotional orientation following failure feedback (Diner & Dweck, 1978; Dweck & Reppuci, 1973). Mastery-oriented children tend to persist and search for alternative solutions in subsequent tasks. They attribute previous failure to insufficient effort. The performance of children with learned helplessness is marked by a deterioration in persistence and the attribution of failure to uncontrollable factors such as lack of ability. In addition, helpless children express negative affect and focus their attention more on worrying about their performance than on problem-solving strategies (Diener & Dweck, 1978; Stipek & Kowalski, 1989). Mastery-oriented children engage in self-monitoring and self-instruction behaviour, rather than attempting to explain the causes of their failure (Diener & Dweck, 1978).

Researchers studying children with learning disabilities emphasize these metacognitive components of the learning process to explain the passive, unmotivated behaviour pattern associated with learned helplessness (Cullen, 1985; Cullen & Boersma, 1982). Cullen (1985) examined the role negative emotions play in cognitive monitoring that interfere with task specific problem-solving. The style of responding to failure utilized by children with learning disabilities at the age of 8 was analyzed in terms of *coping responses* (i.e., active and constructive attempts to deal with failure), *neutral responses*, and *negative responses* (i.e., reactions that interfered with constructive attempts to deal with failure). Four major response categories were identified. *Strategy-oriented* children used mostly high-level coping responses that consisted of strategies such as renewed effort in terms of a specific checking or monitoring strategy. *Action-oriented* children used low-level coping responses such as general renewal and requesting help. *Anxiety oriented* children scored low on coping measures and used mostly negative affect that suggested anxiety, embarrassment, or guilt about failure. *Anger-oriented* children were low coping scorers who either withdrew or made responses indicating anger, aggression, or frustration. Compared on the basis of persistence on the problem-solving task and school achievement (teacher ratings and standardized test scores), strategy-oriented children were found to be high achievers and highly persistent while anger-oriented children produced few coping responses, were low achievers, and showed helpless reactions to failure. The low level coping of action-oriented children permitted maintenance of persistence but only a low level of academic achievement. Anxiety-oriented children were able to maintain satisfactory persistence and achievement, leading the authors to suggest that at this age, anxiety was not yet interfering with cognitive monitoring ability. While recognizing that maintaining effort and persistence is important for children with ability deficits, these findings suggest that they may also require assistance with cognitive and affective functioning (Cullen, 1985; Cullen & Boersma, 1982).

Despite the considerable body of literature that has been devoted to the study of perception of control, the question remains "control over what?" The various constructs employed as measures of perception of control, particularly the internal/external dimensions, lack precision in specifying whether they measure beliefs about personal responsibility, personal competence, the accuracy of appraisals of contingency, or situational bound reactions to failure feedback (Skinner et al., 1990; Stipek & Weisz, 1981). Clearly, the investigation of children's beliefs about their capacity to control academic outcomes is especially relevant to children with learning disabilities. However, it is essential to employ constructs and measures that are clearly defined.

Self-Concept

Researchers have been concerned that the challenging academic experiences of children with learning disabilities would have a negative impact on their feelings of self-worth (Grolnick & Ryan, 1990; Kistner, Haskett, White, & Robbins, 1987; Renick & Harter, 1989). Nevertheless, inconsistency in the conceptualization and operationalization of early research on self-concept produced contradictory findings (Clever, Bear, & Juvonen, 1992). Research using measures that defined self-worth as an aggregate of self-perceptions across diverse domains, suggested that children with learning disabilities experienced lower self-worth than normally achieving peers (e.g., Ayers, Cooley, & Dunn, 1990; Cooley & Ayers, 1988, Rogers & Saklofske, 1985). However, it was noted in these studies that these differences in global self-worth were largely influenced by the item tapping academic self-concept (Ayers, Cooley, & Dunn, 1990; Cooley & Ayers, 1988, Rogers & Saklofske, 1985). Researchers began to focus on multi-dimensional, domain-specific measures that viewed self-worth as a separate element of self-concept. Children with learning disabilities were found to have significantly lower academic self-concepts compared to their peers, yet were not found to have significantly different perceptions of self-worth (e.g., Bear & Minke, 1996; Clever et al., 1992; Grolnick &

Ryan, 1990; Kistner et al., 1987; Hagborg, 1996). Proponents of the domain-specific approach to self-concept recognized that self-perceptions in specific domains would still have an influence on children's perception of global self-worth (Clever et al., 1992; Renick & Harter, 1988). Thus, recent research has focused on cognitive and affective factors that could explain how children with learning disabilities maintain positive feelings of self-worth despite their poor academic self-concepts.

One explanation offered was that learning disabled children's feelings of self-worth can be protected by discounting, blunting, or downplaying the importance of the academic competence domain (Grolnick & Ryan, 1990). However, studies investigating this hypothesis found that children with learning disabilities did not discount the importance of academic competence (e.g., Clever et al., 1992; Hagborg, 1996; Kloomok & Cosden, 1994; Renick and Harter, 1989)

Another explanation suggested in the literature was that these children continued to perceive school to be very important and were able to maintain their sense of self-worth due to their tendency to over-rate themselves academically in light of more objective, external indicators (Clever et al., 1992). Renick and Harter (1988, 1989) investigated the role of social comparisons to explain learning disabled children's inflated academic self-perceptions. They found that learning disabled children's scholastic self-perceptions varied according to their comparison reference group. Children perceived themselves to be significantly more scholastically competent when comparing themselves with their learning disabled peers than when comparing themselves with their normally achieving peers. Special education placement was also found to influence children's social comparison process and their perceptions of academic competence (Renick & Harter 1988). Students who attended a public school and received resource room assistance 1-2 hours each day tended to use their normally achieving peers as their reference group, while students who attended a special school for children with learning disabilities compared their competencies to other

learning disabled peers. The children attending the special school were found to have rated themselves significantly higher on scholastic competence (Renick & Harter 1988).

Additionally, Renick and Harter (1989) found that the perceptions of scholastic competence of children who used normally achieving peers as a reference group tended to decreased systematically with advancing grade level. The authors suggested that as children's cognitive-developmental skills became more refined they increasingly use social comparison information as a method for self-appraisal. Research in developmental psychology provides evidence why young children tend to form unrealistically positive self-evaluations (Stipek & MacIver, 1989). Very young children view ability or intelligence as a function of how hard they try and not as a stable trait that limits the effectiveness of effort (Nicholls & Miller 1984; Stipek, 1981; Stipek & Tannatt, 1984). Still further, children's perception of ability changes as a function of their cognitive development. Seven year olds tend to believe that their abilities are changeable through their own efforts. At age 10, children begin to view intelligence as a capacity that limits the usefulness of their efforts (Nicholls, 1978; Nicholls & Miller 1984). However, even at that age the notion that intelligence is a fixed capacity is not well established as this concept is developed only after the age of 13.

Although these findings suggest that younger children are less vulnerable to the debilitating effects of failure, they do not suggest that they were immune from them (Licht & Kistner, 1986). At any given age there are important individual differences in how children with disabilities develop self-perceptions of their abilities and respond to failure. One important factor may be the severity of an individual's learning disability (Rothman & Cosden, 1995). When young children experience failure on a very consistent basis, they may become aware of their limitations at an earlier age than is typical (Stipek, 1981). Further, some researchers have suggested that children with learning disabilities may overinflate their self-perceptions not as a form of denial but due to delays in cognitive development (Kistner et al., 1988; Licht & Kistner, 1986).

In addition to the social comparison process, some researchers have examined other factors related to enrollment in special education programs that influence the self-perceptions of children with learning disabilities (e.g., Bear & Minke, 1996; Clever et al., 1992; Deci et al., 1992; Hagborg, 1996; Kistner et al., 1987; Rogers & Saklofske, 1985; Rothman & Cosden, 1995). Some researchers have suggested that the individual attention, close student-teacher relationship, and the positive reinforcement afforded to children with learning disabilities in special education programs has served to bolster these children's sense of academic competence and thus their feelings of self-worth (Bear & Minke, 1996; Clever et al., 1992;). Bear and Minke (1996) analyzed the criteria that learning disabled children used to evaluate their scholastic competence. The authors concluded that children with learning disabilities demonstrated a positive bias in their self-perceptions by selectively focusing on favorable classroom feedback from teachers. However, these results were viewed as speculative as the relationship between teaching practices and children's self-perceptions was not directly examined in the study.

A competing line of research has posited that the high degree of structure and nurturance provided to children in special education programs adversely affects their sense of personal autonomy and thus, impacts negatively on their perceptions of academic competence (e.g., Deci et al, 1992; Grolnick & Ryan, 1990; Rogers & Saklofske, 1985). However, few studies have investigated the relationship between educational placement (Rogers & Saklofske, 1985), the type of structure provided by teachers and the students' perception of control (Deci et al, 1992; Grolnick & Ryan, 1990) and self-concept (Hagborg, 1996).

Reconceptualization of Perception of Control

Critics of the bipolar conceptualization of locus of control argue that internal and external control beliefs may be independent of each other in relation to performance (Connell, 1985; Chapman, Skinner, & Baltes, 1990: Skinner et al., 1990). These

researchers argue that internal and external beliefs should to be measured separately and for each separate source of control (i.e., effort vs. ability and powerful others vs. luck vs. chance). A third source of control that is added to this conceptualization is attributed to unknown causes, the extent to which children report that they do not know why outcomes occur (Connell, 1985). Consideration of unknown sources of control is particularly relevant to children with learning disabilities who may have weaknesses in interpreting situational cues that may contribute to their confusion regarding the sources of contingency operating in the classroom (Bryan, 1977; Kistner et al., 1988; Licht & Kistner, 1986; Sabatino, 1962).

In addition to analyzing children's perceptions of the general causes of school performance, it is necessary to investigate their beliefs about whether they have the capacity to effectuate those causes. This distinguishes between perceptions of contingency and perceptions of competence which together interact to form perceptions of control (Stipek & Weisz, 1981; Weisz & Stipek, 1982). Skinner and her colleagues (Chapman & Skinner, 1989; Chapman et al., 1990; Skinner, Chapman & Baltes, 1988; Skinner, 1995) argue that perception of control is measured by three independent sets of beliefs. *Strategy beliefs*, or means-ends beliefs, which refer to expectations about what it takes for the individual to do well in school (such as effort, ability, powerful others, luck, and unknown factors). *Capacity beliefs*, or agency beliefs, are concerned with expectations about whether the individual possesses the means to do well in school. *Control beliefs* incorporate the individual's global perception of being able to do well in school without an explicit reference to means (Skinner et al., 1988; Skinner et al., 1990). In addition, a major determinant of children's perceived control, within Skinner's model, concerns teachers' behaviour toward students. This is an important factor to examine in view of the changing service delivery models currently being advocated in the field of education.

The investigation of perceptions of control plays an important role in understanding the ways children perceive stressful events in their lives and the coping mechanism they employ (Compas et al., 1991; Folkman, 1984). Control related beliefs regarding stressful events influence the degree to which individuals attempt to master or change stressful circumstances as opposed to trying to tolerate or adjust to adverse conditions. The perceived effectiveness of attempts to manage stressful encounters can enhance or decrease perception of personal control (Compas et al, 1991).

Stress and Coping

Stress and coping have become familiar concepts among clinicians and educators. due to concern about the deleterious effects of challenging, demanding, or traumatic life events on physical and psychological functioning. Empirical evidence suggests a direct link between stressful life events and physical and psychological disorders (Dohrenwend & Dohrenwend, 1981; Rutter, 1983). However, considerable variability has been reported in how individuals respond to high levels of stress (Zeidner & Hammer, 1990). This has led investigators to focus on the coping process as a moderating factors that may augment the impact of an event or provide immunity against damage from stress (Compas, 1987b; Dohrenwend et al., 1984; Zeidner & Hammer, 1990; Zeidner & Saklofske, 1996). The study of coping has evolved from consideration of stress-disorder relationships to focus on the adaptive function of coping that provides individuals with the capacity for resilience and constructive action in response to challenging life situations (Parker & Endler, 1996; Zeidner & Saklofske, 1996)

The preponderance of research has focused on coping with stress during adulthood. The study of the role of stress in the lives of children and adolescents has only recently been initiated (Band & Weisz, 1988; Compas, 1987a; 1987b). Several researchers have recommended refinement and modification of adult-based theoretical and empirical frameworks in order to make them suitable to the study of childhood stress and coping

(e.g., Altshuler & Ruble, 1989; Band & Weisz, 1988; Compas, 1987a; 1987b; Ryan-Wenger, 1992; Wertleib et al., 1987). They emphasized that the basic nature of children's social, cognitive, and emotional development affects what they experience as stressful and how they cope (Compas, 1987a; Ryan-Wenger, 1992). Children's stressors have been typically related to situations with adults or conditions which are outside of their control or which they cannot change by themselves (Ryan-Wenger, 1992). Furthermore, in view of the highly dependent relationship children have with adults, investigation of their ability to cope with stress requires consideration of their social context (Compas, 1987a).

Perception of Stress

A situation or event may be perceived by one individual as stressful while for another person the same event may be perceived as neutral, positive, or even irrelevant. The key factor in the personal experience of stress is the significance or meaningfulness of the event to the individual (Folkman, 1984; Lazarus & Folkman, 1984). Stressful events entail perceptions of harm/loss (a range of events from personal injury to loss of self-esteem), threat (the potential for harm or loss), or challenge (the opportunity for growth or mastery). Harm/loss and threat appraisals foster negative emotions such as fear, anger, or resentment, whereas challenge engenders excitement and eagerness (Folkman, 1984).

Primary appraisal, or initial judgments about the meaning of an event, are mediated by personal and situational factors (Folkman, 1984; Lazarus & Folkman, 1984). Among the most important personal factors in this process are beliefs, or the pre-existing notions about the nature of transaction between the self and the world, and the importance that the situation represents to the individual (Folkman, 1984). Perceptions of contingency are among those beliefs that influence primary appraisal. Skinner (1995) refers to perceptions of control as the naive causal models of how the world works. The individual constructs theories about the likely causes of desired and undesired events, about their own role in successes and failures, and about the responsiveness of the social context.

Secondary appraisal entails evaluation of coping resources, including physical, social, psychological and material assets believed to be available to deal with the demands of the situation. Situational appraisal of control or perceptions of competency influence the individual's determination of the demands of a specific encounter (Compas et al., 1991; Folkman, 1984).

Coping

A criticism of control theory and especially of locus of control theory, is that children are classified in terms of static unchanging qualities in order to make predictions about what beliefs they will hold and what strategies they will utilize, in some or all types of stressful encounters (Band & Weisz, 1988; Compas et al., 1991; Lazarus & Folkman, 1984). From this perspective, coping, as a construct, is assumed to be consistent across a wide variety of stressful situations, similar to a broad personality trait (Compas, 1987a). However, Lazarus and Folkman (1984) argue that coping is not a static and unchanging personality trait, but is a dynamic process wherein the developing child is required to respond to a complex set of changing conditions. Coping is defined as the "cognitive and behavioral efforts to master, reduce, or tolerate the external and/or internal demands created by stressful transactions" (Folkman, 1984, p. 843). Coping is viewed as a process that varies depending on the perceived demands of a particular situation (Band & Weisz, 1988). The appraisal process involves trying to understand what is happening, its significance, and what can be done.

Contemporary theorists contend that the coping process can best be understood and described by considering both the contextual and dispositional factors that influence individuals attempts to manage stressful events in their lives (Holahan, Moos & Schaefer, 1996; Parker & Endler, 1996). Dispositional influences can be understood as an individual's preferred coping style or general tendency to deal with stressful events across different situations in a relatively consistent manner (Compas, 1987a; Holahan, Moos &

Schaefer, 1996). Coping resources include relatively stable personality and cognitive characteristics that shape the way in which an individual tends to cope (Holahan, Moos & Schaefer, 1996). Coping styles may act to constrain children's choice of coping efforts from the range of strategies they have available to them (Ryan-Wenger, 1992). A stress inducing, internal conflict, can arise when a situation requires a particular coping strategy (confrontation) that is antagonistic to the individual's preferred coping style (avoidance) (Folkman. 1984).

Coping efforts that are deliberate and context bound vary according to the situationally specific demands of a particular stressful encounter (Ryan-Wenger, 1992). Social support are among the coping resources that influence the individual's appraisal of the stressful situation and how they choose to respond to it (Holahan, Moos & Schaefer, 1996; Parker & Endler, 1996). Thus, coping behaviours may be consistent across similar circumstances, yet, they are amenable to change, as the features of the environment or cognitive appraisals of the environment change (Compas, 1987a; Roth & Cohen, 1986).

The Function of Coping

Lazarus and Folkman (1984) emphasize the importance of not confounding function and outcome in their conceptualization of coping. Function refers to the purpose of a strategy while outcome refers to the effect the strategy has. The function of coping efforts is viewed as operating in two domains: behaviours intended to act on stressors (problem-focused coping); and the regulation of emotional states brought on by stressors (emotion-focused coping). Emotion-focused coping attempts to manage the stress that results from a situation that is appraised as taxing the resources available to respond to it. One large group of cognitive processes is aimed at reducing emotional distress such as avoidance, distancing, denial, selective attention, etc.

Problem-focused strategies act on the stressor and are similar to problem-solving strategies (Folkman, 1984; Lazarus & Folkman, 1984). They can act directly on the stressor by defining the problem, generating alternatives, weighing the options, deciding on a plan of action, and acting. However, they can also be directed inward to alter the relationship between the individual and the environment. These strategies are considered problem-focused reappraisals, and include changes in motivational or cognitive perspectives, such as changing the value of the endeavor, finding alternative channels of gratification, or learning new skills and procedures.

