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AFFECTIVE CHARACTERISTICS OF LEARNING DISABLED AND NORMALLY  
ACHIEVING ELEMENTARY SCHOOL CHILDREN: A COMPARATIVE STUDY

by

JAMES WILLIAM CHAPMAN



A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

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IN

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DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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THE UNIVERSITY OF ALBERTA  
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Affective Characteristics of Learning Disabled and Normally Achieving Elementary School Children: A Comparative Study submitted by James William Chapman in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Educational Psychology.

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This dissertation is dedicated to my wife, Jennie,  
and to my children, Mathew and Joanna,  
with my love and appreciation.

### **Abstract**

The present research investigated general self-concept, academic self-concept, academic locus of control, and achievement expectations in learning disabled (LD) and normally achieving (Control) elementary school children. In addition, mothers' and teachers' achievement expectations for these children, along with mothers' perceptions of their children's academic self-concept, and reactions to their children's achievement-related behaviors were also studied.

The sample comprised 81 LD and 81 Control children in Grades 3 to 6 at two Edmonton public elementary schools. The LD children were identified on the basis of their part-time remedial placement for a 1 1/2 to 2 year performance deficit in one or more academic subjects. Most of the LD students in the present sample were experiencing problems in reading. The Control children were randomly selected from the same classrooms as their LD peers, after having been stratified on the basis of sex. None of the Control subjects had records of learning problems requiring special class remedial placement. The mothers and teachers of the LD and Control subjects also participated in the study.

Instruments used included the Piers-Harris Children's Self-Concept Scale, the Student's Perception of Ability Scale, the Intellectual Achievement Responsibility Questionnaire, the Projected Academic Performance Scale (Children's, Mothers', and Teachers' versions), and the Intellectual subscale of the Parent Reaction Questionnaire.

The results revealed that LD children have significantly lower academic self-concepts and achievement expectations regarding future academic performance. Further, these students also indicated external orientations in their locus of control for successful school outcomes, but were similar to the normally achieving Control students in their orientations for failure events. No significant differences were observed for general self-concept, and no major sex differences were noted. The only major Grade level effect was for academic locus of control in terms of failure events, where both groups tended to increase their degree of internality. The results for the adult variables revealed a significant tendency among LD mothers to report having more negative and less positive reactions to their children's achievement-related behaviors. Further, mothers, along with teachers, indicated lower achievement expectations for LD children across all academic subject areas. It was also found that mothers of both groups were not very accurate in estimating their children's academic self-concepts.

The findings were discussed in terms of the possibility that through a process of reciprocal interaction, the development of relatively negative school-related affective characteristics in LD children interferes with attempts at remedying their learning problems. Possible adverse influences of negative adult perceptions, expectations, and interactions on the affective and cognitive development of LD children were also considered. Finally, suggestions

regarding remedial strategies for LD children which take into account affective factors were discussed.



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## CHAPTER I

### INTRODUCTION AND OVERVIEW

Bloom asserts that affective entry characteristics are a crucial element influencing learning and achievement because they help determine "the extent to which a learner will put forth the necessary effort to learn a specific learning task" (1976, p. 104). Numerous writers have attempted to identify and operationalize some of the important factors influencing school-related affective development. Four of the more fruitful variables are self-concept--academic and general (Hamachek, 1978; Purkey, 1970), academic locus of control (Gilmor, 1978; Lefcourt, 1976; Phares, 1976), expectations of self and others (Braun, 1976; Brophy, 1977; Entwisle & Hayduk, 1978), and parental perceptions and interactions (Christopher, 1971; Love, 1970; Walters & Stinnett, 1971). Despite a growing awareness of the importance of these affective variables in school learning, however, (Bloom, 1976; Covington & Beery, 1976; Walters & Stinnett, 1971), few studies have been reported dealing with the affective characteristics of a group of children which has received considerable attention during the last 15 years, namely, learning disabled children. Accordingly, the intent in the present study is to examine these four affective dimensions in an ecologically formed group of elementary learning disabled (LD) children.

While considerable controversy and uncertainty exists regarding what actually causes and constitutes a learning



disability (Chapman, Boersma & Janzen, 1978), there is general agreement that LD children are primarily characterized by their "significant" below grade-level performance in one or more academic subjects, despite their normal intellectual, physical, emotional, social, and cultural backgrounds (Chalfant & King, 1976; Ross, 1976).

The manifest symptoms of learning disabilities are typically varied, but most professionals in the area affirm that the learning problems experienced by LD children can be remedied. Research with failure-prone and underachieving children, however, suggests that remedial efforts may be hindered by the development of negative affective characteristics in students who have a history of persistent school failure (Covington & Beery, 1976; Hamachek, 1978). Thus, on a general level, an examination of affective characteristics in LD children should indicate to what extent their school failure is associated with the development of negative school-related attitudes, perceptions, and expectations. Such a description should provide a basis upon which affective factors may be incorporated into present cognitive remedial strategies in order to enhance learning in these children. Further, including a cross-grade-level dimension in the study should help in identifying crucial periods during which affective development takes place, and in turn, where affective remedial intervention may be most beneficial. Because descriptive data of this nature are lacking on these

children, the present study promises to provide a unique indication of affective development in students who have learning disabilities.

At a more specific level, little research on academic self-concept in LD children has been reported. Yet, numerous studies indicate that lower self-perceptions of ability tend to arise from histories of school failure. In addition, some studies (e.g., Kifer, 1975) have found that academic self-concept tends to be more negative in older low achieving students, presumably because their accumulated failure is greater. Other studies (e.g., Brookover, LaPere, Hamachek, Thomas & Erickson, 1965; Brookover, Erickson & Joiner, 1967) suggest that negative academic self-perceptions set limits on levels of achievement by reducing motivation and task persistence.

Academic locus of control is also seen as a factor which can restrict achievement levels, but once again, little research has been reported with LD children. This variable reflects the manner in which individuals perceive the relationship between their academic behaviors and performance outcomes (Phares, 1976). Internal locus of control is associated with the perception of events, whether negative or positive, as being a consequence of one's own actions and thereby potentially under personal control. External locus of control, on the other hand, refers to the perception of negative or positive events as being unrelated to self behavior, and accordingly beyond personal control

(Lefcourt, 1976). Phares (1976) concludes that the development of an external locus of control inhibits the growth of appropriate expectations, and in turn inhibits the growth of realistic achieving behaviors. In terms of learning disabilities, the question then is whether or not the relatively consistent failure experiences that characterize the learning history of LD children are associated with the development of an external orientation in their locus of control.

In that self, parental, and teacher expectations with LD children have yet to be extensively studied, these variables should also be investigated, especially since numerous studies have indicated that negative expectations are predictive of low levels of achievement (Brophy & Good, 1974; Dusek, 1975; Entwistle & Hayduk, 1978). In terms of self-expectations, a number of studies indicate that prior success generally leads to increased expectations of subsequent success, while prior failure leads to lowered expectations of future success (Jones, 1977). Jones suggests that over time, expectations regarding performance outcomes become dispositional traits which influence motivation. Thus, for LD children it seems important to observe whether or not their expectations of success in school learning will be lower than for normally achieving children.

As far as adult expectations are concerned, research with teachers suggests that expectations tend to influence childrens' achievement levels through differential

interaction patterns. In line with this, teachers, and presumably parents, tend to interact with children in ways which are consistent with their anticipated performance outcomes. For high expectation students, these interactions are usually more positive and supportive, while for low expectation students, they are often negative and rejecting (Brophy & Good, 1974). Given these effects of expectations held by significant others on the achievement levels of children, it will be of interest to find whether parents (specifically mothers) and teachers hold lower expectations of future academic achievement for LD children.

Finally, parental perceptions and interactions are seen as crucial elements in both school-related affective and cognitive development (Brookover et al., 1965, 1967; Coopersmith, 1967; Hamachek, 1978; Khan & Weiss, 1973). Indeed, most attempts at understanding behavioral disorders and learning problems acknowledge the developmental significance of experiences in the home (Hilliard & Roth, 1969). Therefore, it seems reasonable that the relationship between learning disabilities and parent-child interactions should be investigated. More specifically, there is a need for research directed to mother-child relationships, since the most intensive parent-child interaction during the crucial early developmental stages takes place with mothers. Studies have suggested that children who underachieve in school or have problems in learning, tend to have parents who provide a more negative and less supporting home

environment (e.g., Milliard & Roth, 1969; Love, 1970; Owen, Adams, Forrest, Stots & Fisher, 1970). Although the learning disabilities field is noted for the extent of active parent involvement, especially in terms of political and professional pressure, very little research has focussed on parental aspects of learning disabilities. An investigation of maternal reaction patterns should indicate whether similar negative interactions are found with LD subjects as with other problem-learning groups, and by inference, whether this pattern contributes to the maintenance of negative affect, and in turn poor school performance in LD children. In addition, mothers' perceptions of their child's school-related feelings and attitudes will be considered. These perceptions should indicate to what extent mothers of LD children are sensitive to and aware of their children's academic perceptions (self-concepts). Inaccurate maternal perceptions may lead to inappropriate mother-child reactions, whereas accurate perceptions, in the presence of negative reaction patterns may suggest an inability on the part of mothers to cope adequately with the learning problems of their children.