Problem-focused strategies tend to be more context bound whereas emotion-focused coping seems to be applicable across a wide variety of situations (Lazarus & Folkman, 1984). The two domains of coping, both intended to mediate stress, can nevertheless serve to impede each other. An example of this would be when the fear of failure is so unbearable that a child chooses not to try at all at a task that is within the individual's range of problem-solving ability. Both aspects of coping can be carried out through either cognitive or behavioural channels.

In addition to analyzing coping in terms of function, the focus of coping efforts and modes of coping must also be considered (Wertleib et al., 1987). The focus of coping can be directed toward the self, the environment, or to efforts that lead the individual to be rescued by others in the environment. Research has primarily focused on two broad orientations to coping with stress, approach and avoidance (Altshuler & Ruble, 1989; Band & Weisz, 1988; Boekaerts, 1996; Holahan, Moos & Schaefer, 1996; Lazarus & Folkman, 1984; Parker & Endler, 1996; Roth & Cohen, 1986; Zeidner & Saklofske, 1996). Approach behaviours are active or intentional efforts aimed at changing or confronting a stressful situation. Avoidance behaviours are associated with passivity, withdrawal, submissiveness and denial.

Children's Perception of Control and Ways of Coping

Although individuals may have a generally preferred style of coping, contextual factors may influence the strategies they employ in a given situation (Altshuler & Ruble, 1989; Boekaerts, 1996; Folkman, 1984). One factor that influences the mode of coping is whether the stressor is perceived as controllable. Controllable situations may be more effectively handled by approach strategies, whereas uncontrollable stressors may require avoidance strategies (Boekaerts, 1996; Altshuler & Ruble, 1989).

In Lazarus and Folkman's (1984) formulation, emotion-focused coping is most often a response to harmful, threatening, or challenging environmental conditions which are perceived as unchangeable. Problem-focused coping is more likely to occur when conditions are appraised as controllable, or amenable to change. The controllability of a situation is determined through the appraisal process. Perceptions of contingency are among the beliefs that influence primary appraisal (Folkman, 1984). Perceptions of competence are part of situational control appraisal operating within the secondary appraisal process. Situational control appraisal affects primary appraisals of threat or challenge, which in turn influence coping.

Situations that are perceived as uncontrollable are more likely to produce appraisals of threat and give rise to negative emotions such as fear and anxiety. Consistent with findings from the learned helplessness literature (Diener & Dweck, 1978), problem-solving research (Spivack & Shure, 1985), and research on meta-cognitive processing of children with learning disabilities (Cullen, 1985; Cullen & Boersma, 1982), these negative emotions can interfere with problem-solving activities. Thus, emotion-focused efforts are required to regulate emotional arousal and thereby allow cognitive monitoring to focus on problem-solving activities. Problem-focused coping operates efficiently in situations appraised as controllable and approached from a positive perspective of a challenge rather than the emotional distress associated with a threat.

However, an important consideration in this formulation is the match between perceptions of control and reality (Folkman, 1984). A controllable situation that is appraised as a threat will impede problem-focused efforts and result in poor problem resolution. Similarly, in a situation that is in reality uncontrollable but instead is perceived as a challenge, engaging in futile problem-solving efforts will lead to frustration and disappointment.

According to Compas et al. (1991), problem-focused coping may be related to perceptions of control, however, emotion-focused coping may be related to a separate set of cues such as internal emotional distress. Empirical evidence has shown that perceptions of control lead to the greater use of problem-focused coping, which if effective, enhance feelings of personal control. Emotion-focused coping is most often used as a response to emotional arousal or distress, but is not directly related to control beliefs. Emotional arousal is related to the interaction of control beliefs and coping efforts. Emotion-focused coping is used when there is a mismatch between coping and perceptions of control. Emotional regulation is needed to manage the distress produced in situations where perceived control is low and problem-focused coping has been applied.

The importance of the match between perceptions of control and the objective controllability of the situation (Folkman, 1984) and the fit between control and coping (Compas et al, 1991) is reflected in the work of Cullen and Boersma (1982), who maintained that encouraging persistence in children who lack the skills needed to succeed would augment feelings of helplessness. Furthermore, generalized beliefs about control have their greatest influence under conditions of ambiguity (Folkman, 1984; Rotter, 1966). Thus in ambiguous situations, a person who tends to attribute responsibility for outcomes to external sources would be expected to appraise the situation as uncontrollable, whereas a person with an internal orientation might appraise it as controllable.

A central premise in the stress and coping perspective is that the stressfulness of an event or situation is determined by the significance or meaning it holds for the individual (Folkman, 1984; Lazarus & Folkman, 1984). Perception of control and self-concept are factors that have been recognized as important influences on whether a situation is perceived as challenging or threatening and therefore requires coping behaviour. However, it remains unclear whether believing that one is in control of a situation is inherently stress reducing or whether a more important factor is the match between appraisals of control and the actual controllability of the situation (Folkman, 1984).

In view of the cognitive and emotion delays often attributed to children with learning disabilities (Adelman & Taylor, 1993; Lerner, 1992), and the difficulty they have interpreting situational cues (Bryan, 1977; Sabatino, 1982), especially under ambiguous conditions (Kronik, 1988), it is important to investigate how they appraise their academic situation in relation to the manner in which they cope with it.

Chapter III

Rationale and Research Questions

The preceding review of literature has highlighted the complex interrelationship between cognitive, affective, motivational, and situational factors that influence children's development of beliefs about themselves in relation to academic achievement. It is intuitively and theoretically appealing to argue that children's perceptions or beliefs that failure is inevitable and caused by factors which are outside of their control can produce a helpless reaction (passivity, lack of engagement, and lack of persistence) that interferes with learning due to a reduction in the learner's motivation to control outcomes (Abramson et al., 1978). One can also assume that children who have experienced academic failure would feel poorly about themselves which would subsequently interfere with their academic performance. By definition, children with a learning disability have experienced academic failure (Licht & Kistner, 1986; Renick & Harter, 1989). Clearly, studying the self-perceptions of children with a learning disability offers an ideal opportunity to verify these theoretical constructs. However, the preponderance of research has tended to investigate only isolated aspects of children's self-perceptions. Few researchers have investigated the relationship between self-referent thoughts and beliefs and children's coping behaviour (Halmhuber & Paris, 1993).

The extension of the stress and coping paradigm with children requires considerations of the life events that challenge the developmental process during childhood and adolescence. The study of children with learning disabilities fits this criterion and would make an important contribution to understanding how some of these children cope with the stress of repeated failures in ways that do not lead to maladaptation, and would further enable the development of educational programs aimed at helping others learn to cope with the stresses that occur in their lives (Compas, 1987a; Masten, Best, & Garmezy, 1991). Specifically, why is it that some children with learning disabilities are persistent,

active, and motivated learners, while other children with similar disabilities develop the debilitating learned helplessness behaviour pattern?

To date, much of the developmental literature on stress and coping has focused on acute or chronic major events in children's lives that require action and adaptation (Rutter, 1983). The potentially stressful nature of these situations involves a significant loss or disappointment, and disturbed interpersonal relationships. Increasingly, attention is being given to smaller events that occur more frequently than major life events (Dohrenwend et al., 1984; Elwood, 1987). These smaller events may be perceived as irritating, frustrating, distressing demands and troubled relationships and can best be described as "daily hassles" (Dohrenwend et al., 1984).

Perception of control and self-concept are factors that have been recognized as important influences on whether a situation is perceived as challenging or threatening. A principle aim of the present study is to verify the proposed relationship between the self-referent thoughts and beliefs (perception of control, self-concept) of children with learning disabilities and their coping behaviour.

The growing trend in educational services for children with learning disabilities is toward inclusive programs and away from traditional special education programs in the form of special classes and resource room models. Some researchers have speculated that the individual attention provided to students in traditional special education classes has a beneficial effect on children's self-concept (Bear & Minke, 1996, Clever et al., 1992). Other researcher have posited that special education teachers provide high levels of control, structure and external reinforcement that serves to undermine learning disabled children's autonomy, fosters dependency, and negatively impacts on their self-concept (Deci et al., 1992; Grolnick & Ryan, 1990; Rogers & Saklofske, 1985). However, these studies have failed to directly examine the teaching practices that may influence children's perception of control or self-concept.

This research focuses on educational variables that influence the development of children's self-perceptions, variables which have been ignored in other studies. This research will provide insight into the influence of different instructional settings and differing teaching strategies on learning disabled children's perception of control, self-perceptions of competence, the stress they experience and the coping mechanisms they utilize. In summary, the current study of children with learning disabilities examines the relationship between their perception of control, their self-perceptions of competence, the ways in which they cope and the influence of contextual variables, specifically educational placement and teachers' classroom management orientation. More specifically this study seeks to address the following issues:

1. What is the influence of the contextual variables of educational placement(type of class, type of school) and teachers' classroom management orientation on children's self perceptions of competence, perception of control, and coping behaviour?

2. What is the relationship between the personal variables of children's self-perceptions of competence and their coping behaviour?

3. The relationship between the personal variable of children's perceived control and children's coping behavior?

4. To what extent do the contextual variables of age, parental marital status, duration in special education influence the coping behaviour of children with learning disabilities?

5. What is the influence of the personal variable of children's achievement scores on their coping behaviour?

6. What are the contextual and situational factors that distinguish successful coping behaviour among children with learning disabilities?

Chapter IV

Method

Participants

A total of 48 males participated, ranging in age from 8 to 12 years. In view of the over-representation of males as indicated by the prevalence literature on learning disabilities it was decided to restrict the study to males. All children spoke English at home and were not identified as having any exceptionality other than a learning disability. Students' IQs were verified through school records, however, raw scores were not always available as psychological reports tended to provide descriptive data (i.e. low average, average, above average) rather than raw scores. All the children who participated in the study had Full Scale, Verbal Scale, and Performance Scale IQ scores on the WISC-R at least within the low average range (a score of 80 or above). At the time of the psychological assessments the children were found to have delays in core academic subjects (reading, spelling, and mathematics) of at least two years.

Two public school boards and one private school, situated within the greater Montreal area agreed to participate in the study. The private school is a special education school for students who have a learning disability. Following approval from school boards, meetings were held with the principals of each school to explain the study. The principals met with the teaching staff to solicit their participation. In 6 out of 13 schools who were approached teachers' approval was not forthcoming. Seven schools agreed to participate in the study. These schools provided educational services to children with learning disabilities either in special education classes (SEC) within their schools, in regular classes with resource room assistance (RRC) or mainstreamed in a regular class (MSC). The SEC students benefited from a relatively small students/teacher ratio (maximum 16: 1). SEC students spent the entire school day with the special education teacher except for physical education in which

they were integrated with regular education classes. RRC students were integrated into regular classes and removed for language arts and sometimes math in a small group with a special education teacher (maximum 16:1). RRC students spent 1.5 (language arts) to 2.5 (language arts and math) hours per day in the resource room working with the special education teachers. The assistance provided to the MSC students generally varied depending on the students' needs. Special education teachers provided assistance directly to the student as needed or assisted the regular teacher in the form of curriculum modification or adaptation. Children in the special school classes (SSC) benefited from the smallest student/teacher ratio (11 : 1).

All the children in the special school were identified as having a learning disability. They are referred to the special school only when school boards determine that they do not have an appropriate program that can meet the student's special needs. In addition to their special education teacher, they receive assistance from psychologists, social workers, occupational therapists, speech and language therapists, and reading specialists.

School principals sent the researcher's letter explaining the project and consent forms to the parents of children who met the criteria for learning disabilities (IQ scores in the average range and academic delays of at least two years and no other area of exceptionality). Children whose parents consented to their participation and who themselves agreed to participate were included in the study. The public schools provided 25 students with learning disabilities, the average age being 10.72 years (SD = 1.50). The special school provided 23 students with an average age of 10.31 years (SD = 1.37).

Measures

Child Measures

Self-Concept The Self-Perception Profile for Learning Disabled Students, (SPPLDS) (Renick & Harter, 1988) was used to assess children's self-concept. The SPPLDS provides *self-perception* measures of general intellectual ability, social

acceptance, athletic competence, behavioural conduct, physical appearance, global self-worth, as well as competence in four academic domains: reading, spelling, writing, and math. The scale contains 46 items in a "structured alternative" format which asks children to best describe themselves using a pair of items to assess their level of competence. Children then indicate whether the description is "really true" or just "sort of true" for them, thus providing a likert scale (4 point), with 4 signifying the most competent response. Internal consistency reliabilities are reported for each subscale, based on Cronbach's alpha of .78 to .89.

Perceived Control Perceived control was assessed using the Student Perceptions of Control Questionnaire (SPCQ) (Wellborn, Connell & Skinner, 1988), a 60 item questionnaire pertaining to three separate sets of control beliefs. Strategy beliefs were assessed using thirty items in which children endorse five potential means or causes for success and failure in school: a) effort, b) personal attributes, c) powerful others, d) luck, and e) unknown factors. Capacity beliefs were measured using 24 items indicating the extent to which children believe they have the ability to implement known causes of school outcomes: a) effort, b) personal attributes, c) powerful others, and d) luck. Control beliefs were assessed using 6 items indicating the extent that children believe that they are able to produce success and prevent failure in school.

All items were answered on a 4 point likert-type rating scale: "not at all true", "not very true", "sort of true", and "very true". The SPCQ was used because of the domain specificity with an emphasis on questions pertaining to school achievement, and the developmental approach used in designing the instrument. The authors report satisfactory internal consistency, reliability and predicted correlation with other control scales. Spearman-Brown split-half reliability co-efficients for the SPCQ range from .75 to .85 with a mean of .79 (Wellborn, Connell & Skinner, 1988).

Coping Strategies Coping behaviour was assessed using the Schoolagers' Coping Strategies Inventory (SCSI) (Ryan-Wenger, 1990). The SCSI is a 26 item self-report scale that measures children's perceptions of their coping strategies during personally defined stressful events. Three scores are generated: 1) frequency, 2) effectiveness, and 3) a total score. High scores reflect a greater repertoire and effectiveness of coping strategies. The Cronbach alpha for internal consistency were .76 for the frequency scale and .77 for the effectiveness scale.

Achievement The Wide Range Achievement Test-3 (WRAT-3) (Wilkinson, 1993), a recently revised version of the WRAT-R (Jastak & Wilkinson, 1984) was used to assess students' achievement level. The WRAT-3 is normed by age level, not grade level, to provide greater accuracy as a screening instrument. Standard scores and percentile ranks compare an individual's performance on reading, spelling, and arithmetic with others of the same age. The reading subtest assesses letter recognition and single word recall. The arithmetic subtest entails basic computation. Test-retest reliability coefficients on the subtests of the WRAT-3 are reported to range from .98 to .99. Alpha coefficients for internal consistency on raw scores for Reading, Spelling, and Arithmetic are .98, .98, and .98 respectively.

Teacher Measures

Teachers' Classroom Management Orientation Teachers' orientation toward controlling versus encouraging autonomy in students was measured using the Problems in School Questionnaire (PSQ), (Deci, Schwartz, Sheinman, & Ryan, 1981). Teachers responded to eight vignettes of common problems in school on a seven point scale. Scoring produced four orientations from highly controlling, moderately controlling, to moderately autonomous, and highly autonomous. The questionnaire has been shown to be a stable and reliable measure of teachers' orientation toward control of student behaviour. Cronbach

alphas for internal consistency on the four scales are .73, .71, .63, and .80 respectively (Deci, Schwartz, Sheinman, & Ryan, 1981).

Teachers' Perception of Students' Coping The Coping Inventory (CI), (Zeitlin, 1985) was used to assess teachers' perception of students' coping behaviours. This scale is a 48 item observational instrument used to assess adaptive behaviour of children aged 3-16 years. It is divided into two categories; coping with self, and coping with the environment. Coping with self refers to behaviours used to meet personal needs. Coping with the environment refers to behaviours used to adapt to the demands and pressures of the context. Each category is assessed in terms of three dimensions of coping; productive, active, and flexible. The global score provides an adaptive behaviour summary index. Reliability of the measure has been determined by tests of internal consistency (.84-.98), inter-rater reliability (.78), and standard errors of measurement (.026-.030) (Zeitlin, 1985).

Procedures

Demographic data such as IQ, age, grade level, mother tongue, and the amount of time the children have received special education services was obtained from students' files. Parents who agreed to have their children participate in the study completed a brief questionnaire indicating their own level of education, languages spoken at home, familial history of learning disabilities, and family status and composition.

All child measures were conducted on an individual interview basis. Test items were read aloud to all the students to compensate for their reading difficulties. The order of administration for the child measure instruments was randomly alternated to avoid test bias. Each child was interviewed for approximately 1.5 hours in two sessions of 45 minutes in order to avoid fatigue. The teacher measures were explained to each of the children's teachers. Completed questionnaires were returned within 1 week of the child interviews. Six teachers in the special school and 16 teachers in the regular schools participated in the study.

Chapter V

Results

A comparative design was used to examine the coping behaviour, perception of control, and self-concept of children with learning disabilities. Multivariate analyses were used as an important focus of this research was for interaction effects between variables. The results are organized in six main sections according to the objectives addressed by this study. An initial overview is provided of descriptive data for children in the study.