To summarize, the relationship between affective variables and school achievement has been well established, yet research on the affective characteristics of LD children is lacking. In view of this situation, the purpose of the present research was to study elementary LD and normally achieving children in terms of four salient affective

variables: 1) self-concept--general and academic; 2) academic locus of control; 3) expectations of self, mothers and teachers, and 4) mothers' perceptions and reactions. The investigation should provide a unique and ecologically valid contribution to present knowledge regarding affective development in learning disabled children. Such knowledge, in turn, should offer a basis upon which affective remedial strategies may be developed for complementing current cognitive remedial procedures. Further, by including a developmental (grade-level) dimension in the study, inferences may be drawn regarding crucial periods for affective intervention.

## CHAPTER II

### REVIEW OF LITERATURE AND RESEARCH

In line with the concerns of the present study as previously outlined, the review of literature will deal with the following topics. First of all, the nature and characteristics of learning disabilities will be briefly discussed. Attention will also be drawn to the relatively small amount of research on affective dimensions in LD children, and to the need for descriptive data on these variables in order to facilitate the development of remedial strategies. Then the general role and importance of affective variables in school learning will be considered. The major affective dimensions of interest in the present study, namely, self-concept, locus of control, expectations, and parental interactions and perceptions, will be introduced and discussed in turn. In each case, theoretical notions regarding the variable, along with previous research relevant to the problem of this study will be considered. By way of concluding, an integration of the relationship between these affective variables and learning disabilities will be proposed.

#### Learning Disabilities

The learning disabilities area is marked by considerable confusion and disagreement over definition, symptomology, etiology, and diagnosis (Chapman, Boersma & Janzen, 1978). Such controversy is reflected in the fact

that learning disabled children have been variously described as educationally retarded, autistic, dyslexic, perceptually handicapped, hyperactive, minimally brain damaged, neurologically disorganized, and emotionally disturbed. With this diverse range of classifications it is hardly surprising that the LD label has become an umbrella term for a large number of learning and behavior problems. Indeed, Clements (1966), following his review of the literature on children with minimal brain dysfunction (the medical synonym for learning disabilities), listed 99 learning and behavior problems considered to be indicative of minimal brain dysfunction. Similarly, the incidence of learning disabilities in different school populations varies considerably, depending on the theoretical perspectives of diagnosticians working in school systems. For example, Lerner (1970) noted that in the United States the number of LD children is reported to be anywhere from 1% to 30% of the school population, while in Canada, approximately 10% of school children are believed to have a learning disability (Commission on Emotional and Learning Disorders in Children, 1970).

The inability to establish commonality with respect to the crucial dimensions of definition, etiology, symptomatology, and diagnosis has left the LD field with only one indisputable truth: there are children in regular classrooms who, despite their physical, intellectual, cultural, and social "normalcy", have difficulty in some



aspects of school learning (Chalfant & King, 1976; Chapman, Boersma & Jansen, 1978). To this singular point of agreement may be added the assumption made by virtually all writers, researchers and practitioners concerned with learning disabilities--that the problems can be remedied (Shepherd, 1976). In terms of the present study, these two statements of consensus are fully accepted. The point of departure, however, arises with respect to variables which may interfere with the remediation process. Of particular interest is the relationship between personality factors and learning disabilities. It is argued here that irrespective of etiology and symptomology, if LD children experience more negative school-related affect in association with their learning problems, then remedial procedures designed to improve the intellectual achievement of these children will likely be hindered.

While numerous physiological and cognitive dimensions of learning disabilities have received considerable attention (Haring & Bateson, 1977; Lerner, 1976), relatively few investigations dealing with affective variables and learning disabilities have been reported. Yet there appears to be some indication in the literature that in addition to being characterized by their difficulty in school learning, LD children are frequently noted for their development of negative affect (Charley, 1974). Peterson (1963), for example, concluded that children with learning disorders tend to show extreme deficits in "ego strength" and

self-concept. Similarly, Giffin (1968) stated that to the extent that LD children have poor perceptual or other organic problems, by definition these children have "ego deficits". Giffin pessimistically maintains that, while training, experience, and activation may partially compensate for the defect, the basic ego deficiency will likely never be overcome.

Numerous writers see secondary emotional reactions arising from the failure experiences which are part of the LD experience. Thus, Clements (1968) states that LD children's repeated experiences of frustration, failure, and "nonachievement," in conjunction with demands from school and home, produce the secondary emotional overlay which further complicates total adjustment. Clements also claims that some of the more irritating learning disability symptoms, such as hyperactivity, tend to alleviate as the child matures into adulthood. Damage to the child's self-concept, however, may remain indefinitely.

Rosewell and Macher (1964) also argue that personality maladjustment in children with reading disabilities is prevalent. They maintain that years of despair, discouragement, frustration, rejection, and failure have negative psychological effects. The poor reader is frequently held in low esteem by teachers and peers, as well as by family members. They conclude that all individuals with reading disorders will inevitably show some signs of emotional disturbance. Alderson (1963, in Charley, 1974)

portrays a similar view when he suggests that perceptually handicapped children have confused self-images, and that lack of confidence and feelings of inadequacy may become pervasive. Alderson believes that children sense the disappointment of adults in their poor performance, and that when unable to meet the aspirations of others, such youngsters conclude that they are different in non-acceptable ways, thereby laying the basis for secondary emotional disturbances. In line with this, both Frostig (1963) and Szob (1972) suggest that poor and inadequate school performance, especially in reading, will lead to feelings of inferiority that will interfere with the total personality functioning.

Other writers who address themselves to affective considerations in LD children include Mirt (1970) and Sever (1970). Mirt states that the LD child is primarily characterized by three major deficiencies: 1) inadequate impulse control; 2) poor integration (perceptual and conceptual); and, 3) a defective self-concept. He maintains that the experience of failure gives rise to the defective self-concept. Similarly, Sever (1970) views the negative effect upon the LD child's self-concept resulting from the total failure experience as the only common element which runs through the various contributing physical, psychological, social, and emotional factors in learning disabilities.

Finally, Griffiths (1970), in reviewing the

characteristics of 32 children treated in a psychoeducational clinic, noted a considerable variability in their problems and characteristics. One major similarity, however, was considered to be their "marginal" or low self-concepts. They appeared to have a "pervading sense of discouragement" about the chances of success in a world where such skills as reading and math were so much emphasized.

It is clear then, at both a logical and empirical level, that a number of affective dimensions (such as self-concept) appear to be of considerable importance when considering LD children. Yet, few of these impressions are based on empirical evidence. Instead, most writings to date on the affective state of LD children are based on clinical impressions and theoretical conjecture. Consequently, the present study represents an attempt to describe some of the more salient affective variables as they relate to children of normal ability who have been classified as learning disabled by their school system. Such a description should provide a basis from which inferences regarding the role of affective factors in remediation can be drawn.

#### Affective Characteristics and Education

In presenting his model for school learning, Bloom (1976) identifies three major input components which influence performance on a specific learning task. These "inputs" include "cognitive entry behaviors," "affective

entry characteristics," and "quality of instruction." Bloom asserts that the manipulation of these three components, either together or individually, can serve to reduce a large amount of the individual differences which usually lead to variation in achievement.

In dealing with the affective entry characteristics, Bloom argues that these variables form a crucial component in learning and achievement: they help to determine "the extent to which the learner will put forth the necessary effort to learn a specific learning task" (1976, p. 104). Obviously, the degree of effort invested in learning situations varies from individual to individual, as expressed in different interests, attitudes, and self-views.

The development of these affective characteristics takes place early in childhood as a result of formal learning, everyday experiences, and interactions with others (Khan & Weiss, 1973). Parents, siblings, peers, and other persons and situations with whom the child comes into frequent contact form the major source of the origin and development of affective behavior (Khan & Weiss, 1973). In terms of school-related affective behavior, White (1959, 1960) maintains that the student's personality dimensions are in part the result of histories of successful and unsuccessful academic achievement. Kifer (1975) expands this notion by suggesting that during the early school years, students begin to distinguish themselves from their peer groups as they learn what capabilities they possess and how

these are different from their peers. As patterns of successful and unsuccessful accomplishments emerge, and as feedback is provided in accordance with these patterns, students begin to accept views about themselves and their abilities. Concomitantly, as these patterns of success and failure become histories of success and failure, there is a profound impact on the individual's developing personality characteristics (Kifer, 1975). Students who are generally successful develop positive affective characteristics, while those who usually experience failure do not (Bloom, 1976; Covington & Beery, 1976; Kifer, 1975). In turn, these affective outcomes of learning become the affective entry characteristics in new learning tasks, and eventually, the student's prophecy (and that of significant others) for the next task, based on previous successes or failures, becomes fulfilled (Bloom, 1976; Brophy & Good, 1974; Jones, 1977).

While the influence of affective behavior can be seen in a number of facets of human behavior which include attitudes, interests, motivation, anxiety, appreciation, and adjustment (Khan & Weiss, 1973), numerous writers have attempted to operationalize crucial and specific school-related affective variables. Four of the more fruitful factors are self-concept and self-perception of ability (Bloom, 1976; Hamachek, 1978), locus of control (Gilmer, 1978; Lefcourt, 1976; Phares, 1976), expectations of self and others (Brophy & Good, 1974; Entwistle & Hayduk, 1978), and adult-child interactions and perceptions with

respect to school-related behaviors (Christopher, 1967; Walters & Stinnett, 1971). As indicated previously, the intent in this study was to examine the relationship between these affective variables and school achievement in learning disabled children. Attention is now directed toward a discussion of each of these major variables.

### Self-Concept

Because comprehensive treatments of self-concept theory are available elsewhere (e.g., Collier, 1971; Diggory, 1966; Gergen, 1971; Hamachek, 1978, La Benne & Greene, 1969; Purkey, 1970; Wells & Marwell, 1976; Wylie, 1974), only a brief overview of the theoretical literature is presented here.

Current conceptions of the self have emanated largely from the works of the early psychologists (e.g., William James), the interactionists (e.g., Cooley and Mead), and the psychoanalysts (e.g., Rogers, Snygg, and Combs). All these schools of thought have been important in ascribing some degree of significance to the self as a crucial factor in understanding human behavior.

Despite attempts by these and other writers, however, to make the self the central part in a theoretical system which endeavours to account for personality and behavior, Wylie (1961) notes that phenomenological theories have yet to establish fruitful behavior categories which hold conceptual meaning in terms of the self. In fact, Wylie

states that personality theories which emphasize concepts concerning the self "have been stretched to cover so many inferred cognitive and motivational processes that the utility for analytic and predictive purposes has been greatly diminished" (1961, p. 317). Similarly, Bandura (1978) asserts that a global view of self-concept "cannot possibly" explain the wide variations typically shown in self-reactions under different situational circumstances, on different activities, at different times. Under these circumstances the options, according to Wylie, are to either abandon self constructs and hypotheses as "scientifically sterile," or to improve them by dealing with more "molecular" constructs (1961, p. 318).

In response to Wylie's criticism and suggestions, Shavelson, Hubner and Stanton (1976) propose a multifaceted model of self-concept which contains two major areas: academic self-concept and non-academic self-concept. Academic self-concept is in turn divided into subject-matter areas and then into specific areas within a subject. Concomitantly, nonacademic self-concept is divided into social and physical self-concepts, and then divided again into more specific facets. As Shavelson et al. point out, this model of the self-concept implies that the closer to the base of the hierarchy, the more situation-specific becomes each facet of the self-concept. In line with this, they argue that the more closely self-concept is linked with specific situations, the closer is the relationship between



self-concept and behavior in the specific situation. Thus, self-concept of mental ability should be more closely related to academic achievement than to ability in social and physical situations. Similarly, self-concept of ability in mathematics, should be more closely related to achievement in mathematics than to achievement in English or overall grade-point average.

To some extent, Shavelson, Hubner and Stanton's multifaceted model of self-concept was pre-empted by Brookover et al. (1965, 1967) in their extensive longitudinal studies of academic self-concept. Brookover argued that self-concept of academic ability is the part of self-concept most closely linked to achievement in school, and therefore is more influential in terms of achievement outcomes. It is academic self-concept, or self-perception of ability, that is of interest in this study.

### Self-Perception of Academic Ability

Brookover and his associates believe that "self-concept of ability" refers to the "evaluative definitions an individual holds of his ability to achieve in academic tasks as compared with others in his school class" (Brookover et al., 1967, p. 139). These evaluative definitions are formed as a result of individuals' perceptions of the judgement of significant others regarding their ability, along with their own self-perceptions of ability. Feedback on performance in school tasks from teachers, peers and parents provides the

main avenue for the expression of such judgements and accordingly plays a crucial role in defining for each individual their self-perception of ability. An additional component in this self-definition of ability involves the individual's personal evaluation of ability, developed over time as a function of negative and positive school experiences (Wells & Harvell, 1976).

Similarly, Bloom sees academic self-concept developing as a function of feedback provided by teachers, other students, and parents, regarding the individual's level of achievement. As students progress from task to task, some public judgement is usually made by the teacher and by the students themselves. At various stages in a series of learning tasks, marks and grades are assigned and made public--at least to parents. Bloom contends that the intermittently reported marks are likely to have a greater effect on the student than the more private day-to-day judgements, while grades assigned at the end of the term or year are likely to have an even greater effect than marks given at various times throughout the term. As performance-related perceptions accumulate, a consistent pattern of achievement and self-perception is established. If performances have been satisfactory, future tasks are approached with confidence. If performances have been inadequate, then students develop a belief in their inadequacy with respect to the particular type of learning. Future tasks are likely to be approached with reluctance,

dislike, or even avoidance.

Where the student is convinced of his inadequacy, he finds no great energy to accomplish the next task, has little patience or perseverance when he encounters difficulties, and takes little care and thoroughness in accomplishing the task. (Bloos, 1977, pp. 194-195)

In line with Bloos's approach to the educational implications of academic self-concept, Brookover views self-perceptions of academic ability as a functionally limiting factor in school success. Thus, if children perceive that they are unable to learn a subject, their self-perceptions of ability in that subject become the functionally limiting factor of achievement. Brookover notes that "functional limit" is the term used

to emphasize that we are speaking not of genetic organic limits on learning, but rather of those perceptions of what is appropriate, desirable, and possible for the individual to learn. We postulate the latter as the limits that actually operate within broader organic limits, in determining the nature or extent of the particular behavior learned. (Brookover & Gottlieb, 1964, p. 469)

Thus, the amount of effort invested in future tasks will depend on the degree to which individuals perceive they are capable of meeting task requirements, and the degree to which they can satisfy the expectations of significant others. To this extent, individuals' own expectations of their self-perceptions of future performances are directly related to achievement, and so functionally limit school achievement.

To summarize, Brookover et al. view self-perception of

academic ability as a crucial variable which serves to limit the extent to which academic achievement can vary on the basis of self-definition of ability. This self-definition develops over a series of learning experiences as the student receives many judgements of performance and capability from significant others. In response to the feedback provided by others, individuals evolve a sense of academic self-worth which in future academic tasks helps determine the degree of enthusiasm and motivation that is invested in those tasks. Consequently, school achievement is influenced by the cognitive abilities that the student possesses, and by the student's perceptions of those abilities. Empirical studies generally support this view, as the following review indicates

#### Self-Perception of Ability and School Achievement

Most research reported on the relationship between the self and school achievement has employed instruments which assess various aspects of general self-concept, rather than academic self-concept. Such studies tend to show that children's global feelings and attitudes about themselves are related to numerous measures of learning and school performance (e.g., Aspey & Buhler, 1975; Prendergast & Binder, 1975; Campbell, 1967; Caplin, 1969; Cobb, Chisom & Davis, 1975; Coopersmith, 1967; Ligon, Heston, Baenen & Matuszek, 1977; Rubin, Dorle & Sandidge, 1977; Piers & Harris, 1964; Purkey, 1970). The range of these

relationships is wide, however, most cluster around .30. In addition, several authors have reported that underachievers and students who frequently fail in school, tend to have lower general self-concepts (e.g., Bloom, 1976; La Beune & Greene, 1969; Primavera, Simon & Primavera, 1975; Purkey, 1970; Williams & Cole, 1968). Findings such as those cited above, have led Purkey (1970) to conclude that "over all, the research evidence shows a persistent and significant relationship between the self-concept and academic achievement" (p. 15).

Several researchers, however, have failed to find a relationship between measures of general self-concept and school achievement (e.g., Badwal, 1969; Buzalora, 1973; Chang, 1976; Cobb, Chisson & Davis, 1975; Iglitzky & Wiant, 1971; Williams, 1973). Indeed, Bettschen, Winne and Wideen (1977) conclude that these ambiguous and contradictory results render the overall findings inconclusive. Wylie (1974) believes that this inconclusive state of empirical research, so typical of self-concept studies, is hardly surprising in view of the broad areas of self-concept tapped by most instruments. Brookover et al. (1967) go so far as to argue that if the academic dimension in self-concept instruments was controlled, then the usual small but significant correlation with achievement would probably drop to zero.