Overview

The reading, spelling, and math sub-tests of the Wide Range Achievement Test-3 (WRAT-3) were administered to all children in this study. Table 1 provides a comparison of the achievement scores between children in the special school and children in regular schools. A multivariate analysis of variance (MANOVA) was performed with type of school as the grouping variable and the 3 subscales of the WRAT-3 as the dependent measure. No significant differences were found (Wilks' Lambda = .905, $F(3, 44) = 1.53$, $p > .05$) in achievement level by school.

Table 1. Means and standard deviations of standard scores on the Wide Range Achievement Test-3 for the total sample by school

	Special School (N = 23)		Regular Schools (N = 25)	
WRAT - 3	Mean	(SD)	Mean	(SD)
Reading	79.95	(13.95)	78.36	(10.09)
Spelling	79.34	(11.43)	81.64	(7.74)
Arithmetic	81.17	(12.22)	84.20	(10.49)

A MANOVA was performed to examine WRAT-3 scores by type of class. The multivariate analysis failed to reveal a significant effect for achievement by type of class (Wilks' Lambda = .666, $F(9, 102) = 2.06$, $p > .05$). Table 2 reports WRAT-3 scores by class.

Table 2. Means and standard deviations of standard scores on the Wide Range Achievement Test-3 for the total sample by class

	SSC (N = 23)	SEC (N = 9)	RRC (N =7)	MSC (N = 9)
WRAT - 3	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Reading	79.95 (13.95)	73.0 (10.8)	74.14 (5.95)	87.00 (5.52)
Spelling	79.34 (11.43)	77.8 (8.51)	80.71 (3.04)	86.22 (7.71)
Arithmetic	81.17 (12.22)	81.11 (11.01)	87.71 (13.68)	84.56 (6.80)

Note. SSC = special education classes in the special school; SEC = special education classes in regular schools; RRC = resource room classes in regular schools; and MSC = mainstream classes.

Children's Verbal, Performance, and Full Scale IQ scores could not be compared statistically due to the unavailability of the standard scores. However, Table 3 indicates that children's intellectual functioning is similar in the special and regular schools. Similarly, Table 4 provides a comparison of children's intellectual functioning by class. The majority of children in the 4 class settings have Full and Performance Scale IQ scores in the average range. There appears to be more diversity in terms of verbal intelligence. On the Verbal

Scale 44% of the children in SEC, 33% of children in the MSC, 28% of children in the RRC, and 17% of children in the SSC are in the low average range.

Children attending regular schools were found to have been enrolled in special education programs for an average of 25.68 months (SD = 1.50), while in the special school, students had been enrolled for an average of 14.30 months (SD = 1.37). A t-test was performed comparing the two groups ($t = 3.24$; $p < .002$) which revealed that children in the regular schools had spent a significantly greater amount of time in special education programs

Table 3. IQ (WISC-R) data by school for total sample

	Special School (N = 23)	Regular Schools (N = 25)
Full Scale IQ		
Above average	1	0
Average	20	23
Low average	2	2
Verbal IQ		
Above average	1	0
Average	18	16
Low average	4	9
Performance IQ		
Above average	2	3
Average	16	19
Low average	5	3

Children were compared in terms of parental marital status. Families were categorized according to whether two or only one parent were present. Table 5 represents the family background of children in the different educational contexts. Twenty-one percent of children attending the special school and 44% of children attending regular schools came

from single parent families. Fourteen percent of children in the RRC, 33% in the MSC, and 66% in the SEC came from single parent homes.

Table 4. IQ data by class for total sample

	SSC (N = 23)	SEC (N =9)	RRC (N = 7)	MSC (N = 9)
Full Scale IQ				
Above average	1	0	0	0
Average	20	8	6	9
Low average	2	1	1	0
Verbal IQ				
Above average	1	0	0	0
Average	18	5	5	6
Low average	4	4	2	3
Performance IQ				
Above average	2	1	2	0
Average	16	6	4	9
Low average	5	2	1	0

Note. SSC = special education classes in the special school; SEC = special education classes in regular schools; RRC = resource room classes in regular schools; and MSC = mainstream classes.

The Influence of Educational Context on Coping Behaviour, Perception of Control, and Self-Concept

Children's coping strategies were assessed by self-report on the Schoolagers' Coping Strategies Inventory (SCSI), and coping style was assessed by teachers' rating of children's observed behaviour on the Coping Inventory (CI). Research has shown that there is no significant correlation between these two instruments and that they measure separate constructs (Ryan-Wenger, 1990). To examine the influence of contextual variables, in addition to educational placement (type of school and class), the Problems in School Questionnaire (PSQ) which measures teachers' orientation and techniques for controlling students' learning and structuring their classroom behaviour was employed. High scores on the PSQ indicate an approach that encourages autonomy in students while

low scores favour an approach that tends to be more controlling. Independent t-tests comparing PSQ scores by type of school and by type of class found no significant differences between the groups.

Table 5. Demographic data for total sample

	SSC (N = 23)	SEC (N = 9)	RRC (N = 7)	MSC (N = 9)	Regular (N = 25)
Marital status					
Two Parents	18	3	6	6	15
Single Parent	5	6	1	3	10

Note. SSC = special education classes in the special school; SEC = special education classes in regular schools; RRC = resource room classes in regular schools; and MSC = mainstream classes. Regular =SEC+RRC+MSC.

Coping Strategies

The SCSI was used to compare children's perception of their coping strategies first by the type of class (special school class (SSC), special education class in a regular school (SEC), resource room in a regular school (RRC), and mainstreamed in a regular class (MSC) and then by type of school (regular versus special). Three scores were generated: 1) frequency, 2) effectiveness, and 3) a total score. Multivariate analysis of variance (MANOVA), with coping frequency, and effectiveness as the dependent measures and type of class as the grouping variables revealed no significant relationships (Wilks' Lambda = .941, $F(6, 88) = .440$, $p = .85$). Table 6 reports the mean scores and standard deviations and the univariate F tests on the SCSI by class.

Table 6. Mean scores and standard deviations on the Schoolagers' Coping Strategies Inventory by class

	SSC (N = 23)	SEC (N = 9)	RRC (N = 7)	MSC (N = 9)	Univariate F(3, 44)
Coping Strategy	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Frequency	27.26 (10.14)	23.11 (8.59)	28.28 (14.11)	27.22 (13.08)	.377
Effectiveness	29.52 (12.31)	27.22 (9.65)	31.28 (14.11)	33.33 (15.28)	.382

Note. SSC = special education classes in the special school; SEC = special education classes in regular schools; RRC = resource room classes in regular schools; and MSC = mainstream classes.

A MANOVA with type of school as the grouping variable and coping frequency and coping effectiveness as the dependent measures revealed no significant differences (Wilks' Lambda = .978, $F(2, 45) = .515$, $p = .60$). Table 7 reports the mean scores and standard deviations and the univariate F tests on the SCSI by school.

To examine the relationship between coping strategies and teachers' orientation for classroom management, Pearson correlations were computed for the 3 subscales of the SCSI and PSQ. As indicated in Table 8 no significant correlations were found.

Table 7. Mean scores and standard deviations on the Schoolagers' Coping Strategies Inventory by school

	Special School (N = 23)	Regular Schools (N = 25)	Univariate F(1,46)
Coping Strategy	Mean (SD)	Mean (SD)	
Frequency	27.26 (10.14)	26.04 (11.94)	.144
Effectiveness	29.52 (12.31)	30.56 (12.81)	.081

Table 8. Pearson correlation matrix of SCSI and PSQ

	SCSI		
	Coping Frequency	Coping Effectiveness	Total
PSQ	.24	.22	.25

Note. PSQ = Problem in Schools Questionnaire; SCSI = Schoolagers' Coping Strategies Inventory.

Coping Style

The Coping Inventory examines children's coping behaviour in two domains, self and environment. Coping with the environment refers to the behaviours children use to adapt to the demands and pressures of the academic environment. Coping with self refers to the behaviours used to meet personal needs. Coping styles within these two domains are conceptualized according to three dimensions: 1) productive-nonproductive, 2) flexible-rigid, and 3) active-passive. Coping effectiveness, or how effective the children's coping resources are, is reflected by the Adaptive Behaviour Index (ABI). Mean scores and standard deviations for the four groups on the Coping Inventory are presented in Table 9.

A MANOVA with the three dimensions of the coping with self category as the dependent measures and type of class as the grouping variable was performed. A significant group effect was found for the coping with self category (Wilks' Lambda = .645, $F(9, 102.37) = 2.22$, $p < .05$). The univariate analysis found that coping with self-active ($F(3, 44) = 4.59$, $p < .01$) was a significant factor differentiating the groups. Post hoc (Tukey) analyses indicated that children in the SSC were more active in coping with personal needs than children in the MSC.

The multivariate analysis of children's productive, active, and flexible coping with the environment within the different types of classes did not reveal any significant effects (Wilks' Lambda = .800, $F(9, 102.37) = 1.08$, $p = .37$). An analysis of variance (ANOVA) with type of class as the grouping variable and ABI as the dependent measure indicated

significant group differences in adaptive functioning ($F(3, 45) = 4.45$, $p < .01$). Post hoc (Tukey) analyses indicated a significant difference between the SSC and RRC. Children in the special school classes were found to cope more consistently in a variety of academic situations. Figure 1 illustrates the coping styles of children in the four class settings.

Table 9. Mean scores and standard deviations on the Coping Inventory by type of class

Coping Inventory Scales	SSC (N = 23)	SEC (N = 9)	RRC (N = 7)	MSC (N=9)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Self				
Active	3.57**	3.35	3.37	2.40
	(0.92)	(0.80)	(.78)	(.89)
Productive	3.39	3.06	3.07	2.69
	(0.85)	(0.25)	(.53)	(.99)
Flexible	3.28	2.64	2.71	2.40
	(0.97)	(0.80)	(.70)	(1.10)
Environment				
Active	3.37	2.87	3.44	2.90
	(1.01)	(.93)	(.47)	(.72)
Productive	3.60	3.19	3.59	2.84
	(0.99)	(.72)	(.68)	(.94)
Flexible	3.55	3.13	3.26	2.61
	(1.02)	(.66)	(.97)	(1.07)
ABI Score	3.46**	3.04	3.24	2.64
	(0.89)	(.53)	(.59)	(.84)

Note. * $p < .05$; ** $p < .01$
SSC = special education classes in the special school; SEC = special education classes in regular schools; RRC = resource room classes in regular schools; and MSC = mainstream classes. Coping with self - active in SSC significantly higher than in MSC. ABI in SSC higher than in MSC.

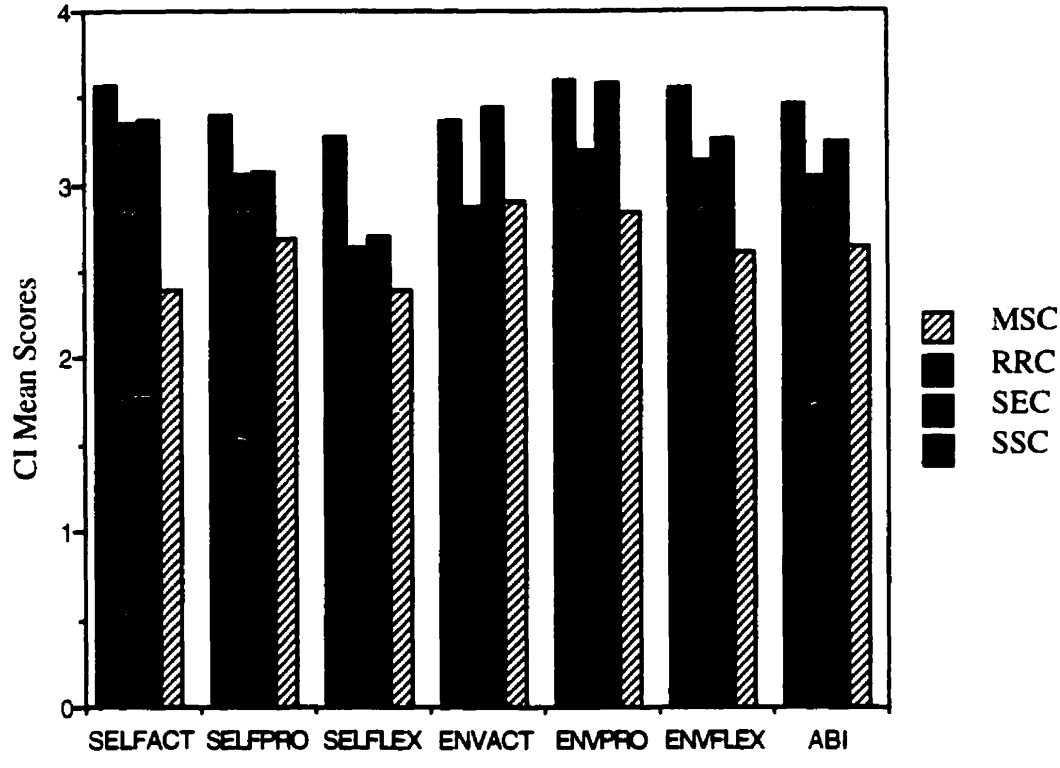

Figure 1. Coping with self, environment, and ABI by type of class.

Note. CI = Coping Inventory (range = 0 - 4); SELFACT = coping with self active on CI; SELFPRO = coping with self productive on CI; SELFLEX = coping with self flexible on CI; ENVACT = coping with the environment active on CI; ENVPRO = coping with the environment productive on CI; ENVFLEX = coping with the environment flexible on CI; ABI = adaptive behaviour index on the CI; SSC = special education classes in the special school; SEC = special education classes in regular schools; RRC = resource room classes in regular schools; and MSC = mainstream classes.

A MANOVA with the three dimensions of the coping with self category as the dependent measures and type of school as the grouping variable was performed. No significant group effect was found for the coping with self category (Wilks' Lambda = .852, $F(3, 44) = 2.52$, $p = .07$). The univariate F tests for coping with self-active ($F(1, 46) = 4.98$, $p < .05$) and for coping with self-flexible ($F(1, 46) = 7.64$, $p < .01$) indicated a significant effect for the grouping variable. Mean scores and standard deviations for the two groups on the Coping Inventory are presented in Table 10.

The multivariate analysis of children's productive, active, and flexible coping with the environment within the different types of schools did not reveal a significant effect (Wilks' Lambda = .915, $F(3, 44) = 1.35$, $p = .26$). The univariate F test indicated that group differences in coping with the environment-flexible ($F(1, 46) = 4.16$, $p < .05$) were significant. Children in the special school ($M = 3.55$, $SD = 1.02$) were rated as more flexible in their coping with the academic environment than children in public schools ($M = 2.98$, $SD = .91$).

A t-test was performed to compare adaptive functioning as measured by the ABI, by type of school, which revealed more effective coping in the special school compared to public schools ($t = 2.19$, $p < .05$). The mean score on the ABI in public schools was 2.96 ($SD = 0.69$) and the mean score in the special school was 3.46 ($SD = 0.89$). The ABI scores of students with learning disabilities in the public schools indicated inconsistency in adaptive behaviours, suggesting that these children coped effectively in some academic situations but not in others (Zeitlin, 1985). The special school scores on the ABI revealed effective coping behaviour most of the time. Figure 2 compares mean scores for coping with self, the environment, and ABI by type of school.

Table 10. Mean scores and standard deviations on the Coping Inventory by type of school

Coping Inventory Scale	Special (N = 23)	Regular (N = 25)
	Mean (SD)	Mean (SD)
Self		
Active	3.57* (0.92)	3.01 (0.81)
Productive	3.39 (0.85)	2.93 (0.79)
Flexible	3.28** (0.97)	2.57 (0.80)
Environment		
Active	3.37 (1.01)	3.04 (0.76)
Productive	3.60 (0.99)	3.18 (0.82)
Flexible	3.55* (1.02)	2.98 (0.91)
ABI Score	3.46* (0.89)	2.96 (0.69)

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

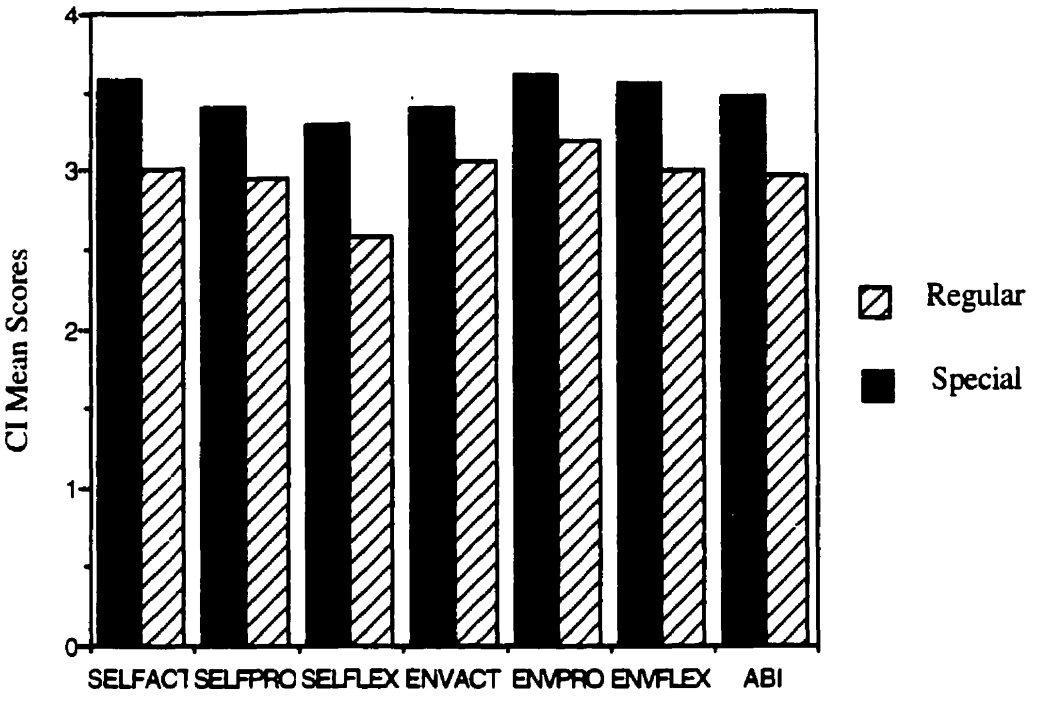

Figure 2. Coping with self, the environment and ABI by type of school.

Note. CI = Coping Inventory (range 0-4); SELFACT = coping with self active on CI; SELFPRO = coping with self productive on CI; SELFLEX = coping with self flexible on CI; ENVACT = coping with the environment active on CI; ENVPRO = coping with the environment productive on CI; ENVFLEX = coping with the environment flexible on CI; ABI = adaptive behaviour index on the CI.

Children's coping style across school settings was examined by paired t-tests. Significance levels were adjusted for multiple comparisons and revealed that in general children's coping with self-productive ($t = 2.82$, $p < .01$) and coping self-active ($t = 4.05$, $p < .001$) were significantly higher than coping with self-flexible. Productive coping with the environment was found to be higher than active coping with academic demands ($t = 2.54$, $p < .01$). Thus, for both groups, children tended to be more active and productive than flexible in their coping with their personal needs yet, more productive than active in their ability to respond to academic situations and demands.

To examine the relationship between coping style and teachers' orientation for classroom management, intercorrelations were computed for the 9 subscales of the CI and PSQ. As indicated in Table 11 no significant correlations were found.

Table 11. Pearson correlations of the Coping Inventory and The Problems In School Questionnaire

Coping Inventory	Problems In School Questionnaire
SELFACT	.26
SELFPRO	.16
SELFFLEX	.19
SELFTOT	.22
ENVACT	.18
ENVPRO	.19
ENVFLEX	.16
ENVTOT	.19
ABI	.21

Note. SELFACT = coping with self active ; SELFPRO = coping with self productive ; SELFLEX = coping with self flexible; SELFTOT = total score for coping with self category; ENVACT = coping with the environment active; ENVPRO = coping with the environment productive; ENVFLEX = coping with the environment flexible; ENVTOT = total score for coping with environment category; ABI = adaptive behaviour index .

Children's coping frequency and effectiveness were not found to be influenced by the educational context or teachers' classroom management orientation. A significant group difference for type of class was found for the coping with self category on the Coping Inventory. The univariate analysis indicated that students in the special school classes were found to be more active in their coping than students in mainstreamed classes. The multivariate analysis failed to reveal any group differences for type of class in children's

coping with the environment. A significant difference was found in children's adaptive functioning by type of class. ABI scores of children in the special school classes were significantly higher than children receiving resource room assistance.

A multivariate analysis of group differences in coping with the environment by type of school failed to produce a significant overall effect. The univariate F tests revealed that children in the special school were more active and more flexible in coping with their personal needs than children in regular schools. Students in the special school were also found to be more flexible in coping with the environment. The overall assessment of adaptive functioning found that children in the special school demonstrated more consistency in their adaptive behaviours across a variety of academic situations.

As a group, children with learning disabilities met their personal needs through active and productive coping styles, but seemed to have more trouble when they were required to be flexible. These children were rated by their teachers as more productive than active in meeting situational demands.

Perception of Control

The Student Perception of Control Questionnaire (SPCQ) was used to examine three separate sets of children's control related beliefs about school performance: 1) strategy beliefs for effort, attributes, powerful others, luck, and unknown factors, 2) capacity beliefs for effort, attributes, powerful others, and luck, and 3) control beliefs.

A MANOVA was performed, with class and then school as the grouping variables and the 10 subscales of the SPCQ as the dependent measures. No significant difference was found by class (Wilks' Lambda = .415, $F(30, 103.41) = 1.20$, $p = .24$) or school (Wilks' Lambda = .846, $F(10, 37) = .671$, $p = .74$). The means and standard deviations of scores on these 10 sub-scales by school and for the total population are presented in Table 12.

Table 12. Means and standard deviations for scores on the SPCQ by type of school

	Regular (N = 25)	Special (N = 23)	Total (N = 48)	Univariate F(1, 46)
	Mean (SD)	Mean (SD)	Mean (SD)	
Control	3.34 (0.60)	3.49 (0.57)	3.41 (0.59)	.79
Strategy				
Effort	3.32 (0.71)	3.36 (0.45)	3.34 (0.59)	.07
Attribute	2.70 (0.62)	2.73 (0.59)	2.71 (0.60)	.02
Powerful others	1.90 (0.85)	2.09 (0.86)	1.93 (0.85)	.61
Luck	1.91 (0.76)	2.12 (0.91)	2.01 (0.83)	.73
Unknown	2.09 (0.76)	2.13 (0.75)	2.11 (0.75)	.03
Capacity				
Effort	3.18 (0.77)	3.15 (0.34)	3.16 (0.47)	.02
Attribute	3.21 (0.59)	3.35 (0.55)	3.28 (0.57)	.68
Powerful others	3.26 (0.80)	3.45 (0.62)	3.35 (0.72)	.82
Luck	3.08 (0.60)	3.34 (0.52)	3.20 (0.59)	2.49

Note. SPCQ = Student Perception of Control Questionnaire

To examine the relationship between perception of control and teachers' orientation for classroom management, intercorrelations were computed for the 10 subscales of the SPCQ and PSQ. As indicated in Table 13, no significant correlations were found.

In the absence of significant group differences further analyses were performed on the data as the purpose of this study was to specifically examine the pattern of control related beliefs held by students with learning disabilities. Pairwise comparisons using t-tests for dependent samples with a Bonferroni correction for multiple comparisons revealed that children perceived effort (e.g., the best way for me to get good grades is to work hard) as the most effective strategy for influencing school performance (effort vs. attributes, $t = 7.03$, $p < .001$). Children in this study perceived personal attributes (e.g., I have to be smart to get good grades in school) as the second most effective strategy (attributes vs.

unknown, $t = 5.13$, $p < .001$). Powerful others, luck, and unknown strategy beliefs (e.g., I don't know what it takes for me to get good grades in school) were not endorsed as being important means to achieve academic success.

Table 13. Pearson correlations of the Student Perception of Control Questionnaire and The Problems in School Questionnaire

SPCQ	The Problems in School Questionnaire
Control Beliefs	.03
StrategyBeliefs	
Effort	.19
Attributes	.03
Powerful Others	-.08
Luck	-.02
Unknown	-.19
Capacity Beliefs	
Effort	-.09
Attributes	.16
Powerful Others	.12
Luck	.27

Further comparison of capacity beliefs, which deal with the extent to which children believe they can enact or access known strategies, revealed that children with learning disabilities endorsed almost equally effort, attributes, powerful others, and luck. In fact, capacity beliefs for powerful others (e.g., I can get the teacher to like me) were more strongly endorsed than strategy beliefs for attributes (strategy attributes vs. capacity powerful others, $t = -4.13$, $p < .001$). In addition, the children endorsed their capacity for effort beliefs more strongly than their strategy belief for powerful others, luck, and unknown strategies (strategy powerful others vs. capacity effort, $t = -7.82$, $p < .001$).

Control beliefs, which indicate the extent to which children believe they are able to produce desired school outcomes (e.g., If I decide to learn something hard, I can), were not found to be significantly different from highly rated strategy effort beliefs, and were

endorsed more strongly than all other strategy beliefs. For example, control beliefs were rated significantly higher than strategy attribute beliefs (control vs. strategy attributes, t = 5.51, $p < .001$). Control beliefs were not found to be significantly different from scores on capacity beliefs (control vs. capacity effort, t = 2.87; control vs. capacity attributes, t = 1.66; control vs. capacity powerful others, t = .56; and control vs. capacity luck, t = 2.06).

Children's control related beliefs with regard to positive (academic success) versus negative (failure) outcomes were examined. The ten subscales of the SPCQ contain an equal number of items about school related success and failure. MANOVAs were performed separately for positive and negative events. The dependent measures were the ten sub-scales of the SPCQ, with type of class and then type of school as the grouping variables. No significant differences were found for the grouping variable. Table 14 reports the means and standard deviations of the scores on the ten subscales of the SPCQ for positive and negative outcomes. Paired t-tests were performed to compare control related beliefs with regard to positive and negative outcomes. With significance levels adjusted for multiple comparisons, 9 out the 10 comparisons found children's control beliefs significantly higher when considering positive outcomes. Unknown strategy beliefs was the one measure that was not found to be significantly different. Figure 3 illustrates children's perception of control in response to positive and negative situations.
Further analyses of positive and negative outcomes was performed using paired t-tests for dependent samples with a Bonferroni correction for multiple comparisons. In the positive condition, children continued to perceive effort as the most effective strategy for school success, and personal attributes as the second most effective strategy. In terms of avoiding failure, effort (If I get bad grades, its because I didn't try hard enough) remained a better strategy than powerful others (t = 6.64, $p < .001$), luck (t = 6.01, $p < .001$), and unknown strategy beliefs (t = 4.60, $p < .001$). However, there was no longer a significant difference between personal attribute strategies (If I'm not smart, I won't get good marks) and effort

strategies, or between attributes and powerful others (I won't do well in school if my teacher doesn't like me) or unknown strategies (I don't know how to keep myself from getting bad grades).

Table 14. Means and standard deviations of scores on the SPCQ for positive and negative outcomes

	Positive (N = 48)	Negative (N = 48)
SPCQ	Mean (SD)	Mean (SD)
Control Beliefs	3.60 (0.60)*	1.83 (0.57)
Strategy Beliefs		
Effort	3.82 (0.71)*	2.86 (0.45)
Attribute	3.11 (0.62)*	2.32 (0.59)
Powerful others	2.24 (0.85)*	1.74 (0.86)
Luck	2.33 (0.76)*	1.69 (0.91)
Unknown	2.22 (0.76)	2.00 (0.75)
Capacity Beliefs		
Effort	3.55 (0.77)*	2.22 (0.34)
Attribute	3.43 (0.59)*	1.86 (0.55)
Powerful others	3.42 (0.80)*	1.70 (0.62)
Luck	3.19 (0.60)*	1.77 (0.52)

Note. *p < .001. SPCQ = Students Perception of Control Questionnaire. Positive = children's control related beliefs on items referring to academic success. Negative = items related to school failure.

In both success and failure situations, capacity beliefs for effort, attributes, powerful others, and luck continued to be equally endorsed. There were changes in the degree to which children endorsed capacity versus strategy beliefs when negative and positive outcomes were differentiated. In success situations, children maintained their capacity

beliefs for effort and attributes more strongly than strategy beliefs for powerful others, luck and unknown strategy beliefs (strategy unknown vs. capacity effort, $t = -7.92$, $p < .001$; strategy unknown vs. capacity attributes, $t = -6.78$, $p < .001$). However, they no longer endorsed capacity beliefs for powerful others more than strategy attribute beliefs. When children were asked about their beliefs about negative school outcomes, capacity beliefs were no longer significantly different from strategy beliefs for powerful others, luck, or unknown.

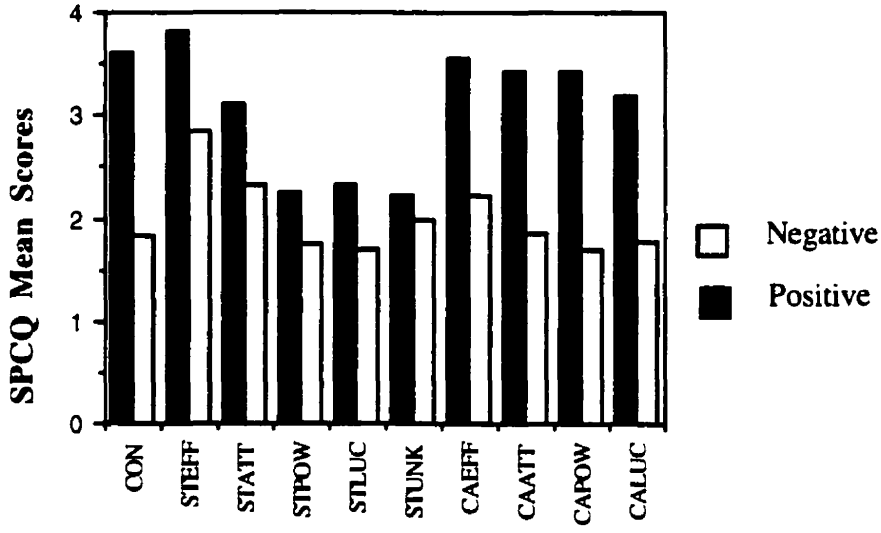

Figure 3. Perceived control for positive versus negative outcomes

Note. SPCQ = Students Perception of Control Questionnaire; CON = control beliefs; STEFF = strategy effort; STATT = strategy attributes; STPOW = strategy powerful others; STLUC = strategy luck; STUNK = strategy unknown; CAEFF = capacity effort; CAATT = capacity attribute; CAPOW = capacity powerful others; CALUC = capacity luck.

Similarly, control beliefs were found to be significantly different with regard to positive and negative outcomes. There were no significant changes in control beliefs when children responded to school success. In failure situations, control beliefs were now rated lower than effort strategies (control vs. strategy effort, $t = -5.14$, $p < .001$), and were no longer rated significantly different from attributes, powerful others, luck, or unknown strategies.

The educational context and teachers' orientation for classroom management were not found to significantly influence children's perception of control. Children with learning disabilities were found to hold strong internal control beliefs in their endorsement of effort as the most effective way to succeed in school and in their conviction that they have that capacity. They also demonstrated what may be considered an external control orientation, by indicating strong endorsement of their capacity to be lucky at school and to get along with significant others. However, these control related beliefs were significantly different depending on whether the children were considering positive or negative academic outcomes. Children were found to have significantly lower perceived control in relation to their ability to avoid school failure.

Self-Concept

The Self- Perception Profile for Learning Disabled Students (SPPLDS) was used to assess children's self-perceptions in 10 seperate domains. The academic, non-academic, and global self-worth domains were analyzed separately. MANOVAs were conducted first with class and then with school as the grouping variable with the 4 academic domains (reading, writing, spelling and math competence) as the dependent measure, which revealed no significant effect for either grouping variable. These analyses were repeated with general intellectual ability and global self-worth as the dependent measures. No significant results were found. Analyses of the 4 non-academic domains (social, athletic, appearance, ans behaviour) failed to produce an overall significant effect however, the

univariate $F(1, 46) = 4.11$, $p < .05$, indicated that children in the special school had a significantly higher perception of their behavioural competence when compared to their peers in public schools. The means and standard deviations for each domain, grouped by type of school can be found in Table 15 .

In order to examine the different self-perceptions held by children with learning disabilities in the specific domains assessed by the SPPLDS paired t-tests with a Bonferroni correction for multiple comparisons were performed. These analyses revealed that children were more satisfied with their physical appearance than their reading competence ($t = -3.87$, $p < .001$), spelling competence ($t = -4.1$, $p < .001$), or their behaviour ($t = 3.92$, $p < .001$). They perceived their athletic ability as significantly higher than spelling competence ($t = -3.86$, $p < .001$). Global self-worth was also significantly higher than reading competence ($t = -4.58$, $p < .001$), spelling competence ($t = -4.40$, $p < .001$), behaviour ($t = -4.94$, $p < .001$), and general intellectual ability ($t = -3.95$, $p < .001$).

To examine the relationship between self-perceptions of competence and teachers' orientation for classroom management, a correlation matrix (Pearson correlations) was computed for the 10 subscales of the SPPLDS and PSQ. No significant correlations were found. The correlation matrix can be found in Table 16.

Generally the educational context and teachers' control orientations were not found to influence children's self-perception of competence. However, children in the public school seem to be less satisfied with their behaviour than children in the special school. Children with learning disabilities in this study were more satisfied with their physical appearance, athletic ability as well as their global self-worth than their academic competence.

Table15. Means and standard deviations on the Self-Perception Profile for Learning Disabled Students

SPPLDS	Regular (N = 25)	Special (N = 23)	Total (N = 48)
	Mean (SD)	Mean (SD)	Mean (SD)
Intellectual ability	2.84 (.75)	2.96 (.59)	2.89 (.67)
Reading	2.78 (.98)	2.64 (.90)	2.71 (.88)
Writing	2.93 (.75)	2.93 (.69)	2.93 (.71)
Spelling	2.54 (.89)	2.90 (.83)	2.71 (.87)
Math	2.86 (.86)	3.29 (.80)	3.07 (.85)
Social	3.14 (.68)	3.15 (.77)	3.15 (.72)
Athletic	3.23 (.67)	3.17 (.76)	3.20 (.71)
Appearance	3.39 (.75)	3.21 (.69)	3.30 (.72)
Behaviour	2.60 (.76)	3.01 (.64)*	2.80 (.73)
Global Self-worth	3.22 (.76)	3.41 (.72)	3.32 (.70)

Note. *$p < .05$

The Relationship Between Self-Concept and Coping Behaviour

To examine the relationship between self-concept and coping behaviour, intercorrelations (Pearson) were computed for the 10 domains of the SPPLDS with 3 subscales of the Coping Strategies Inventory (SCSI) for coping strategies, and 6 subscales of the Coping Inventory (CI) for coping styles. A correlation matrix of significant correlations is presented in Table 17.