The main impetus for studies on academic self-concept was derived from the extensive research conducted by

Brookover and his associates. Their initial investigation (Brookover et al., 1964) involved over 1,000 seventh grade students, along with a subsample of 110 over- and underachievers. Using the Self-Concept of Ability Scale, developed especially for the studies, Brookover et al. (1965) found that academic self-concept correlated positively and significantly with grade point average ( $r = .57$ ), and that this relationship remained substantial even when IQ scores were controlled. In addition, Brookover et al. found that students who reported low self-concepts of ability rarely performed at above average levels.

In a second study, Brookover et al. (1965) focussed on ways of enhancing academic self-concept as a means to improving school achievement. When parents' expectations for and evaluations of their children's academic performance were raised, significant increases in academic self-concept occurred. Moreover, these increases were accompanied by improved levels of achievement in school. Attempts at improving academic self-perceptions and, concomitantly, school achievement, through alternative significant others (i.e., school counsellors and "experts" on study techniques) proved less fruitful. Thus, Brookover concluded that academic self-concept can be influenced by the perceptions and evaluations of others, particularly parents, and that positive changes in academic self-perceptions can lead to improved school performance.

Brookover's third study (Brookover et al., 1967) dealt

with a longitudinal investigation of academic self-concept and performance in school. Here, it was found that self-concept of ability is a significant factor in achievement for both boys and girls in Grades 7 to 12.

Further, the changes in academic self-concept brought about by improved parental perceptions were significantly related to changes in grade point average over a two-year period.

Considering the findings from the numerous studies, Brookover et al. (1965, 1967) concluded that a positive academic self-concept is necessary for at least average school performance, but that it is not a sufficient factor in itself in determining scholastic success. Because of this necessary condition, they suggest that for most students, "self-concept of ability is a functionally limiting factor in their achievement" (Brookover et al., 1965, p. 202). In addition, Brookover et al. asserted that their results supported the view that self-concept intervenes between the perceived evaluations of others, and performance in school.

Several studies on academic self-concept followed those initiated by the Brookover group, with most using Brookover's Self-Concept of Ability Scale. Haarer (1965), for example, examined the relationship between self-concept of ability and classroom achievement among ninth-grade delinquent and non-delinquent boys. He found that academic self-concept was significantly related to achievement for both groups when the effect of IQ was controlled. In addition, Haarer also observed that the expectations of

significant differences perceived by both groups, were positively related to academic self-concept and to achievement levels.

Further support for the notion that academic self-concept and achievement in school are related was provided by Kifer (1975). He found that scores on Brookover's Self-Perception of Ability Scale strengthened their relationship with teacher marks, as a function of increasing grade level. Thus, Kifer found coefficients at the fifth-grade level of .23 (girls) and .20 (boys), while at the seventh-grade they had risen to .42 (girls) and .73 (boys). In another aspect of his research, Kifer examined differences in academic self-concept between high and low achieving students. He selected subjects from Grades 2, 4, 6, and 8 who had been in either the top or bottom 20% of their class (on the basis of teacher grades) during each year of school attendance. Kifer found that only slight differences occurred in academic self-concept between the successful and unsuccessful students at the Grade 2 level. Greater differences were observed in Grade 4, increasing significantly through to Grade 8. Thus, in Kifer's study, unsuccessful students generally indicated lower self-perceptions of ability than successful students, and these perceptions became increasingly lower over grade levels.

Other studies on academic self-concept have produced more ambiguous findings, possibly because of the different



instruments used. Most of these studies have employed the "academic" subscales of more general self-concept instruments, and have yielded relationships between school achievement and "academic" self-concept ranging from non-significant (e.g., Marx & Winne, 1975; Marx & Winne, 1978), to highly significant (e.g., Caplin, 1969). Clearly, the type of instrument used in academic self-concept research has a considerable bearing on the results obtained. Indeed, Marx & Winne (1978) reported that scores on the academic subscales of three commonly used measures of general self-concept failed to discriminate significantly from scores on other subscales, such as physical self-concept and social self-concept, when compared with school achievement.

Overall, however, the above studies indicate that academic self-concept has a significant and positive relationship to school achievement, with higher achievers generally indicating more positive self-perceptions of ability than low achievers. These results have been especially strong where Brookover's Self-Perception of Ability Scale has been used.

For LD children the same findings should hold true. An extensive review of the literature indicates a relative absence of studies which have investigated academic self-concept in LD children, while only a few have been reported which deal with general self-concept.

One reason for the absence of studies on academic

self-concept appears to arise from inadequate or non-existent instrumentation. The scales which have been used were developed for use with secondary school children, and/or have received the same inadequate psychometric development that Wylie (1974) regards as characteristic of most self-concept instruments. The recent development of the Student's Perception of Ability Scale (SPAS) by Boersma and Chapman (1977), however, offers a promising instrument for assessing academic self-perceptions in elementary school children. Moreover, in one of the few studies reported on academic self-concept in LD children, the SPAS's ability to distinguish between LD and normally achieving students has been well demonstrated. Recently, Boersma and Chapman (1978a) reported highly significant differences in academic self-concept between 70 LD and 73 normally achieving Grade 3 children stratified on WISC-R IQ scores. Apart from that study, however, there appear to have been few if any studies dealing specifically with academic self-concept in LD children.

In terms of general self-concept, the findings are less clear. Black (1974) found that third-grade reading disabled children had significantly lower general self-concepts than non-reading disabled children matched on age, IQ, and sex. Similarly, Smith & Rogers (1978) also reported differences in general self-concept between LD children and non-LD children. On the other hand, Chapman, Boersma and Maguire (1977) failed to find differences in general self-concept

for Grade 3 LD and normally achieving children.

On the basis of these findings, and extrapolating from the results of the studies cited above, it was predicted in the present study that LD students will have more negative self-perceptions of ability than normally achieving students. Further, in view of Kifer's (1975) findings on developmental trends in academic self-concept, it was predicted that the differences in self-perceptions of ability between LD and normally achieving students will become greater as a function of increasing grade level. On the other hand, it was anticipated that LD children would not be significantly different in their general self-concepts than normally achieving children. It seems reasonable to expect that failure in school learning will not necessarily affect one's overall self-esteem, especially where children are able to gain rewards for achievement in other activities (e.g., sport, music, hobbies).

#### Academic Locus of Control

The second main variable to be considered in this study is academic locus of control. The locus of control construct (Rotter, 1954, 1966) refers to individually perceived sources of control with respect to certain behaviors or events. Internal locus of control is associated with the perception of events, whether negative or positive, as being a consequence of one's own actions and thereby potentially under personal control (Lefcourt, 1976). External locus of

control, on the other hand, refers to the perception of negative or positive events as being unrelated to self behavior, and accordingly beyond personal control (Lefcourt, 1976).

A link between locus of control and learning would seem logical, given that school achievement requires a degree of effort and persistence in academic tasks, and that such behaviors are unlikely to occur if students see little relationship between efforts in learning and task outcomes. Support for this idea is found in numerous studies. Kifer (1975), for example, reported that Intellectual Achievement Responsibility Questionnaire (IAR: Crandall, Katkovsky, & Crandall, 1965) scores strongly differentiated between successful and unsuccessful students in Grades 2, 4, 6, and 8. In addition, and in keeping with other findings (Phares, 1976; Moursund, 1976), Kifer found a trend towards greater internality in successful students as a function of increasing age, while the unsuccessful students showed a consistent and relatively external orientation across grade levels. Thus, whereas successful students followed the frequently observed developmental pattern toward increasing internality, this trend appeared to be arrested in those children experiencing failure.

Other studies have noted similar relationships between locus of control and achievement. Crandall and his colleagues (Crandall et al., 1965), for example, found that IAR scores among children in Grades 3 to 5 were

significantly related to reading, math, language, and total Iowa Test of Basic Skills achievement test scores. Report card grades for this sample also correlated positively with IAR scores.

In line with these findings, McGhee & Crandall (1968) found that students with high internal scores on the IAR achieved higher school grades than students with low IAR scores (external orientation). Results consistent with those found by McGhee and Crandall were reported by Messer (1972), working with Grade 4 children. He found that internally oriented subjects achieved higher school grades than those with an external orientation. In addition, Messer noted that the IAR was a better predictor of school grades than were standardized measures of school achievement.

Chance (1965) also reported relationships between IAR scores and several achievement indices, such as reading skills, arithmetic performance, and spelling. Similarly, numerous other studies have demonstrated and replicated the relationship between academic locus of control and achievement outcomes, such as grades and standardized test scores (e.g., Buck & Austrin, 1970; Solomon, Houlikan, Busse, & Parelus, 1971).

Overall, the research on academic locus of control, as measured by what is probably the most frequently used instrument in this area--the IAR, points to a consistent relationship between an internal orientation and higher achievement on the one hand, and an external orientation and

lower achievement on the other. Indeed, the importance of beliefs in personal control over academic rewards and achievement was given considerable prominence in the Coleman Report on the education of "disadvantaged children" in the United States (Coleman, Campbell, Hobson, McPartland, Hood, Weinfield & York, 1966). Coleman et al. found that the extent to which an individual believes he has some control over his own "destiny" is a better predictor of achievement than all other "school" factors considered together.

Such findings hold important implications for LD children. If, as the research suggests, failure-prone students do not see a predominant relationship between their efforts in learning and task outcomes, then it is likely that motivation on subsequent tasks will diminish, thereby lessening chances for future success. Accordingly, it seems important that perceptions of control in LD children be investigated so that intervention strategies aimed at developing internally perceived control orientations may be devised.

To date, few studies have been reported on perceived control in LD children. One such study (Hisama, 1976) found no significant difference in locus of control scores between LD and normally achieving students in Grades 3 and 4. On the other hand, Finchman and Barling (1978) found that a group of 12 LD boys aged nine and ten years indicated external control orientations when compared with similar numbers of normal and gifted achievers. These contradictory findings,

however, were based on two different general measures of locus of control in which perceived control over a broad range of behaviors and events was tapped. Because locus of control appears to be a multifaceted construct which does not operate uniformly over a wide range of motivational situations (Crandall et al., 1965), the present study investigated perceived control specifically in achievement situations.

On the basis of studies reviewed above, then, it seems reasonable to expect that LD students will indicate more external control orientations than normally achieving students. This prediction seems especially likely in the case of perceived control over successful experiences. If, as a function of persistent failure experiences, LD students believe that they have poor academic abilities, then it is likely that they will view successful outcomes as being unexpected and beyond their control. Therefore, what successes do occur for these children will be viewed by them as resulting largely from an uncharacteristically easy task, or from the momentary kindness of the teacher, or from just "good luck." On the other hand, to perceive that failure outcomes are a function of one's lack of ability would be consistent with lower levels of academic self-concept.

Few, if any studies have considered the differences in sources of perceived control in terms of being different as a function of explaining success or failure outcomes. Thus, in the present study, it was predicted that LD students

would indicate more external control orientations than normally achieving children when explaining success outcomes, but that their control orientations for failures would not necessarily be different. Further, given the developmental trends noted in the research which indicate a tendency toward greater internality as a function of increasing age, along with Kifer's (1975) finding that this internal trend was arrested in underachieving children, it is anticipated that locus of control differences for successful events between LD and normally achieving children will increase over grade level.

### Expectations

Closely related to the perceptions that individuals hold of their ability are the expectations of self and significant others regarding future school performance. These expectations refer to the evaluative anticipations that individuals form of themselves or of others with respect to behavior which is most likely to occur, given the individual and the circumstances (Finn, 1972). In the school context, expectations reflect the degree to which individuals predict their own or others' abilities and performance levels. These expectations have been demonstrated by numerous researchers to relate closely to school achievement, and are therefore believed to be an important affective dimension involved in the failure patterns of children who experience problems in learning



(e.g., Braun, 1976; Brophy & Good, 1974; Entwistle & Hayduk, 1978).

Of particular interest in this study are the expectations of self and significant others as they relate to school achievement in LD children. "Significant others", in this case, refer to teachers and parents--the people whose expectations appear to have the greatest influence on young children (Entwistle & Hayduk, 1978).

### **Self-Expectations**

Rotter (1954) asserts that "the occurrence of a behavior of a person is determined not only by the nature or importance of goals or reinforcements but also by the person's anticipation or expectancy that these goals will occur" (p. 102). Thus, according to Rotter, behavior is a function of the expectation that a goal will be attained and that reinforcement will follow. The nature of a particular expectation will depend on previous experiences. Successful past experiences with a given behavior usually lead an individual to expect that it will work in the future, while past failure normally decreases an individual's expectation that the behavior will achieve a specified goal. Self-expectations for the outcome of behavior therefore are learned, and depend largely on people's perceptions of their relevant abilities, as these are synthesized from feedback obtained with respect to past successes and failures.

While a considerable amount of research has been

reported on the role of teachers' expectations in school learning, relatively few studies have focussed on self-expectations, especially in elementary school children (Entwisle & Hayduk, 1978). Virtually no studies have examined self-expectations in special education populations, such as groups of learning disabled children. A noteworthy attempt to meet the need for more research in this area, however, has been recently reported by Entwisle and Hayduk (1978).

These researchers investigated changing expectations of report card grades in children, teachers, and parents from two schools during the students' first two years in school. It was found that children's predictions of the mid-year Grade 1 report card grades for reading, arithmetic and conduct were significantly higher than actual grades in all cases. Anticipation of end-of-year-grade marks improved, however, to the extent that 55% of the children accurately predicted reading grades, while 48% correctly predicted arithmetic marks. Following up these children, Entwisle and Hayduk found that at the end of Grade 2, close to 60% of the students correctly predicted marks in reading and arithmetic.

In dealing with the formation and development of school-related expectations, Entwisle and Hayduk interpret the findings of high initial expectations in all children as indicating that upon entry into school, children have little notion of what to expect in terms of their performance

levels. With school entrance, however, the child is subject to a systematic process of social comparison in which individual performance is evaluated largely in terms of peer performance. Consequently, while all children in their study indicated too high initial expectations, most children brought achievement predictions more into line with actual performance by the end of Grade 2. Entwistle and Hayduk ascribe this gradual improvement in agreement between expectations and report grades to a "feedback process," whereby students modify their expectations on the basis of information given by teachers, peers, and parents regarding their levels of abilities.

Further evidence on the formation of self-expectations in young children is presented by Parsons and Ruble (1977). They found that the relationship between past experience and expectations varied as a function of age. Preschool children failed to use the feedback on task outcome in forming their expectations of future performance. Parsons and Ruble suggest that this may be indicative of an inability to see the relevance of past outcomes for future performance. Of further interest is Parsons and Ruble's finding that expectations declined with age. Older children (aged 9 1/2 to 11 years) appeared to be more sensitive to failure and to be less responsive in raising their expectations following success than younger children (aged 3 1/2 to 5 years). Furthermore, they lowered their estimates of their ability more, and reported feeling worse following failure

experiences than did hunger children.

Peng (1974) also noted more negative self-expectations in older students. In an investigation of self-expectations of performance in 840 children at the Grades 4, 5, and 6 levels, he found that expectations were significantly related to standardized achievement scores at all levels. Despite consistency of achievement however, older children reported more negative self-expectations. Peng speculates that the negative relationship of grade level to expectations may be a function of unfavorable school experiences accumulated over the years.

In line with this suggestion, Covington and Beery (1976) suggest that students are forced to reassess their expectations in accordance with the limited provision for success that accompanies the competitive grading practices adopted in most school systems. For Covington and Beery, the usual trend toward more negative self-expectations results not so much from decreases in actual ability, but from the increasing tendency to define expectations in terms of their performance relative to others.

As far as learning disabled students and self-expectations are concerned, little research has been conducted. One study of relevance, however, is that recently reported by Boersma and Chapman (1978a). Using their Projected Academic Performance Scale (Chapman & Boersma, 1978), it was found that Grade 3 LD children indicated significantly lower overall expectations of future school

achievement than normally achieving children of similar IQ. The failure experiences which typify learning disabilities appear to have been reflected in the LD students' predictions of how well they expected to achieve in the future. Thus, Entwistle and Hayduk's (1978) contention that academic expectations are based on feedback from previous learning received some support in the Boersma and Chapman study.

Adelman's (1969) findings are also of interest. He matched a group of 32 male underachievers with a similar number of normal achievers on the basis of age, grade, IQ, and socio-economic status. The 64 subjects were drawn from Grades 3 to 7, and had IQ's in the range of 100 to 116. Adelman found that on a number of novel, ambiguous matching tasks, underachievers reported significantly lower estimates regarding their ability to complete the task correctly than the normal achievers.

Overall, there seems little doubt that self-expectations are an important dimension in school learning. Numerous studies have demonstrated that students develop their academic expectations on the basis of feedback given them with respect to their performance. In addition, it is apparent that self-expectations become more conservative and negative with increasing age, and as the availability of success in school becomes more restricted.