Table 16. Pearson correlations for children's self-concept and teachers' classroom management orientation

SPPLDS	The Problems in School Questionnaire
General Intellectual Ability	-.10
Reading Competence	-.18
Writing Competence	-.05
Spelling Competence	.19
Math Competence	.14
Social Competence	.04
Athletic Competence	.01
Physical Appearance	-.03
Behavioral Competence	.06
Global Self-Worth	.04

Note. SPPLDS = Self-Perception Profile for Learning Disabled Students

Five domains of the self concept scale showed a significant relationship with coping behaviour. There was a significant negative relationship between flexible coping with self and high scores on self-perception of physical appearance ($r = -.30$, $p < .05$). Significant relationships were found between coping strategies and athletic competence, social competence, writing competence, and reading competence. Athletic competence correlated positively with coping frequency ($r = .33$, $p < .05$). Social competence was also positively associated with both coping frequency ($r = .40$, $p < .05$) and total coping ($r = .36$, $p < .05$). However, positive self-perceptions about writing competence correlated significantly with low scores on coping effectiveness ($r = -.29$, $p < .05$). Reading competence also showed a significant negative correlation between coping frequency ($r = -.28$, $p < .05$) and coping effectiveness ($r = -.29$, $p < .05$).

Table 17. Correlation matrix of self-concept and coping measures

	SPPLDS				
	Physical	Athletic	Social	Writing	Reading
SCSI					
Frequency	-.03	.33*	.40*	.16	-.28*
Effectiveness	-.12	.18	.24	-.28*	-.28*
Total	-.08	.26	.35*	-.18	-.26
CI					
Self/flexible	-.30*	.17	.09	.00	-.12

Note. *$p < 0.05$. SPPLDS = Self-Perception Profile for Learning Disabled Students; SCSI = Schoolagers' Coping Strategies Inventory; CI = Coping Inventory; self/flexible = flexible dimension of coping with self category on the CI.

The Relationship Between Perception of Control and Coping Behaviour

To examine the relationship between perception of control and coping behaviour, correlations (Pearson correlations) were computed for the 10 sub-scales as well as a total summary score (total control) of the SPCQ, 3 subscales of the Coping Strategies Inventory (SCSI), and 3 subscales of the Coping Inventory (CI), coping with self, coping with the environment, and the ABI. Total control is the sum of control related beliefs predicted to promote motivation and performance, minus the sum of control related beliefs predicted to undermine them (Skinner, 1995; Wellborn, Connell, & Skinner, 1989).

Perception of control scores on the SPCQ showed no significant correlations with scores of coping strategies on the SCSI. Children's control related beliefs measured by the SPCQ were significantly related to coping style. Control beliefs (I can do well in school if I want to) showed a positive relationship with coping with self ($r = .35$, $p < .05$), with coping with the environment ($r = .36$, $p < .05$), and with the ABI ($r = .37$, $p < .05$). A significant relationship was found between capacity beliefs for powerful others (I am able to get my teacher to like me) and coping. Capacity beliefs refers to the extent that

children believe they can access the four means (effort, personal attributes, powerful others, and luck) needed to do well in school. Children who believed that they could have a positive relationship with their teacher were perceived by their teachers as being able to cope well with themselves ($r = .49$, $p < .001$), with the environment ($r = .49$, $p < .001$) and in terms of overall adaptive coping ($r = .50$, $p < .001$). In addition, children who scored high on total control also scored high on coping with self ($r = .42$, $p < .001$), coping with the environment ($r = .43$, $p < .001$), and on the ABI ($r = .44$, $p < .001$). A correlation matrix of significant correlations is presented in Table 18.

Further correlations were computed to differentiate children's control related beliefs for positive versus negative outcomes. When considering positive outcomes, children's control beliefs, or expectations for future academic performance, showed a high positive correlation with coping with self ($r = .39$, $p < .001$), coping with the environment ($r = .39$, $p < .001$), ABI ($r = .40$, $p < .001$), and with total control ($r = .54$, $p < .001$). Strategy beliefs for powerful others, or beliefs that being liked by teachers is the best way to do well in school, showed a significant negative relationship with total control ($r = -.35$, $p < .05$). Similarly, unknown strategy beliefs, or uncertainty for what it takes to do well in school, was negatively related to total control ($r = -.67$, $p < .001$).

Capacity beliefs for effort, or beliefs that the child can try hard, was found to be positively related to coping with self ($r = .44$, $p < .05$), coping with the environment ($r = .42$, $p < .05$), ABI ($r = .45$, $p < .001$), and with total control ($r = .57$, $p < .001$). Capacity beliefs for attributes, or beliefs that the child is smart, showed a significant correlation with total control ($r = .52$, $p < .001$). Capacity beliefs for powerful others was positively correlated with effective coping, coping with self ($r = .44$, $p < .05$), coping with the environment ($r = .47$, $p < .001$), ABI ($r = .47$, $p < .001$), and with total control ($r = .45$, $p < .001$). Capacity beliefs for luck, or beliefs that the child can be lucky in school, was significantly correlated with total control ($r = .36$, $p < .05$). A matrix of these correlations

is presented in Table 19. Additionally, total control, the measure used to predict engagement and performance on the SPCQ, was found to be significantly correlated with coping with self ($r = .43$, $p < .05$), coping with the environment ($r = .43$, $p < .05$), and with the ABI ($r = .44$, $p < .05$).

Table 18. Correlations for perception of control and coping style

	Students' Perception Of Control Questionnaire		
	CON	CAPOW	TOTCON
CI			
Self/total	0.35*	0.49**	0.42**
Envir/total	0.36*	0.49**	0.43**
ABI	0.37*	0.50**	0.44**

Note. *$p < 0.05$. ** $p < .001$ SPCQ = Student Perception of Control Questionnaire; CON = Control beliefs on SPCQ; CAPOW = capacity beliefs for powerful others on SPCQ; TOTCON = summary measure for total control on SPCQ; CI = Coping Inventory; Self/Total = total score for self category on CI; Enviro/total = coping with environment total on CI; ABI = Adaptive Behaviour Index on CI

Table 19. Correlations for perception of control for positive outcomes and coping measures

	Student Perception Of Control Questionnaire									
	CON	STEFF	STATT	STPO	STLUC	STUNK	CAEFF	CAAT	CAPO	CALUC
CI										
Self	.39**	-.11	.04	-.09	-.17	-.22	.44**	.11	.44**	.17*
Environ	.39**	-.10	.01	-.17	-.21	-.25	.43**	.00	.47**	.20
ABI	.40**	-.11	.03	-.13	-.19	-.25	.44**	.05	.47**	.19
SPCQ										
TOTCON	.54**	.19	-.02	-.34*	-.19	-.67*	.56**	.52*	.44**	.36

Note. *$p < .05$; ** $p < .001$; CON = control beliefs on SPCQ; STEFF = strategy effort beliefs on SPCQ; STATT = strategy attribute beliefs on SPCQ; STPO = strategy powerful other beliefs on SPCQ; STLUC = strategy luck beliefs on SPCQ; STUNK = strategy unknown beliefs on SPCQ; CAEFF = capacity beliefs for effort on SPCQ; CAATT = capacity beliefs for attributes on SPCQ; CAPO = capacity beliefs for powerful others on SPCQ; CALUC = capacity beliefs for luck on SPCQ; TOTCON = summary measure for total control on SPCQ; CI = Coping Inventory; Self = total score for self category on CI; Environ = coping with environment total on CI; ABI = Adaptive Behaviour Index on CI.

A distinctly different pattern of relationships between perceived control and coping style was found when children were asked about academic failure. A matrix of these correlations is presented in Table 20.

Table 20. Correlations for perceived control for negative outcomes and coping measures

	Student Perception Of Control Questionnaire									
	CON	STEFF	STATT	STPO	STLUC	STUNK	CAEFF	CAAT	CAPO	CALUC
CI										
Self	-.25	-.09	-.24	-.28	-.16	-.07	-.07	-.26	-.40**	-.22
Environ	-.25	-.01	-.24	-.33*	-.14	-.14	.03	-.31*	-.37**	-.13
ABI	-.26	-.03	-.24	-.32*	-.15	-.11	.02	-.24*	-.39**	-.18
SPCQ										
TOTCON	-.65**	-.03	-.39**	-.51**	-.39**	-.63**	.56**	-.75**	-.71**	-.60**

Note. *$p < .05$.;** $p < .001$; CON = control beliefs on SPCQ; STEFF = strategy effort beliefs on SPCQ; STATT = strategy attribute beliefs on SPCQ; STPO = strategy powerful other beliefs on SPCQ; STLUC = strategy luck beliefs on SPCQ; STUNK = strategy unknown beliefs on SPCQ; CAEFF = capacity beliefs for effort on SPCQ; CAATT = capacity beliefs for attributes on SPCQ; CAPO = capacity beliefs for powerful others on SPCQ; CALUC = capacity beliefs for luck on SPCQ; TOTCON = summary measure for total control on SPCQ; CI = Coping Inventory; Self = total score for self category on CI; Environ = coping with environment total on CI; ABI = Adaptive Behaviour Index on CI.

Control beliefs were now found to be negatively correlated only with total control ($r = -.65$, $p < .001$). Strategy beliefs for attribute, or beliefs that one must be smart to do well in school, were also negatively correlated with total control ($r = -.39$, $p < .05$). Strategy beliefs for powerful others, or beliefs that teachers are crucial to school outcomes, were negatively related to coping with the environment ($r = -.33$, $p < .05$), ABI ($r = -.32$, $p < .001$), and with total control ($r = -.51$, $p < .001$). Strategy beliefs for luck, or beliefs that one must be lucky to do well, were negatively related to total control ($r = -.39$, $p < .05$). Unknown strategy beliefs were negatively related to total control ($r = -.63$, $p < .001$). Capacity beliefs for effort were now only negatively related to total control ($r = -.40$, $p < .05$). Capacity beliefs for attributes now indicated a negative relationship with coping with

the environment (r = -.30, p < .05) and ABI (r = -.32, p < .001), in addition to total control (r = -.74, p < .001). Capacity beliefs for powerful others was negatively correlated with coping with self (r = -.40, p < .05), coping with the environment (r = -.37, p < .05), ABI (r = -.39, p < .001), and with total control (r = -.72, p < .001). Total control was again significantly correlated with coping with self (r = .42, p < .05), coping with the environment (r = .43, p < .05), and with the ABI (r = .44, p < .05).

The Influence of Demographic Factors on the Coping Behaviour of Children with Learning Disabilities

Age

The composition of the five age groups was as follows: Group 1 (N = 10) (age range, 8 years 0 months to 8 years 11 months), group 2 (N=9) (age range, 9 years 0 months to 9 years 11 months), group 3 (N=9) (age range, 10 years 0 months to 10 years 11 months), group 4 (N=10) (age range , 11 years 0 months to 11 years 11 months), and group 5 (N=10) (age range , 12 years 0 months to 12 years 11 months). A multivariate analysis of the coping with self category on the Coping Inventory with age as the grouping variable failed to reveal a significant effect (Wilks' Lambda = .573, F(12, 108) = 2.125, p > .05). Univariate analysis confirmed that there were no significant differences in coping with self-active (F(4, 43) = 1.10, p > .05), self-productive (F(4, 43) = 1.11, p > .05), and self-flexible (F(4, 43) = .14, p > .05) for the age groups. A multivariate analysis of the coping with the environment category on the CI with age as the grouping variable failed to find a significant effect (Wilks' Lambda = .763, F(12, 108) = .97, p > .05). A univariate analysis confirmed that there were no significant differences in coping with the environment-active (F(4, 43) = .33, p > .05), productive (F(4, 43) = .23, p > .05), and flexible (F(4, 43) = .47, p > .05) for the age groups. A MANOVA of children's coping strategies on the SCSI produced similar results (Wilks' Lambda = .757, F(8, 84) = 1.57, p > .05). A univariate F tests confirmed that there were no significant age differences in

coping frequency ($F(4, 43) = 2.12$, $p > .05$) or coping effectiveness ($F(4, 43) = 1.53$, $p > .05$).

Parental Marital Status

Marital status, as reported by parents, was divided into two groups, two parent families ($N = 33$) versus single parent ($N = 15$) families. Separated, divorced and single parent families were grouped in the single parent category whereas families where two adults were married, remarried or living in common law were grouped in the two parent family category. Independent t-tests were performed on each sub-scale of the coping measures with marital status as the grouping variable. Flexible coping with self was found to distinguish the two groups ($t = 2.15$, $p < .05$). Children in two parent families ($M = 3.11$, $SD = 89$) were rated as showing more flexible coping with self than children from single parent families ($M = 2.48$, $SD = .96$).

Duration in Special Education

The amount of time children have spent in a special education setting may affect their self-perceptions and coping. Inter-correlations were computed between duration in special education and the 3 subscales of the SCSI and 9 subscales of the CI for coping styles. One significant correlation was found between effectiveness of coping on the SCSI and duration in special education ($r = .30$, $p < .05$). Children who had spent more time receiving special education services considered their coping efforts as more effective.

The Influence of Achievement on Children's Coping Behaviour

In order to analyze the relationship between achievement and coping behaviour, inter-correlations were computed between the 3 tests of the WRAT-3, reading, spelling, and math and the 3 subscales of the SCSI, and 9 subscales of the CI for coping styles. Achievement scores for reading and spelling were not significantly related to any of the coping measures. However, a significant correlation was found between math scores on

the WRAT-3 and flexible coping with self on the CI ($r = .29$, $p < .05$), and with the total score for coping with self on the CI ($r = .28$, $p < .05$).

Factors Distinguishing Successful Coping Behaviour of Children with Learning Disabilities

ABI scores on the Coping Inventory are a reliable indication of a child's coping resources and how adaptive the individual's behaviour is (Zeitlin, 1985). Children's ABI scores on the CI were employed to distinguish good copers from poor copers . The scores were sorted in ascending order and classified into 3 equal sized groups. Only the high and low score groups were used as a grouping variable. The intermediate group was not used in the analyses.

The high and low coping groups were compared for age, duration in special education, and achievement measures using independent t-tests. No significant differences were found between these variables and the two coping groups. Table 21 provides a profile of the composition of the high and low coping groups on these variables.

The composition of the coping groups was examined by parental marital status and educational context. As seen in Table 21, only 25% of the children in the high coping group came from single parent families. The low coping group showed a more equal distribution as 57% of the children came from two parent families. The distribution of children in the coping groups in relation to the type of class and type of school they attended is also represented in Table 21. The high coping group was largely represented by children from the special school classes (69%). A further breakdown of this group indicated that 6% came from special education classes, 19% from resource room classes, and 6% from mainstreamed classes. The low coping group was composed of 38% SSC, 13% SEC, 38% RRC, and 38% MSC. A similar analysis by school indicated that 69% of children in the high coping group came from the special school while 62% of the children in the low coping group came from the regular schools.

Table 21. Descriptive data for high and low coping groups

	High ABI (N = 16)	Low ABI (N = 16)
Marital status		
Two Parent	12	9
Single Parent	4	7
Type of class		
SSC	11	6
SEC	1	2
RRC	3	2
MSC	1	6
Type of school		
Regular	5	10
Special	11	6
Duration in special education		
Less than 3 months	4	3
3 to 10 months	4	7
10 to 20 months	5	4
More than 20 months	3	2
Age		
8 to 9 years old	5	3
9 to 10 years old	3	4
10 to 11 years old	3	2
11 to 12 years old	2	3
12 to 13 years old	3	4
WRAT-3 reading (standard scores)		
Below 70	3	3
80 to 89	10	7
90 to 100	2	6
Above 100	1	0
WRAT-3 spelling (standard scores)		
Below 70	2	1
80 to 89	11	8
90 to 100	2	7
Above 100	1	0
WRAT-3 math (standard scores)		
Below 70	8	8
80 to 89	7	8
90 to 100	1	0
Above 100	0	0

Note. High ABI = Children whose ABI scored were in the top 30%; Low ABI = Children whose ABI scored were in the bottom 30%; WRAT-3 = Wide Range Achievement Test-3; SSC = special school class; SEC = special education class in regular school; RRC = resource room in regular school; MSC = mainstreamed in regular class.

To examine the influence of teachers' orientation for control on coping level, an independent t-test was performed with the Problems in School Questionnaire (PSQ) scores as the dependent variable, with high and low ABI as the grouping variable. A significant effect was found for PSQ ($t = -2.55$, $p < .05$). Good copers had teachers who scored higher on the PSQ ($M = 8.85$, $SD = 1.38$), indicating an orientation promoting autonomous functioning in children. Poor copers had teachers who favored a more controlling orientation ($M = 6.59$, $SD = 1.38$).

A multivariate analysis was employed to examine the self-concept of good versus poor copers. A MANOVA was performed with the 10 subscales of the Self-Perception Profile for Learning Disabled Students (SPPLDS) as the dependent measure and high and low ABI as the grouping variable. The means and standard deviations on self-perceptions of competence measures for the coping groups are reported in Table 22. The multivariate analysis failed to reveal a significant overall effect for self-concept by coping level (Wilks' Lambda = .725, $F(10, 21) = .79$, $p > .05$). The univariate F tests indicated a difference in terms of self perceptions of physical appearance ($F(1, 30) = 4.44$, $p < .05$).