Although naturalistic studies are lacking on the effects of self-expectations on school learning, it seems

reasonable to hypothesize that a cycle of reciprocal causation is developed during the early elementary years between self-expectations and academic achievement. Thus, it appears that initial performance levels lead to the development of a set of expectations regarding future performance (Latvise & Mayduk, 1978), which in turn influence the degree of confidence and motivation that the individual brings to each subsequent task (Covington & Beery, 1976).

The implication of such a cycle seems clear for learning disabled children. As these children experience fairly consistent failure, it seems likely that their expectations will be adjusted downward. Further failure will lead confirmation to the lowered expectations, to the point where achievement, persistence, and on-task behavior will decline because of the individual's prediction that attainment of the required goal is an unlikely event. Accordingly, it was hypothesized in the present study that LD children will report significantly more negative self-expectations of future school achievement than non-LD children, and that this difference in expectations between the two groups will increase over grade level.

### **Teacher Expectations**

As the most important "significant other" in the school life of the child (Braun, 1976), the teacher exerts a considerable amount of influence on student achievement

outcomes. This influence is not only reflected in style of teaching, but also in the teacher's manner of interacting with students. One aspect of teacher-student interactions which has received considerable attention during the last decade is the effect of teacher expectations on student achievement.

The main impetus for interest in teacher expectations was derived from the work of Rosenthal and Jacobson (1968), on the effects of experimentally inflated teacher expectations in raising "IQ" scores through a process of self-fulfilling prophecies. Rosenthal and Jacobson's research has been subject to considerable criticism in terms of methodology and interpretation of results (e.g., Elashoff & Snow, 1971; Mendelsohn & Sanders, 1973; Snow, 1969; Thorndike, 1968). Yet, despite the controversial nature of Rosenthal and Jacobson's research, and the negative results in subsequent similar studies, considerable interest in teacher expectations continues. Indeed, Braun (1976) noted that 60 studies on the topic were reported between 1973 and 1975.

The reason for this continued interest in teacher expectations probably results from the fact that many researchers, using several different approaches, have "demonstrated unequivocally that teachers' expectations can and do function as self-fulfilling prophecies" (Erophy & Good, 1974, p. 32). The crucial difference between those studies which found expectancy effects and those which did

not, lies in the source of teachers' expectations. The naturalistic studies, in which the teachers' own self-generated expectations are considered, have generally shown expectancy effects, while experimental studies involving the manipulation or inducement of teacher expectations have generally provided negative results (Brophy & Good, 1974).

Palardy (1969), for example, in studying expectancy effects generated as a function of the student's sex, asked first-grade teachers whether or not they thought boys could learn to read as well as girls. Because this question was one of many in a longer questionnaire, teachers were not aware that it provided the basis for a more detailed study. From the responses, Palardy identified five teachers who believed that boys could not read as well as girls and paired them with five others who anticipated no sex differences. Reading achievement scores for the students of the ten teachers were then obtained at the end of Grade 1. After covarying for IQ, Palardy found that scores for boys and girls in classrooms where teachers expected no differences were almost identical. In the other classrooms, however, where teachers expected girls to do better, the scores for the girls were comparable to those obtained in the "no difference" classrooms, while for the boys, they were significantly lower. Thus, boys taught beginning reading by teachers who expected them to do as well as girls actually did as well, while boys taught by teachers who did



not expect equal achievement with girls, actually failed to do as well.

In a similar type of study, Doyle, Hancock and Kifer (1972) had a group of Grade 1 teachers estimate their pupil's IQ's prior to the administration of a routine IQ test. It was found that teachers systematically overestimated the IQ's of girls and underestimated those of boys. In addition, the authors noted that those students who had been overestimated by the teachers showed higher reading achievement than their IQ would predict, while students whose IQ's had been under-estimated showed less achievement than their IQ scores would predict. Thus, when teachers had higher expectations for students they appeared to produce higher achievement whereas lower achievement seemed to result from lower expectations.

Meichenbaum, Bowers and Ross (1969) investigated teacher expectancy effects in 14 female adolescent offenders. Six of the girls were identified as potential "intellectual bloomers," and their names given to the four teachers who taught all 14 girls. The results showed that the potential bloomers scored higher on objective but not subjective tests of academic performance. The experimental group also showed greater improvements in appropriate classroom behavior than the control group. In addition, Meichenbaum et al. (1969) analysed individual variation in teachers' classroom interactions with students in the experimental and control groups. In terms of the late

bloomers, it was found that some teachers actually increased the number of positive interactions, while others decreased the number of negative interactions. Dusek (1975) maintains that Meichenbaum's study is a clear demonstration of teacher-bias effects, both in terms of students' performance and behavior, and in terms of teachers' differential behavior toward children in the experimental and control groups.

In terms of in-class responses to teachers' questions from pupils, some studies indicate that teachers tend to persist longer with high expectation than low expectation students after they have failed to answer a question (Jeter & Davis, 1973; Rowe, 1969). Brophy & Good (1970) found that this persistence often takes the form of more clue giving and repetition. Similarly, children described as gifted elicited closer attention by teachers than other students (Rubovits & Maehr, 1971).

Other studies show that students considered to be slow learners receive fewer opportunities to learn new material than students labelled as bright (Beez, 1968; Carter, 1971), and that slow students have less difficult material taught to them and less cognitive demands made on them (Cornbleth, Davis, & Button, 1972; Jeter & Davis, 1973). Expectations, therefore, also contribute to the quantity and quality of teacher instruction.

Not only do teachers appear to have different patterns of interactions with their students, depending on the

expectations they hold for their achievement, but the nature of feedback on performance also appears to vary. Of interest here are the findings that teachers tend to praise high expectation students more frequently for correct responses than lows (e.g., Meichenbaum et al., 1969; Cooper & Baron, 1977). On the other hand, teachers seem to criticize low expectation students more frequently for incorrect responses than high expectation students (e.g., Brophy & Good, 1970; Cooper & Good, 1974; Brophy & Good, 1974). Brophy & Good (1974) suggest that the fact that low expectation students receive more criticism and less praise compared to high students is an indication that their classroom experiences may be quite different.

Studies of other aspects of student-teacher interaction patterns are consistent with these findings. Teachers who thought they were interacting with bright students smiled and nodded their heads more frequently than teachers interacting with supposedly slower students (Cooper & Good, 1977).

On the basis of the various studies reported in the literature, it seems clear that teacher expectancy effects do occur, and that these effects are not merely indicative of accurate teacher predictions of students' performance levels, but that they are also reflected in differences in teacher-student interaction patterns. Teachers tend to interact more frequently and/or more positively with high expectation students, pay closer attention to their

responses, and reinforce those responses more positively and frequently. As a result, these students are likely to learn more than low expectation students who do not get this type of treatment, often because they are taught more in a warmer and more supportive interpersonal environment.

In terms of LD children, research on teacher expectations is virtually non-existent. One study, however, is of interest. Boersma and Chapman (1978a) had Grade 3 teachers rate LD and normally achieving children in terms of projected academic performance in six areas. Despite the fact that LD subjects had similar average WISC-R Full Scale IQ's as the normally achieving subjects, teachers expected these children to perform at lower levels in all subject areas--even though the LD children were classified primarily on the basis on reading problems. While the expectations expressed by teachers may be partly realistic in terms of the children's previous school performance, the expectations nevertheless seem unduly pessimistic. After all, these LD students were of "average" intellectual ability, were receiving remediation for their main learning problem, and were only in Grade 3. Yet, teachers appeared to be already "writing them off" insofar as their chances of future academic success were concerned.

On the basis of the studies reviewed above, there is convincing evidence indicating that teacher expectations differ according to performance levels and prescribed labels. Thus, it is predicted that teachers will have lower

expectations of academic achievement for LD children than for normally achieving children.

### **Parental Expectations**

Parents also play an important role in influencing the school performance of their children (Christopher, 1967, Hilliard & Roth, 1969; Walters & Stinnett, 1971). Yet, despite the considerable amount of research that has been conducted on numerous facets of parental influence on children (Bronfenbrenner, 1974; Christopher, 1967, Frankiel, 1959; Walters & Stinnett, 1971), and despite the abundant research on teacher expectations, few studies have investigated the relationship between parental expectations and children's learning. If teachers' expectations influence achievement through interaction patterns, as previously suggested, and if parental attitudes are related to children's self-attitudes and achievement, as the literature suggests (e.g., Coopersmith, 1967; Christopher, 1967; Owen et al., 1971), then it seems likely that parental expectations will also affect school performance (Brophy, 1977). Two parental expectation studies note findings of interest to the present research.

Entwistle and Hayduk (1978), predicted that parental expectations would be related to report-card grades of children during the first two years of elementary schooling, and found a tendency for this to be the case. More specifically, they found that while parental expectations

were related to subsequent achievement levels in school, especially end-of-year Grade 1 marks, these expectations tended to undergo modification as a function of the child's initial performance. While inferences regarding causation are difficult to make on the basis of Entwistle and Hayduk's data, it seems clear that a reciprocal process involving expectations and performance is operating, in which both achievement and expectations are to some extent influenced by each other. Furthermore, it appears logical that parents communicate academic expectations to their children either by direct socialization, or through the process of sharing the same home environment. It is also possible that parents with high reading expectations for their children may be the parents who provide books for them, who reinforce reading behaviors, and who otherwise indicate that success in reading is a valued goal. These same parents may communicate their expectations through direct coaching to a greater extent than those with low reading expectations.

In another study, Rosen and D'Andrade (1959) found that parents of high achievement boys tended to have higher expectations for them, and to set definite standards which they expected their sons to reach. On the other hand, parents of low achievement-oriented boys did not have high expectations, nor were they consistent in terms of standards for academic excellence. In line with these findings, Brophy (1977) concluded that high (but realistic) expectations are generally associated with higher levels of achievement than

low expectations. Brophy further states that expectations which give rise to behavioral acts that are consistent with the expectations, are more likely to become fulfilled (p. 294).

In the light of the above findings and suggestions on expectations, it seems likely that parents of LD children will bring the expectations they hold for their children more or less into line with the realities of their actual school performance. While for a number of parents such realities may be a disappointment, it would be anticipated that feedback from schools by way of teacher interviews and report cards will result in expectations being formed which are commensurate with past and current levels of performance. Support for this is found in the study reported by Boersma and Chapman (1978a). Here, mothers of Grade 3 LD children indicated considerably lower expectations for the future academic achievement of their children than mothers of normally achieving children with similar IQ's.

In the present study, it is predicted that mothers of LD children will indicate lower expectations of future academic achievement for their children than mothers of normally achieving children, and that the differences in expectations between mothers of LD and normally achieving children will become greater as a function of increasing grade level.

### **Mothers' Interactions and Perceptions**

The final variables to be investigated in this study are mothers' school-related reactions to their children's school-related behaviors, and also mothers' awareness of their children's self-perceptions of ability. Few, if any, studies have examined these factors with parents of LD children. Yet, data from such an investigation should indicate whether mothers of LD children react in a warm, supportive manner, or whether possible disappointments with their children's school performance are reflected in negative reaction patterns. In the light of these observations, it will be of further interest to know whether mother reactions are related to an accurate awareness of how their own children feel about school and perceive their abilities. An investigation of these two variables, then, should provide a basis on which inferences regarding the nature of maternal influences on affective development in LD children may be made.

In terms of reaction patterns, research with teachers is relatively well documented, however, little research exists on the relationship between achievement-related parent-child interactions and performance in school. If, as with teacher expectations, higher maternal expectations are accompanied by a greater incidence of positive and supportive interactions, while lower expectations are associated with more negative interactions, then parallel inferences may be drawn regarding the communication and



self-fulfilling nature of maternal expectations in children, and their effect on achievement levels.

Of the few studies relating to parental interactions reported in the literature, the following are of interest. Owen et al. (1971) found that parents of "educationally handicapped" (LD) children tended to express less affection toward their children and put more pressure on them regarding achievement in school. Hilliard and Roth (1969) observed that mothers of underachieving high school students were more rejecting and less accepting of their children than mothers of achieving students. Love (1970) also noted that parents of low achieving and handicapped children tended to communicate their disappointment and frustration with them in their interactions. Winterbottom (1958), and Rosen and D'Andrade (1959) further report interesting results. Both of these studies found that parents of boys who were high in achievement motivation used all types of rewards (verbal, gifts, and especially physical affection) more frequently than parents of low need achievement boys. Finally, Smith (1969) found a positive but low correlation between achievement-related motives and reaction of parents to their son's success and failure experiences in school.

Again, the study of Boersma and Chapman (1978a) appears to be the only investigation which deals with mother-child reaction patterns for LD children. These authors found that mothers of LD children tended to report a fewer number of positive reactions to their Grade 3 children's achievement

behaviors than mothers of normally achieving children.

Overall, the studies of parental behaviors suggest that parents of low achieving children tend to have more negative interactions with their children, possibly as a result of disappointment and/or frustration with their children's failure to live up to their aspirations. In the light of these findings, it is predicted in the present study that mothers of LD children will also report more negative school-related reactions than mothers of normally achieving children, and that the difference will increase as LD children experience increasing years of failure.

In terms of parents' perceptions of their children, the following should be considered. If mothers of LD children do in fact report more negative reaction patterns to their children's achievement-related behaviors, then an indication of how these mothers perceive their children's feelings and attitudes about school may help to partly account for such reaction patterns. If mothers of LD children are sensitive to these self-perceptions, yet indicate more negative reaction patterns, then there is some support for the notion that predicted lower academic expectations may be confounding appropriate interactions with their children. Stated differently, such a finding might also suggest that although these mothers are aware of their children's own negative self-perceptions, they are unable to translate this awareness into positive and supportive behaviors with their children.

In line with the above, it is assumed that if children express daily their own school-related attitudes, mothers will become aware of these self-perceptions. Support for this notion is found in the study reported by Boersma and Chapman (1978a). Mothers of Grade 3 LD and normally achieving children were requested to complete a children's measure of academic self-concept in the same way their child would complete it. The findings revealed that mothers of LD children perceived their children's academic self-concept as somewhat lower than their children indicated, while mothers of the normally achieving children rated their children's academic self-concept higher than the children rated themselves. Thus, LD mothers tended to be pessimistic and the Control mothers optimistic in terms of the way they perceived their children's academic self-concept. In addition, these mothers were well aware of the direction of self and school-related feelings and attitudes held by their children.

Accordingly, it was predicted in the present study, that mothers of LD and normally achieving children will be sensitive to their children's academic self-perceptions, and that this sensitivity will be reflected in their rating of how they think their child perceives his/her own academic self-concept. Thus, the LD and normally achieving mothers are expected to indicate similar ratings of the academic self-concept scale as their children.

### SUMMARY

It was stated at the outset that the main characteristic which typifies LD children is their below grade-level performance in one or more school subjects. Further, attention was drawn to the fact that most professionals interested in learning disabilities agree that the learning problems experienced by LD children can be remedied. In view of the literature reviewed above on the influence that several key effective variables have on school learning, it seems possible that predominantly cognitive remedial strategies may not be sufficient in enabling LD children to perform at higher academic levels.

Particular attention was drawn to studies with failure-prone and underachieving students which indicate that the development of negative school-related affective characteristics is typically associated with histories of school failure. Of the numerous personality variables contributing to people's affective states, self-concept (general and academic), academic locus of control, and self-expectations for future school achievement were identified as three key factors of particular interest in the present study. In addition, attention was also drawn to the influence that significant others have in school learning. Studies dealing with teacher and parental expectations and their relationship to academic achievement were reviewed. The nature of parental interactions and perceptions in terms of their relationship to student

performance were also considered.

Research on these variables indicates that the negative manifestations of affect are associated with failure. Thus, lower self-perceptions of ability tend to be related to a persistent lack of school success. In addition, some studies (e.g., Kifer, 1975) found that academic self-concept is comparatively more negative in older students whose history of failure is greater. Other studies (e.g., Brookover et al., 1965, 1967) suggest that negative academic self-perceptions set limits on what students are capable of achieving because of their effect in reducing motivation and task persistence. By setting limits on academic performance, self-concept of ability serves to define for students what they expect to achieve in future tasks. These self-expectations have in turn been shown to relate to subsequent achievement. Further, although empirical studies are lacking on academic self-expectations, it seems reasonable to assume that older failure-prone or underachieving students will hold increasingly lower academic expectations as failure experiences accumulate.

In line with self-expectations for future achievement are the generalized expectancies regarding control over achievement outcomes. Here, the review of studies suggests that failure experiences tend to inhibit the normal development of an internal locus of control. Thus, poor achievers tend to view success outcomes as being beyond their own control, and caused instead by the generosity of

the teacher, the easy nature of the task, or chance factors.

When these three variables are considered together, a pattern emerges with respect to affective development in students with histories of failure. They generally have normal intellectual abilities, but for a variety of reasons, experience considerable failure in school. This failure, in turn, is associated with the development of lower self-perceptions of ability and expectations for future success, and the belief that success in school is more a function of external sources which are beyond their control. Thus, it seems logical to assume that through a process of reciprocal interaction (Bandura, 1978), failure and affect mutually contribute to the suppression of improved school achievement.