As the focus of this study was to specifically examine children's scores on each domain of the SPPLDS, further analyses were performed. Paired t-tests with a Bonferroni correction for multiple comparisons indicated that children in both groups tended to rate themselves relatively low on academic competence and significantly higher on measures of social competence, physical appearance, athletic competence, and global self-worth. Reading competence is rated lower than social competence ($t = -4.35$, $p < .001$), athletic ability ($t = -3.63$, $p < .001$), physical appearance ($t = -4.74$, $p < .001$), and global self-worth ($t = -5.64$, $p < .001$). Spelling competence is rated lower than social competence ($t = -4.21$, $p < .001$), athletic ability ($t = -4.50$, $p < .001$), physical appearance ($t = -5.10$, $p < .001$), and global self-worth ($t = -4.68$, $p < .001$). In addition, children rated their general

intellectual ability significantly lower than their global self-worth ($t = -3.54$, $p < .001$) and their behaviour in school also lower than their global self-worth ($t = -3.82$, $p < .001$).

Table 22. Means and standard deviations on the Self-Perception Profile for Learning Disabled Students grouped by high and low ABI

	High ABI (N = 16)	Low ABI (N = 16)
Self-concept	Mean (SD)	Mean (SD)
Intellectual ability	2.88 (0.63)	2.85 (0.76)
Reading	2.46 (0.95)	2.50 (0.93)
Writing	2.87 (0.76)	2.89 (0.70)
Spelling	2.53 (0.89)	2.57 (0.89)
Math	3.17 (0.92)	2.92 (0.95)
Social	3.23 (0.70)	3.22 (0.52)
Athletic	3.26 (0.61)	3.08 (0.81)
Appearance	3.10 (0.79)	3.58 (0.47)
Behaviour	2.82 (0.71)	2.80 (0.80)
Global self-worth	3.32 (0.76)	3.32 (0.75)

Note. High ABI = Children whose ABI scored were in the top 30%; Low ABI = Children whose ABI scored were in the bottom 30%.

Perceived control was examined using a MANOVA with high and low ABI as the grouping factor and the 10 subscales of the Student Perception of Control Questionnaire (SPCQ) (Wellborn, Connell, & Skinner, 1989) as the dependent measure. The mean scores and standard deviations for the ten subscales of the SPCQ for high and low ABI are presented in Table 23. A multivariate analysis did not indicate a significant overall group effect for the perception of control measure (Wilks' Lambda = .605, $F(10, 21) = 1.37$, $p > .05$). The univariate tests indicated a significant difference in terms of capacity beliefs for powerful others ($F(1, 30) = 9.86$, $p < .01$). Good copers ($M = 3.70$, $SD = .43$) scored higher than poor copers ($M = 2.94$, $SD = .86$) on their capacity beliefs about powerful

others. This suggests that good copers believe in their ability to get along with their teachers.

However, as intended in this study, in order to examine the specific control related beliefs in relation to different levels of coping behaviour, further analyses were performed. Paired t-tests with a Bonferroni correction for multiple comparisons were performed within each coping level. Analysis of the control related beliefs of low scoring copers revealed no significant differences between control, strategy, and capacity beliefs, except for strategy for effort beliefs being endorsed more strongly than unknown strategies (strategy effort vs. strategy unknown, $t = 4.47$, $p < .001$).

Table 23. Means and standard deviations for perception of control for high and low ABI

SPCQ	High ABI (N = 16)	Low ABI (N = 16)
	Mean (SD)	Mean (SD)
Control Beliefs	3.52 (.49)	3.18 (.66)
Strategy Beliefs:		
Effort	3.34 (.52)	3.44 (.55)
Attribute	2.61 (.54)	2.86 (.56)
Powerful others	1.92 (.77)	2.36 (.85)
Luck	1.80 (.82)	2.32 (.83)
Unknown	1.96 (.57)	2.39 (.83)
Capacity Beliefs:		
Effort	3.24 (.36)	3.04 (.51)
Attribute	3.39 (.49)	3.20 (.65)
Powerful others	3.70 (.43)**	2.94 (.86)
Luck	3.33 (.40)	3.10 (.71)

Note. ** $p < .001$; High ABI = Children whose ABI scored were in the top 30%; Low ABI = Children whose ABI scored were in the bottom 30%; SPCQ = Student Perception of Control Questionnaire.

In sharp contrast, analysis of the successful coping group revealed strong endorsement of effort as the most effective strategy (strategy effort vs. strategy attributes, $t = 5.98$, $p < .001$) for school performance. Strategy beliefs for personal attributes was not perceived by the high copers as more effective than powerful others, luck or unknown strategies. The capacity beliefs of successful copers also provided a distinctive pattern. Good copers believe in their capacity to get along with teachers (capacity effort vs. capacity powerful others, $t = -3.88$, $p < .001$). Control beliefs of good copers were not significantly different from strategy beliefs for effort but were higher than the other strategy beliefs (control vs. strategy attributes, $t = 4.94$, $p < .001$). Control beliefs were not found to be significantly different from capacity beliefs.

In addition, the total control score on the SPCQ, which taps into those control beliefs that promote or impede engagement, was also analyzed. An independent t-test compared the high and low copers on the total control score. A significant relationship was found between coping level and total control. Good copers ($M = 33.58$, $SD = 10.77$) had higher scores than low level copers ($M = 17.98$, $SD = 20.02$) on the measure of the control-related beliefs that encourage motivation and performance ($t = -2.74$, $p < .05$).

To further elaborate the factors that distinguish successful from unsuccessful coping behaviour, children's control related beliefs were examined within the context of positive and negative outcomes. Perception of control when dealing with academic success was examined using a MANOVA with high and low ABI as the grouping factor and the 10 subscales of the SPCQ for positive outcomes as the dependent measure. The mean scores and standard deviations for the 10 subscales for positive outcomes on the SPCQ for high and low ABI are presented in Table 24.

A multivariate analysis did not reveal a significant overall group effect for the perception of control measure (Wilks' Lambda = .497, $F(10, 21) = 2.12$, $p > .05$). The univariate F tests revealed a significant group difference for capacity beliefs for powerful

others ($F(1, 30) = 7.42$, $p < .01$). Good copers ($M = 3.81$, $SD = .40$) scored significantly higher than poor copers ($M = 3.06$, $SD = 1.02$) on capacity beliefs about powerful others.

Further comparisons using paired t-tests with a correction for multiple comparisons revealed that when considering positive outcomes, low scoring copers were able to endorse effort as the most effective strategy for doing well in school more so than personal attributes ($t = 7.37$, $p < .001$), powerful others ($t = 7.09$, $p < .001$), luck ($t = 7.13$, $p < .001$), and unknown strategies ($t = 9.08$, $p < .001$). No other significant differences were found between control, strategy and capacity beliefs.

High scoring copers, when considering positive outcomes, also endorsed effort as the most effective strategy compared to personal attributes ($t = 4.99$, $p < .001$), powerful others ($t = 5.93$, $p < .001$), luck ($t = 6.10$, $p < .001$), and unknown strategies ($t = 7.89$, $p < .001$). They also endorsed capacity beliefs for effort more strongly than strategy beliefs for powerful others ($t = 5.13$, $p < .001$), luck ($t = 5.91$, $p < .001$), and unknown strategies ($t = 9.07$, $p < .001$). In addition, control beliefs were also rated higher than strategy beliefs for powerful others ($t = 5.17$, $p < .001$), luck ($t = 5.71$, $p < .001$), and unknown strategies ($t = 8.13$, $p < .001$).

Perception of control when dealing with academic failure was examined using a MANOVA with high and low ABI as the grouping factor and the 10 subscales of the SPCQ for negative outcomes as the dependent measure. The mean scores and standard deviations for the 10 subscales for negative outcomes on the SPCQ for high and low ABI are presented in Table 25.

Results from the multivariate analysis did not indicate a significant overall group effect for the perception of control measure (Wilks' Lambda = .721, $F(10, 21) = .815$, $p > .05$). The univariate F tests revealed a significant group effect for capacity beliefs for powerful others ($F(1, 30) = 6.90$, $p < .05$). When considering academic failure, good

copers (M = 1.4, SD = .53) scored lower than poor copers (M =3.16, SD = 1.04) on capacity beliefs about powerful others.

Table 24. Means and standard deviations for perception of control for positive outcomes with high and low ABI

SPCQ	High ABI (N = 16)	Low ABI (N = 16)
	Mean (SD)	Mean (SD)
Control Beliefs	3.83 (.45)	3.45 (.66)
Strategy Beliefs:		
Effort	3.81 (.32)	3.93 (.25)
Attribute	3.18 (.64)	3.20 (.59)
Powerful others	2.20 (1.15)	2.62 (1.17)
Luck	2.12 (1.12)	2.74 (1.09)
Unknown	1.97 (.78)	2.52 (.97)
Capacity Beliefs:		
Effort	3.85 (.29)	3.33 (.65)
Attribute	3.37 (.63)	3.45 (.76)
Powerful others	3.81 (.40)*	3.06 (1.02)
Luck	3.31 (.89)	3.14 (.84)

Note. * $p < .01$. High ABI = Children whose ABI scored were in the top 30%; Low ABI = Children whose ABI scored were in the bottom 30%; SPCQ = Student Perception of Control Questionnaire.

Further comparison of the within group pattern of control related beliefs, using paired t-tests with a correction for multiple comparisons revealed that for negative outcomes, low scoring copers were fairly uniform in their beliefs. In contrast, high scoring copers, when considering negative outcomes, continued to endorse effort as a more effective than strategy for powerful others ($t = 5.43$, $p < .001$) and luck ($t = 5.16$, $p < .001$). However, strategy for effort was no longer viewed as more crucial than strategy for

personal attributes or unknown strategies. Capacity beliefs for effort were significantly higher than capacity for powerful others ($t = 5.17$, $p < .001$), but not more than capacity for attributes or luck. Capacity beliefs for effort were rated higher than strategy beliefs for powerful others ($t = -4.78$, $p < .001$), but not more than strategy beliefs for luck and unknown strategies. In failure situations good copers could no longer rate their control beliefs as strongly as their strategy beliefs for effort ($t = 4.17$, $p < .001$). In addition, control beliefs were no longer rated higher than strategy beliefs for powerful others, luck, or unknown strategies.

To complete the examination of within coping group differences with regard to positive and negative outcomes, paired t-tests, with significance levels adjusted for multiple comparisons, were performed. Table 26 reports the high level coping group scores on the ten measures of the SPCQ.

Within the high ABI group, 7 out of the 10 comparisons indicated that children's control beliefs were significantly higher when considering positive outcomes. Control beliefs ($t = 8.28$, $p < .001$), strategy for effort ($t = 4.90$, $p < .001$), strategy for attribute ($t = 6.38$, $p < .001$), capacity for effort ($t = 8.15$, $p < .001$), capacity for attributes ($t = 7.17$, $p < .001$), capacity for powerful others ($t = 11.09$, $p < .001$), and capacity for luck ($t = 8.16$, $p < .001$) were found to be significantly higher when considering academic success. Table 27 reports the scores comparing positive to negative academic situations for the low ABI group.

In the low coping group 3 out of the 10 comparisons were significant. Control beliefs ($t = 4.15$, $p < .001$), capacity for effort ($t = 4.17$, $p < .001$), and capacity for attributes were higher in the positive context. Figure 4 illustrates the relationship between coping groups for positive and negative outcomes. Both groups were found to doubt their ability to control academic failure. However, children in the high coping group appeared to have a

more distinct set of beliefs depending on whether they were considering academic success or failure.

Table 25. Means and standard deviations for perception of control for negative outcomes with high and low ABI

SPCQ	High ABI (N = 16)	Low ABI (N = 16)
	Mean (SD)	Mean (SD)
Control Beliefs	1.79 (.71)	2.08(.79)
Strategy Beliefs:		
Effort	2.87 (.86)	2.95 (.1.06)
Attribute	2.03 (.66)	2.52 (1.01)
Powerful others	1.64 (.66)	2.10 (.87)
Luck	1.47 (.60)	1.90 (.89)
Unknown	1.95 (.86)	2.27 (.84
Capacity Beliefs:		
Effort	2.37 (.63)	2.24 (.77)
Attribute	1.59 (.62)	2.04 (.74)
Powerful others	1.39 (.53)	2.16 (1.04)*
Luck	1.64 (.56)	1.93 (.80)

Note. * $p < .01$; High ABI = Children whose ABI scored were in the top 30%; Low ABI = Children whose ABI scored were in the bottom 30%; SPCQ = Student Perception of Control Questionnaire.

Table 26. Means and standard deviations for perception of control for high ABI in positive versus negative conditions

SPCQ	Positive Outcomes	Negative Outcomes
	Mean (SD)	Mean (SD)
Control Beliefs	3.83 (.45)**	1.79 (.71)
Strategy Beliefs:		
Effort	3.81 (.32)**	2.87 (.86)
Attribute	3.18 (.64)**	2.03 (.66)
Powerful others	2.20 (1.15)	1.64 (.66)
Luck	2.12 (1.12)	1.47 (.60)
Unknown	1.97 (.78)	1.95 (.86)
Capacity Beliefs:		
Effort	3.85 (.29)**	2.37 (.63)
Attribute	3.37 (.63)**	1.59 (.62)
Powerful others	3.81 (.40)**	1.39 (.53)
Luck	3.31 (.89)**	1.64 (.56)

Note. ** $p < .001$. High ABI = Children whose ABI scored were in the top 30%; SPCQ = Student Perception of Control Questionnaire.

Table 27. Means and standard deviations for perception of control for low ABI in positive versus negative conditions

SPCQ	Positive Outcomes	Negative Outcomes
	Mean (SD)	Mean (SD)
Control Beliefs	3.45 (.66)**	2.08 (.79)
Strategy Beliefs:		
Effort	3.93 (.25)	2.95 (1.06)
Attribute	3.20 (.59)	2.52 (1.01)
Powerful others	2.62 (1.17)	2.10 (.87)
Luck	2.74 (1.09)	1.90 (.89)
Unknown	2.52 (.97)	2.27 (.84)
Capacity Beliefs:		
Effort	3.33 (.65)**	2.24 (.77)
Attribute	3.45 (.76)**	2.04 (.74)
Powerful others	3.06 (1.02)	2.16 (1.04)
Luck	3.14 (.84)	1.93 (.80)

Note. ** $p < .001$. Low ABI = Children whose ABI scored were in the bottom 30%; SPCQ = Student Perception of Control Questionnaire.

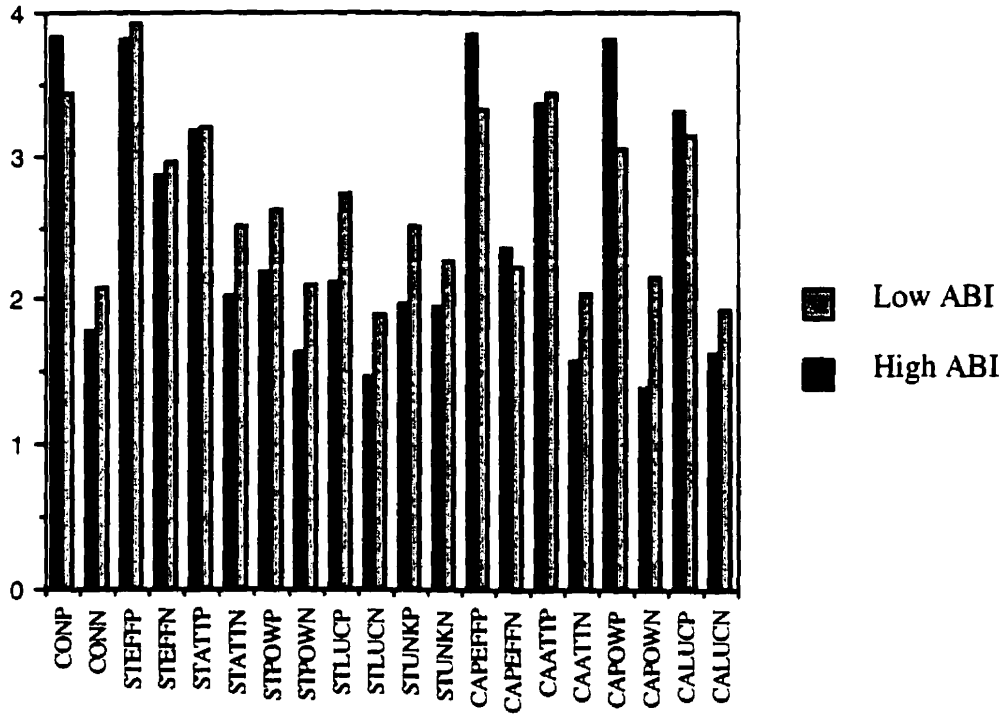

Figure 4. Perceived control for positive versus negative outcomes by ABI groups

Note. SPCQ = Student Perception of Control Questionnaire; CON = control beliefs; STEFF = strategy effort; STATT = strategy attributes; STPOW = strategy powerful others; STLUC = strategy luck; STUNK = strategy unknown; CAEFF = capacity effort; CAATT = capacity attribute; CAPOW = capacity powerful others; CALUC = capacity luck; N & P distinguish negative from positive outcomes.

Chapter VI

Discussion

The purpose of this study was to investigate the coping behaviour of children with learning disabilities, their perception of control and self-concept, and the contextual factors that influence this behaviour. The discussion of the findings are organized in accordance with the research questions: 1) the influence of educational placement and teachers' classroom management orientation on perception of control, self-concept, and coping behaviour, 2) the relationship between self-concept and coping behaviour, 3) the relationship between perception of control and coping behaviour, 4) the influence of demographic factors on coping behaviour, 5) the relationship between achievement and coping behaviour, and 6) the factors that distinguish the successful coping behaviour of children with learning disabilities.

The Influence of Educational Context on Coping Behaviour, Perception of Control, and Self-Concept

Coping Behaviour

The present study examined differences in children's coping behaviour in relation to their educational placement (type of class and type of school) and as a function of teachers' orientation for controlling learning and behaviour. Coping behaviour was assessed by teachers' reports of children's coping style and coping strategies by children's self reports. In these analyses, teachers' reported orientation for control was not found to have a significant influence on children's coping behaviour. The multivariate analysis failed to find any significant overall group differences for students' reports of their coping frequency or coping effectiveness. A significant relationship was found between educational placement and teacher reports of children's adaptive coping behaviour. Children in the special school were found to be more active and flexible in coping with their personal needs than were their peers in the regular schools. They were also found to be more flexible in coping with

their environment. The total coping score (ABI) for children in the special school also indicated greater consistency in adaptive functioning across a variety of academic situations (Zeitlan, 1985). The ABI score for children in the regular schools was significantly lower and suggested a more inconsistent and situationally specific coping style.

Similar differences were found in children's coping with their personal needs when analyzed by the type of class they were in. Children in self-contained classes in the special school were found to take greater initiative in meeting their personal needs than children in the mainstreamed classes. They were also found to be more flexible in their coping efforts and better able to appraise different situations and respond appropriately than children receiving resource room assistance.

These results support previous findings that not all children with learning disabilities cope poorly (Cullen, 1985; Halmhuber & Paris, 1993). However, the present findings that children in the special school were rated as more adaptive copers and more flexible and active in their coping efforts than children in either the self-contained special education classes in regular schools or mainstreamed in regular classes is surprising. It was understood that the reason that these children were enrolled in the special school was the greater difficulties they experienced in both academic and adaptive functioning. Additionally, the understanding was that the severity of these difficulties could not be accommodated effectively in the various public school settings. Within the service delivery continuum (Deno, 1979), mainstreamed classes are considered to be the least restrictive and require the least intensive remedial support, followed by resource room classes. Special education classes in regular schools are viewed as more restrictive, and the special school classes as the most restrictive and intensive remedial environment. The present findings appear to contradict the basic conceptualizations underlying this service delivery model. In addition to children in the special school being found to be more adaptive in their coping

behaviour, the results of the academic screening on the WRAT-3 failed to indicate poorer scholastic functioning in the special school.

Although there is considerable controversy about whether children with learning disabilities benefit from intensive special education programs (Lipsky & Gartner, 1987), it is possible that the differences in coping behaviour found may be attributed to the greater individual attention and close teacher-student relationship associated with the special school program. Yet, some studies have suggested that providing a high degree of structure and nurturance, as well as the use of extrinsic reinforcement found in special education programs can create dependency in students and undermine their ability to act autonomously (Cohen-Gazith, 1996; Deci et al., 1992; Grolnick & Ryan, 1989; Grolnick & Ryan, 1990). However, as found in this study, to attribute certain characteristics to an educational setting or its students based on theoretical models or assumptions lacks precision and can lead to erroneous conclusions. The purpose of including the Problems in School Questionnaire was to avoid making these generalizations and to directly assess teachers' classroom management orientation. It was found that there was no direct correspondence between teachers' personal orientations for classroom control and the type of school or type of class in which they taught. Furthermore, teachers' orientation for control was not found to significantly influence children's coping behaviour.

Although some differences in children's coping behaviour were found in relation to their educational placement, further study is required to determine the exact contextual variables that influenced their behaviour. It would be enlightening to compare teachers' understanding of learning disabilities in the various educational settings and to examine the influence of this awareness on children's coping behaviour. In a similar vein it would be important to examine children's understanding and perceptions about learning disabilities (Heyman, 1990; Rothman & Cosden, 1995). The special school is specifically for children with learning disabilities. An integral component of the educational program at the school is

to support the children and their families, enabling them to acquire a better understanding of learning disabilities and how to cope more effectively. The focus has been to help them understand that a learning disability affects a very specific area of learning rather than indicating a global cognitive deficit, and is modifiable by compensatory and coping strategies. It is suggested that these interventions may account for the higher levels of coping behaviour found among children in the special school.

Perception of Control

Previous studies of children with learning disabilities' perception of control have been contradictory. Some studies have found these children to be more externally than internally oriented (Ayres et al., 1990; Bender, 1987; Rogers & Saklofske, 1985), while others did not (Cooley & Ayres, 1988; Durrant, 1993; Kistner, Osbourne, & LeVerrier, 1988). This study was able to provide clarification of the control related beliefs held by children with learning disabilities. Educational placement and teachers' orientation for classroom management were not found to significantly influence children's perception of control. The present findings provided support for the conceptualization of perceived control as consisting of three independent sets of beliefs: control beliefs, strategy beliefs, and capacity beliefs (Chapman et al., 1990; Skinner et al., 1988; Skinner et al., 1990; Skinner, 1995). Control beliefs included children's expectations for future academic performance. Strategy beliefs focused upon children's beliefs about what causes academic success or failure. These causes could be a result of effort (trying hard), attributes (being smart), powerful others (teachers), and luck. Capacity beliefs incorporated children's beliefs that they could access the known causes (i.e., they could try hard, they were smart, they could get along with the teacher, and they were lucky in school). Thus, some strategy and capacity beliefs included internal sources (i.e., effort and attributes) as well as external sources (powerful others, and luck) of control.

Further, the distinction made on the SPCQ between control, strategy, and capacity beliefs was motivated in part by the confusion associated with regard to positive and negative school outcomes. For example, children who endorse a positive attributional item such as, "When I do well in school, it's because I am smart," were affirming that they have the ability to do well in school (strategy) and that they were smart (capacity). Yet, they were unlikely to endorse the corresponding negative item, "When I do poorly in school, it is because I am dumb" (Chapman et al., 1990).

Results indicated that the children's control related beliefs were different depending on whether they were responding to positive outcomes (academic success) or negative outcomes (academic failure). Analysis of their combined scores, both positive and negative outcomes, found that they strongly endorsed 'effort' as the most effective way to be successful in school and prevent failure. Strategy beliefs for personal attributes (e.g., I have to be smart to get good grades) were perceived as the second most effective way to do well in school. Contrary to findings in other studies (e.g. Halmhuber & Paris, 1993) these children were not confused about the requirements necessary to do well in school. Powerful others (e.g., To do well in school I have to get the teacher to like me), luck (e.g., I have to be lucky to get good grades), and unknown strategies (e.g., I don't know what it takes to do well in school) were not endorsed as crucial to eventual academic outcomes. These findings suggest that these children have strong internal beliefs about what it takes to do well in school.

Analysis of children's capacity beliefs for positive and negative outcomes combined, indicated a strong endorsement for the four known sources of control (i.e., effort, attributes, powerful others, and luck). In essence, they were asserting that to do well in school it is necessary to try hard, to be smart, to be liked by teachers, and to be lucky (Skinner, 1995). Although endorsement of capacity beliefs for powerful others can be viewed as an external orientation, within this framework it does not have a negative

connotation. Furthermore, children demonstrated high internal beliefs in their expectations to produce desired outcomes, or control beliefs.

Children's control related beliefs were significantly influenced by whether they were considering academic success or failure (positive versus negative outcomes). With regard to negative outcomes, children's beliefs about effort as a strategy (e.g., If I get bad grades, its because I didn't try hard enough) continued to be perceived as the most effective strategy. However, in these negative situations, personal attributes such as being smart as a means of overcoming failure were no longer perceived as more effective than powerful others (e.g., I won't do well in school if my teacher doesn't like me), or luck.

Within the context of school failure, children maintained their belief in their capacity to exert effort. However, capacity beliefs for attributes are now viewed as no more accessible than powerful others and luck. In addition, the greatest mean difference between positive and negative school outcomes was found in terms of control beliefs (e.g., I can't do well in school even if I want to) suggesting that these children do not have high expectations about being able to avoid further academic failure.

This finding is consistent with other research indicating that children with learning disabilities do not believe that they can control academic failure (Ayers et al, 1990; Bender, 1987; Rogers & Saklofske, 1985). They attribute school failures to the internal, stable and uncontrollable variable of lack of ability. It would appear that children in this study also recognized that limited ability or the nature of their learning disability may in fact make failure unavoidable. However, these children also continued to endorse effort, a controllable, changeable, and internal factor, as the most effective way to avoid failure and felt that they had the capacity to exert the effort. Children with this latter attributional style have been considered mastery-oriented students (Diener & Dweck, 1978). These contradictory orientations point to the confusion associated with attempting to understand children's perceived control in terms of a single, bi-polar internal/external

conceptualization. Skinner (1995) suggests that what may be more revealing about children's control related beliefs is the pattern of interactions between strategy, capacity, and control beliefs and how they relate to children's coping behaviour. These patterns of beliefs are discussed when examining the relationship between children's perception of control and their coping behaviours.

Self-Concept

Similar to the present results, Renick and Harter's (1988) standardization study for the SPPLDS compared children attending a public school and receiving resource room help to children in a private school for children with learning disabilities. They predicted that children in the private school would reveal higher self-perceptions in general than public school students. They reasoned that the public school children would be comparing themselves to their non-disabled peers, while in the private school comparisons would be to other learning disabled children. As well, they predicted higher self-perceptions for intellectual ability and competence in reading, writing, spelling, and math due to the specialized and intensive remedial program given to these students. Although their findings were consistent with their predictions, this pattern did not prove to be the case in the present study. No significant differences were found in the self-perceptions of students based on the educational context (type of school or class). Further, teachers' control orientation was not found to significantly correlate with measures of self-concept.

Children's self-perception of intellectual ability and academic competence was not differentiated based on their educational context. Social competence and global self-worth were found to be similar across educational settings. The concern that the feelings of self-worth of children with learning disabilities may be undermined by the stigmatization and social segregation of special education programs was not substantiated in this study (Kistner et al., 1987). Additionally, children in this study rated themselves generally lower in academic competence (reading, spelling, and intellectual ability) compared to their global

self-worth. These findings support previous findings that children with learning disabilities can maintain positive perceptions of self-worth while recognizing weaknesses in academic competence (e.g., Bear & Minke, 1996; Clever et al., 1992; Grolnick & Ryan, 1990; Kistner et al., 1987; Hagborg, 1996).

The Relationship Between Self-Concept and Coping Behaviour

Children's perception of their physical appearance was the only measure to correlate significantly with their coping style. A significant negative relationship was found between teachers' rating of flexible coping with self and children's high scores on self-perceptions of appearance. Children who felt most comfortable with their physical appearance tended to be viewed by their teachers as the most rigid in coping with their personal needs.

There was a greater degree of correspondence between children's self-concept measures and their self reports of coping strategies. A significant positive correlation was found between children who rated themselves high on athletic competence and also indicated a high frequency of coping efforts. Social competence was also found to be significantly correlated with coping frequency. This may indicate that the children who consider themselves competent athletically and socially tend to be more active in trying to deal with the multiplicity of stress they experience (Ryan-Wenger, 1990). As well, this may also reflect that children's self-esteem may be enhanced by being involved in social activities and sports.

The negative relationship found between reading and writing competence and coping strategies are surprising. Children who rated themselves most highly in these academic domains also rated themselves as poor copers. A possible explanation is that children who considered themselves academically competent experience less stress in the academic context and therefore had less of a need to utilize coping behaviours. However, this pattern of high academic competence and poor coping strategies may reflect that children who were most unrealistic in their self-evaluations were aware that they were not coping well.

The Relationship Between Perception of Control and Coping Behaviour

The findings failed to indicate a relationship between children's reports of their coping strategies (coping frequency and effectiveness) and their perception of control. However, teachers' ratings of children's coping style were found to relate to children's perceived control. Children who maintained high control beliefs were rated by teachers as better able to cope with their own needs and the demands of the academic environment. They were also rated as the more adaptive copers. Children's control beliefs are those beliefs that assert "I can be successful in school and I can prevent failure." These results are consistent with Rogers and Saklofske's (1985) findings that children with learning disabilities who had higher academic performance expectations although they were found to be more externally oriented they did have more positive academic self-perceptions than their learning disabled peers.

A significant positive relationship was found between capacity beliefs for powerful others (e.g., I can get the teacher to like me) and coping with self, coping with the environment, and adaptive behaviour. In the psychological and educational literature, attributions to powerful others has been considered a maladaptive defense mechanism where children blame external sources for their academic failures. However, capacity beliefs revealed the extent to which children believe they can access the means needed to do well in school. Strategy beliefs included those means that are necessary for academic success (If I want to do well in school, I have to get along with my teacher). Thus, children who maintained low strategy and high capacity beliefs for powerful others were asserting "getting teachers to like me is not linked to getting good grades, but I can get the teacher to like me" (Skinner, 1995). This pattern of beliefs (low strategy and high capacity for powerful others) has been shown to predict children's engagement in school (Skinner et al., 1990).

The overall pattern of control related beliefs that has been shown to predict motivation and engagement, or an optimal profile, is measured by the total control score in the Student Perception of Control Questionnaire (Skinner, 1995; Wellborn et al., 1988). Children who scored high on the total control measure were perceived by their teachers as coping well with their personal needs, academic demands, and demonstrating adaptive behaviour.

The influence of children's control related beliefs on coping behaviour was further elaborated when differentiated by responses to positive versus negative outcomes. In response to positive outcomes, expressed confidence in the ability to get along with significant others and to exert effort was found to be positively related to adaptive coping and engagement. Beliefs that significant others are responsible for school success was negatively related to engagement.

An interesting finding in the context of negative outcomes was that endorsement of ability as an effective means of avoiding academic failure was negatively correlated with persistence. Children who are convinced that being smart is an effective means to avoid failure may be more likely to give up. A similar negative relationship was found between capacity beliefs for ability and coping with the environment, adaptive coping, and persistence. It would appear that children who maintained unrealistic appraisals of their ability were most at risk for coping poorly with academic demands.

These results suggest that children who maintain positive performance expectations (control beliefs) and believe in their ability to get along with their teachers (capacity beliefs for powerful others) also demonstrate more positive coping behaviour. The results also point to the importance of examining the pattern of control related beliefs. The total control score, predicted to measure engagement, was found to correspond positively with coping behaviour. It can be concluded that children's accurate appraisal of the controllability of the educational context influences their coping behaviour.

The Influence of Demographic Factors on Coping Behaviour

The results failed to reveal a significant relationship between children's age and their coping behaviour. This is consistent with the coping literature suggesting that it is not until late childhood and early adolescence that changes in cognitive and emotional development produce changes in the nature of children's coping behaviour (Altshuler & Ruble 1989; Compas et al., 1991; Wertlieb et al., 1987). As found in the present study, young children tend to focus their coping behaviours on meeting personal needs and are action oriented. It is likely that older children (11 and 12 years old) have yet to develop the emotional and cognitive maturity necessary to display a different pattern of coping efforts (Bryan, 1977; Kistner et al, 1988).

The present results indicated that children from two parent families had a greater variety and range of coping strategies allowing them to respond differentially to various personal needs than children from single parent homes. Caution must be taken in interpreting these results as additional information is required (e.g., composition of two parent families, when parents divorced or separated, etc.). However, these findings may reflect that the social, economic, and functional demands experienced by single-parents may limit their capacity to be actively involved in their children's educational development. Previous research has been shown that parental involvement, that is knowledge about and positive attention to their children's education, positively influenced achievement, teacher rated competence, and behavioural adjustment (Grolnick & Ryan, 1989). Parental social support has been shown to serve as a buffer or protective variable for the stress experienced by children enrolled in special education classes (Quamma & Greenberg, 1994). The data suggests that the social and economic realities of single parent homes may play a role in parents' availability to be involved in their children's school, as well as their capacity to provide the emotional and educational support and the necessary assistance their child requires.

Further evidence that children with learning disabilities require support in order to cope with academic demands comes from the relationship between their reports of coping effectiveness and the amount of time they have spent in special education programs. Children having attended these programs for longer periods of time perceived their coping efforts as more effective.

The Relationship Between Achievement and Coping Behaviour

Multivariate analyses failed to find a significant overall group difference for achievement level based on the type of school or type of class in which these children were enrolled. This indicates that these children were well matched not only in terms of achievement but also in terms of the severity of their learning disability. However, a significant positive relationship was found between children's math scores and their coping with personal needs. Teachers rated the children who were more competent in math as flexible and competent in coping with their needs. This is not surprising as children's math competence is often an important consideration for teachers in their judgments about children. When a child with a learning disability is able to succeed at math, this may serve as an indicator to teachers that the disability is limited to difficulties in reading and writing and does not indicate global intellectual delays. Decisions about integrating the child into a regular class or academic promotions are often made on this basis.

Factors Distinguishing Successful Coping Behaviour of Children with Learning Disabilities.

Achievement, age, and duration in a special education program were not found to be distinguishing factors for the coping groups. The majority of children in the high ABI group came from two parent families. It should be noted that the majority of children in the study came from two parent families which may account for the skewed representation in the high coping group. The low ABI group had a more even distribution of children based on parental marital status. However, it does appear that family background may influence

the coping behaviour of children. The literature on children's coping with divorce (e.g., Heatherington, Stanley-Hagan, & Anderson, 1989) suggests that children who experience chronic and repeated stress may be most at risk to develop maladaptive behaviours. Some children are extremely resilient and develop enhanced coping mechanisms as a result of the experience, while other children suffer prolonged distress that interferes with their coping ability. For children who have learning disabilities family support may serve as an important protective variable from school related stress (Quamma & Greenberg, 1994) and parental involvement may facilitate the development of adaptive coping behaviour (Barga, 1996; Grolnick & Ryan, 1989).

The majority of children in the high coping group came from the special school classes. When grouped by class the special school students represent a large sample (N = 23) compared to the SEC (N = 9), RRC (N = 7), and the MSC (N = 9) which may be a contributing factor to their over- representation in the high coping group. An unexpected finding was that 66% of mainstreamed children were found in the low coping group and only 11% in the high coping group. It would be expected that children with learning disabilities who are mainstreamed are there because they have strong coping ability and are able to meet the demands of the regular education program with minimal assistance. A possible explanation is that the teachers who rated these children were regular education teachers and not special education teachers as was the case for the other children. It may be that special education teachers use a different set of criteria in their ratings of the coping ability of children with learning disabilities. Halmhuber and Paris (1993) found a significant discrepancy between general education teachers' ratings of the coping behaviour of the same children with learning disabilities and those of the special education teacher. The regular education teachers found the learning disabled students to have less adaptive coping skills than did special education teachers. The authors suggested that the children's

behaviour was more maladaptive in response to the organization of the regular classroom and to the management techniques employed by the general education teachers.

A significant relationship was found between teachers' classroom management orientation in relation to children's coping level. Teachers who were oriented toward promoting autonomous functioning in their students were found to have rated children's adaptive coping behaviour more highly. Although there is empirical and theoretical support for this relationship (Deci et al., 1992; Grolnick & Ryan, 1990), it must be interpreted with caution. This may reflect a propensity on the part of teachers who favour an autonomous orientation to view their students as more adaptive copers. A more salient factor that distinguishes good copers is that they are active copers and not necessarily productive or flexible. This may again influence these teachers' perception who tend to encourage their students to be active and persistent. This caution is further relevant in view of the absence of a relationship between the Problems in Schools Questionnaire and the children's own reports of their coping behaviour. However, these arguments are not intended to dismiss the possibility that children who demonstrated the highest levels of adaptive coping benefited from an instructional approach that emphasized independence, personal responsibility, and active problem-solving.

This study supports findings that children with learning disabilities are able to maintain a positive sense of self-worth, while recognizing their academic and behavioural weaknesses, a finding which has been reported elsewhere (e.g., Bear & Minke, 1996; Clever et al., 1992; Cooley & Ayers, 1988; Grolnick & Ryan, 1990; Hagborg, 1996). A variety of theoretical and empirical explanations have been offered to explain how children with learning disabilities can maintain a reasonable self-concept while acknowledging their academic weaknesses. These explanations include a) discounting or downplaying the importance of academic success (e.g., Clever et al., 1992; Grolnick & Ryan, 1990), b) over-inflation of self-competence ratings (Clever et al., 1992; Sabatino, 1982),

c) understanding one's disability and circumscribing it (Heyman, 1990; Rothman & Cosden, 1995), and d) social support from parents, friends and especially teachers (Bear & Minke, 1996; Hagborg, 1996; Kloomok & Cosden, 1994; Rothman & Cosden, 1995).

Children seemed to accurately appraise their academic and behavioural weaknesses which weighs against the denial or over-inflation explanations. Further, only some of the children in this study seemed to have a realistic understanding of the nature of their disability. One factor that may explain the maintenance of feelings of positive self-worth found among children with learning disabilities in this investigation may be related to the modification and adaptation of educational programs for them. In Quebec schools, Individualized Educational Plans (I.E.P.) are required for all children with learning disabilities. Whether they are in special school classes or mainstreamed in regular classes, the feedback that these children receive from their teachers and the progress they experience is based on their individualized programs, which may serve to foster positive self-perceptions (Bear & Minke, 1996). This is consistent with some recent research which indicates that it is the social-emotional support from teachers, as well as from parents and friends that plays an important role in enhancing feelings of self-worth in children with learning disabilities (Kloomok & Cosden, 1994; Rothman and Cosden, 1995). Hagborg (1996) suggests the relationship between academic self-concept and perceptions of self-worth for children with learning disabilities may be obscured by comparisons to normally achieving peers. He contends that children with learning disabilities who have developed a strong sense of self-worth from non-academic activities and from social support are better able to maintain positive school attitudes and in turn more positive academic self-concepts.

The pattern of control related beliefs held by high level copers reflects an accurate appraisal of their situation and is the profile likely to promote engagement and persistence (Skinner, 1995; Wellborn et al. 1988). The pattern of control related beliefs held by adaptive copers were: high control beliefs; high strategy beliefs for effort with lower

strategy beliefs for ability, powerful others, luck, and unknown strategies; high capacity beliefs for effort, ability, powerful others and luck. This pattern would suggest that these children were confident that they could succeed academically and felt that trying hard was the best strategy to achieve this goal. The message that this pattern signifies is "teachers are not that critical, but I can get along with them, luck is not that essential but I am lucky, and I know how to succeed in school" (Skinner, 1995). The pattern for less effective copers indicated stronger beliefs that being smart, being liked by teachers, and luck are essential to doing well in school. It also implied that they were more confused about what it takes to do well in school.

The analysis of children's perception of control for success versus failure revealed significant differences. The positive pattern of control beliefs indicated by the more adaptive copers was primarily related to their perceptions with regard to school success. Both groups of children demonstrated low scores on all the control related beliefs when considering academic failure. They did not have strong expectations of being able to prevent failure. Trying hard in school was still seen as somewhat important, but at a level almost equal to ability, powerful others, luck, and unknown strategies. It is revealing that when considering their ability to control academic failure, these children do not believe that they could make the effort, have the ability, could get the teacher to like them, or were lucky.

Conclusion

The fundamental inquiry of the present study was to determine how children with learning disabilities cope with the academic failure they frequently experience. The implicit assumption has been that the frustrating, chronic nature of these children's academic experiences must be very stressful for them. However, the determination of whether a situation is or is not stressful is a personal process (Compas et al., 1991; Folkman, 1984; Lazarus & Folkman, 1984). Perception of control and competence have been considered to

be among the integral components of this appraisal process (Compas et al., 1991; Folkman, 1984). It has been suggested that children with learning disabilities may suffer from cognitive delays that interfere with their ability to accurately appraise or make judgments about contingency, personal competence or performance expectations (Kistner et al, 1988). This would seem to have a compounding effect on the difficulties experienced by these children and place them at greater risk to become helpless. However, the present findings tend to contradict these arguments. In this study, children clearly appraised effort as the most important ingredient for academic success. They maintained that in order to do well in school they need to work hard and to a lesser degree be smart. They indicated that they believe that a) they have the capacity to work hard, b) be smart, c) be liked by their teachers, and d) are lucky. These children with learning disabilities also demonstrated confidence in their ability to do well in school.

The more adaptive copers perceived academic outcomes as more controllable than poor copers, as shown by their total control scores. They also distinguish themselves from less successful copers by more strongly endorsing their ability to get along with their teachers. Yet, even less adaptive copers viewed exerting effort as the most effective strategy to achieving academic success. However, children with learning disabilities did not believe that avoiding academic failure was within their control. Further, they held realistic but negative self-perceptions about their academic competence. For children with a learning disability, academic failure was seen as unavoidable, nevertheless, they still could feel good about themselves and recognized effort as the best way to control academic outcomes. This pattern of beliefs does not seem to indicate an impairment of their appraisal process.

The learned helplessness model (Abramson et al., 1978) predicts that children who believe that failure is unavoidable and beyond their control should become passive and lack persistence. This model makes intuitive sense when applied to children with learning disabilities. However, the learned helplessness model may be valid for individuals who

have no explanation for their failures and must face the disappointment of concluding: "I must be incompetent," whereas for these children they do have an explanation, their learning disability.

Studies of coping that involve not only non-contingent events but also unavoidable events such as natural disasters, disease, accidents, etc., have found that individuals are able to effectively cope with the presenting situation when they are able to develop an explanation for it (Rothbaum, Weisz & Snyder, 1982). Being able to understand and accept a difficult situation mediates the stress experienced and provides individuals with a sense of control that enables them to make the best of a situation that is difficult or impossible to alter. Interestingly, Diener and Dweck (1978) pointed out that following failure experiences, "helpless" children focused on understanding the cause of their failure, whereas mastery-oriented children focused on further problem solving. For children with a learning disability this form of control is not a defense mechanism of denial or blunting but rather comes from understanding that their academic failures are due to their disabilities (Heyman, 1990).

Another factor that attests to the integrity of the appraisal process in these children is their perceived need for support. Children who have experienced special education programs for a longer period of time consider their coping efforts as more effective. The support provided to children in the special school allows them to cope more consistently in a variety of academic situations and with greater flexibility. Children's ability to demonstrate flexibility and to use diverse coping strategies is fostered through environmental support (Zeitlan, 1985). Bear and Minke (1996), in their study of children with learning disabilities, concluded that it was the special education classroom practices that contributed to the findings of a positive sense of achievement and feeling of self-worth in these children. However, as in this study, those practices were not directly assessed.

Flexible coping was also found to be related to parental marital status. It is suggested that the social-emotional support children receive in two parent families contributes favourably to the development of adaptive coping. This extends previous research which has shown that parental support mediates the effects of stress in children enrolled in special education classes (Quamma & Greenberg, 1994), fosters achievement and teacher-rated competence in children with learning disabilities (Grolnick & Ryan, 1989), and enhances their feelings of self-worth (Hagborg, 1996; Kloomok & Cosden, 1994; Rothman and Cosden, 1995).

The findings in this study of a relationship between teacher orientations that promote autonomy in students and higher adaptive coping in these children may in fact be an indicator of appropriate practices for teachers of children with learning disabilities. However, contradictory findings have found that children with learning disabilities who had an external orientation were more successful academically than children with an internal orientation (Rogers & Saklofske, 1985). As suggested by Rogers and Saklofske (1985) it remains important to investigate whether the type of structure employed in learning situations for children with learning disabilities has differential effects depending on whether they tend to be internally or externally motivated. Children with learning disabilities are not homogeneous in terms of their personalities or the affective variables that influence their motivation. It is likely that educators will find that a "fit" must be achieved between children who are intrinsically motivated and require an orientation that fosters autonomy and those children who are more externally motivated and require more structure.

It remains speculative as to what constitutes the most appropriate classroom environment or best teacher practices for these children. However, findings in this research consistently indicate that children with learning disabilities require support from teachers, family, and friends.

Original Contributions

The most important contribution of this study is the extension of research investigating coping behaviour to elementary school children with learning disabilities. In the field of learning disabilities much of the literature on coping has focused on older children. Yet, children with learning disabilities must grasp at an early age the nature, scope and implications of their disability. Significant others in their lives (e.g., parents, teachers, peers) play a critical role in assisting them to develop an appropriate understanding of their disability and must support them in developing adaptive coping behaviours.

In the current study there was no matched non-disabled control group, which may be perceived by some as a limitation in the design. Yet, it is widely acknowledged that children with learning disabilities do not form a homogeneous population. The heterogeneous nature of their learning problems is inherent in the definition of a learning disability. As a group they are also heterogeneos in terms of how they perceive and react to situations. The coping model employed in this investigation provides a constructive framework to focus on these differences and to gain insight into these children's individual instructional needs.

The contribution made by comparing the coping behaviour of these children to normative data provided an operational framework for assessing how affective variables interact with performance. Academic ability deficits are a reality for children with learning disabilities. It has been pointed out that encouraging persistence in children where task demands exceed their capacities will only serve to augment frustration (Bandura, 1977; Compas et al., 1991; Folkman, 1984; Cullen & Boersma, 1982). The match between perceived control and the objective controllability of the situation must be recognized so that children can be instructed with specific strategies to cope with this reality.

Perceived control is a powerful construct that has been a robust predictor of emotion, motivation, and performance in success and failure situations (Skinner, 1995). In the field

of learning disabilities it has also been a source of controversy, ambiguity, and contradiction. This study has provided further evidence that children's control related beliefs cannot be fully understood in terms of the bi-polar dimensions of internal and external locus of control. Perceived control was shown to be comprised of three separate sets of beliefs: control beliefs or academic performance expectations, strategy beliefs, or the means to succeed or avoid school failure, and capacity beliefs or the skills required to succeed or prevent failure.

The value of applying this operational framework to children with a learning disability was shown. Clearly, despite whatever other cognitive deficits they may have, this group of children demonstrated accurate appraisals of the controllability of academic success and failure. These findings will contribute to a more useful understanding within the educational community of what is meant by internal and external control. This framework also provides a pattern of control related beliefs that shows the potential to accurately predict motivation and engagement.

Educational Implications

It has been suggested that having an understanding of learning disabilities is a key factor enabling children to maintain their self-worth and to cope more effectively. It is recommended that educational programs need to be focused on helping children with learning disabilities gain a better understanding the nature, scope, and implications of their disability. These children need to become explicitly aware that they have a specific disability that can be modified with assistance and through compensatory strategies. Cognitive and meta-cognitive learning strategy programs have already been developed for children with learning disabilities. These strategy programs have focused on improving children's problem-solving behaviour. Children are taught how to define a specific academic problem, to generate alternative strategies, and to implement them. To be maximally effective for children with learning disabilities, these strategy programs would

need to incorporate two additional components. In addition to problem-solving training, instruction should be focused on helping children improve their meta-cognitive awareness about the nature and implications of their learning disabilities. Concomitant with a better understanding of their learning disability and the need for compensatory strategies, comes the need to teach these children effective coping strategies for the stress that having a disability may engender.

Another educational implication of the present study is the important role that the family plays in providing effective support for the child with learning disability. Schools and classes must be made more accessible to parents. Parents should be encouraged to play an integral role in the educational planning for their children. Arranging for meetings after working hours, communicating by telephone, or home visits are some strategies that can foster greater parental involvement. Local, national, and international associations for children with learning disabilities have developed material and programs promoting a better understanding of learning disabilities. There is a need to bring these resources into the schools to make them more accessible to parents.

Results of the current study point to the need to integrate into educational practices the recognition that among children with learning disabilities there are individual affective and personality differences that influence not only how they cope but also how they respond to support, structure, and teaching methods. Although it is fairly well accepted that these children require individualized instruction, the focus has been on the content and pace of instruction. It needs to be made explicit that some children are motivated by challenge, choices, and internal rewards, while others prefer safety, structure and external reinforcement, and of course some are somewhere in the middle. Teacher training programs need to help educators acquire the skills necessary to respond to these diverse needs.

Limitations

There are several limitations of the current study that need to be addressed which can serve as directions for future research. The results of this study are based on a small group of children with learning disabilities from largely urban, middle and working class backgrounds and conclusions must be interpreted with caution. In addition, the small number of children participating in this study reduces the statistical power of the analyses performed. Thus, relationships between variables that may in fact be significant were obscured by the small sample size (Stevens, 1992). A larger sample size is desirable for future studies, however, the availability of children with learning disabilities is problematic. It is recommended that future studies examine children from more diverse backgrounds in order to access more children and to allow for greater generalizability of the results.

The current study relied on a quantitative design to examine children's self-perceptions, beliefs and coping. Future research would benefit from also incorporating qualitative analyses to augment the information gathered. Similarly, a more explicit understanding is needed of the educational context and the teaching practices that influence the coping behaviour of children with learning disabilities. This research attempted to define more precisely the educational context by examining teachers' classroom management orientation. However, knowing teachers' instructional philosophies is not the same as observing their classroom practices. Future studies need to examine in greater detail the classroom variables that are most beneficial for children with learning disabilities. More specifically, the relationship between classroom practices and children with learning disabilities who are intrinsically or extrinsically motivated needs to be examined (Deci & Ryan, 1987; Deci et al. 1992; Grolnick & Ryan, 1989; Harter, 1978).

Two coping measures were employed in this study. The Coping Inventory (Zeitlan, 1985) provided important and relevant information about children's adaptive coping. The Schoolagers' Coping Strategies Inventory (Ryan-Wenger, 1990) measured children's

perception about their coping. However, future studies would need to examine in greater detail the type of strategies used by children (problem versus emotion focused). It is expected that this type of analysis would permit a more accurate analysis of developmental trends (Compas et al., 1991). In the present study, stress could only be inferred from children's perceived need to cope. A more direct examination is needed of children's appraisal of the stressfulness of their academic situations and how that relates to their perceived control and coping behaviour.

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MCGILL UNIVERSITY

FACULTY OF EDUCATION

CERTIFICATE OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

A review committee consisting of **three** of the following members:

1. Prof. J. Derevensky	1. Prof. M. Maguire
2. Prof. S. Nemiroff	2. Prof. N. Jackson
3. Prof. M. Downey	3. Prof. H. Perreault

has examined the application for certification of the ethical acceptability of the project titled:

Perception of Control and Coping Mechanisms of Children with Learning Disabilities
as proposed by:

Applicant's Name Gerald Weintraub Supervisor's Name Dr. Jeffrey Derevensky

Applicant's Signature [signature] Supervisor's Signature [signature]

Degree Program Ph.D. Educational Psychology Granting Agency _____

The review committee considers the research procedures, as explained by the applicant in this application, to be acceptable on ethical grounds.

(Signed)

a) MARY N. MAGUIRE [signature] oct 3/94

b) Nancy S. Jackson [signature] Oct 14/94

c) [illegible] [signature]

Date: Oct 11/94

[signature]
(Associate Dean (Academic))