Of additional interest to this study are the expectations and perceptions of teachers and mothers relating to the school achievement of their children, and mothers' attitudes as reflected in interactions with their children. The studies on expectations indicated that low expectations are generally associated with low levels of achievement. Further, research with teachers shows that patterns of differential interactions, in which failure-prone children tend to receive less positive and more negative reinforcements, contribute to the self-fulfilling nature of adult expectations. Similarly, studies of parent-child interactions indicate that poor school performance is associated with less supportive and

more rejecting parents. The possibility that the negative interaction patterns result from a lack of sensitivity by parents with respect to their childrens' school-related feelings and attitudes was raised.

The consequences of the findings highlighted in this review seem important for LD children. If these children develop negative school-related affective characteristics, the potential benefits of remediation will likely be lessened. Further, if mothers and teachers of LD children hold negative expectations for them, and interact with them in a more negative and less positive manner, then the chances for these LD children having their disabilities corrected will be further diminished. Finally, should LD children continue to experience failure and concomitant negative affective development into secondary school, then more pervasive mental health problems may arise (Covington & Beery, 1976). Indeed, the strong relationship between learning disabilities and juvenile delinquency (Bachara & Zaba, 1978) could be indicative of negative affective development and frustrations with pressures arising from school failure.

With these points in mind, then, there appears to be a definite need for research with learning disabled children. Such a study should provide a unique treatment of the role of affective variables in learning with an ecologically formed group of special education students. In line with this, the present study was undertaken to:

1. Describe three salient affective characteristics of LD children, namely, self-concept (academic and general), academic locus of control, and self-expectations for future school achievement.
2. Investigate the expectations held by significant others (mothers and teachers) with respect to future school achievement in LD children.
3. Study mothers' school-related reactions to achievement behaviors in LD children, and mothers' awareness of their children's own academic self-perceptions.



## CHAPTER III

### METHOD AND DESIGN

#### Subjects

One hundred and sixty-two children (108 boys and 54 girls) in Grades 3 to 6 (44 Grade 3, 46 Grade 4, 34 Grade 5, 38 Grade 6) in two Edmonton middle-class, suburban, elementary schools took part in the study. The teachers ( $n = 18$ ) and mothers ( $n = 162$ ) of these children also participated. The subjects were selected from some 670 children in a larger study involving all students in Grades 3 to 6 at the two participating schools who were present on the two testing occasions.

The LD sample consisted of 81 children (54 boys and 27 girls) who were receiving part-time ( $1/2$  to 1 hour per day) learning disability remedial assistance for a  $1\ 1/2$  to  $2\ 1/2$  year deficiency in one or more academic subjects. In most cases the problem area was reading. The deficit had been defined by the classroom teacher in terms of classroom and standardized achievement test results, and in consultation with the learning disability specialist and the principal. In keeping with the criteria for learning disabilities referred to earlier, students with major intellectual, physical, social, emotional, or English-as-a-second-language problems were not included in the sample. Of the 99 students receiving LD remedial assistance in the two participating schools, ten were not considered for inclusion in the study

because they either failed to meet the LD criteria, or were absent on one or more testing occasions, while eight were excluded because their mothers did not participate in the parent study. Thus, the LD subjects in this investigation represented 82% of the total number of LD children in Grades 3 to 6 at the two participating schools.

The Control group also comprised 54 boys and 27 girls. These subjects were randomly selected from the same grade levels and classrooms as the LD subjects, after having been stratified on sex. Of the 573 children available who met the average to above average performance criterion, 5% were not considered in the selection process because they had had previous LD room placement or were absent on the testing occasions, while 15% could not be included due to incomplete parent data. Thus, the 81 Control subjects in the study were drawn from the 80% of Grades 3 to 6 students at the two schools whose academic achievement histories were "normal."

Table 1 presents sample sizes at each grade level, plus age characteristics for the LD and Control groups. There was no statistically significant difference between the two groups, as a function of grade level, nor was there an overall grade effect. The mean overall age for LD subjects was 122.17 months and for the Control subjects 121.62 months, or both approximately 10 years 2 months.

Similarly, no statistically significant difference was observed for socio-economic status, based on fathers' occupation and classified according to the Blighen Scale

Table 1  
Age Characteristics (in months) of the  
LD and Control Samples

Grade	LD			Control		
	n	Mean	SD	n	Mean	SD
3	22	102.64	5.20	22	103.59	4.54
4	23	118.69	6.54	23	115.65	5.14
5	17	131.94	5.99	17	130.55	5.98
6	19	140.26	4.62	19	141.68	3.99
Total	81	122.17	15.36	81	121.62	15.29

(Bliss, 1967). Here, LD subjects had a mean rank of 46.51 (SD = 14.25), while Control subjects had a mean rank of 46.70 (SD = 13.82). These rankings suggest that the two groups were drawn from similar predominantly middle class socioeconomic backgrounds.

Ability estimates for Grades 3 and 4 were obtained from school records of Otis-Lennon--Form K IQ scores (Otis & Lennon, 1969), whereas Canadian Lorge-Thorndike IQ's (Lorge, Thorndike & Hagen, 1967) were used for Grades 5 and 6 estimates. There were no statistically significant differences between the two groups for combined Grade 3 and 4 mean IQ scores (LD M = 103.24, SD = 10.76; Control M = 107.22, SD = 9.42;  $t = 1.86$ ;  $df = 88$ ;  $p > .05$ ), although there was a tendency for Controls to have higher IQ's. On the other hand, combined Grades 5 and 6 mean IQ scores were significantly higher for Controls (LD M = 97.87, SD = 10.31; Control M = 109.80, SD = 8.84;  $t = 5.26$ ;  $df = 70$ ;  $p < .01$ ). The overall point that should be noted here is that both groups were within the average range of IQ. The tendency for LD children to have slightly lower scores might be due to reading difficulties experienced by them on the "group administered" IQ tests, rather than by intellectual differences between the groups per se.

Means and standard deviations for standardized test scores are presented in Table 2. Here, statistically significant differences between the groups were observed in all subject areas tapped by the tests. Grade 3 achievement

Table 2

Standardized Achievement Test Data in Terms of  
Grade Equivalent Scores

	LE		Control		t	p
	Mean	SD	Mean	SD		
Grade 3 (Metro)						
Reading	3.48	1.25	5.16	1.17	4.61	.000
Math	2.85	.89	5.01	1.10	7.04	.000
Grade 4 (CTBS)						
Vocabulary	4.26	.94	5.52	.63	5.37	.000
Reading/Comp	4.94	.94	5.36	.78	5.57	.000
Language	4.40	.85	5.62	.82	4.94	.000
Study Skills	3.95	.84	5.32	.78	5.55	.000
Math	4.33	.63	5.21	.86	3.92	.003
Composite	4.17	.60	5.39	.63	6.73	.000
Grade 5 (CTBS)						
Vocabulary	5.42	.93	6.42	.74	3.48	.001
Reading/Comp	5.29	.86	6.34	.76	3.76	.000
Language	5.22	.84	6.49	.79	4.55	.000
Study Skills	5.36	.62	6.11	.71	3.27	.003
Math	5.29	.65	6.22	.78	3.76	.000
Composite	5.32	.67	6.32	.62	4.55	.000
Grade 6 (CTBS)						
Vocabulary	6.61	.98	7.88	1.08	3.79	.001
Reading/Comp	6.27	1.03	7.41	.63	4.13	.000
Language	6.42	.96	7.70	.97	4.10	.000
Study Skills	6.43	.68	7.63	1.08	4.10	.000
Math	6.24	.73	7.57	.98	4.74	.000
Composite	6.26	.85	7.68	.80	5.21	.000

measures were obtained from the Metropolitan Achievement Test (Durost, Bixler, Wrightstone, Prescott & Balow, 1970), which had been administered during May of the current school year. For Reading, the LD group was an average of 1.68 years below the Control group, whereas for Math LD subjects were 2.12 years behind. Standardized achievement test data at Grades 4, 5 and 6 were obtained from the the Canadian Test of Basic Skills (King & Hieronymus, 1975). Results here, in terms of total subject area and composite scores, indicate highly significant differences between the two groups, at all Grade levels, and over all subject areas. Thus, although the LD subjects were receiving remedial assistance primarily for reading, Table 2 indicates that they are behind their peers in all subjects, usually by at least 12 months. In line with this, it should be further noted that although the LD children are behind the Control children in terms of achievement, the deficit is relative rather than absolute. These LD subjects are still performing at approximately the normal level within each grade.

Finally, end-of-year Report Card grades are shown in Table 3. Grades are presented in terms of a 5-point system (A=5, B=4, C=3, D=2, E=1). The differences observed between the LD and Control subjects are consistent with the standardized achievement scores, and again indicate that LD subjects tended to receive lower grades in ~~port~~ school subject areas.

In sum, the LD subjects in this study appear to be a

Table 3  
End-of Year Report Card Grades

	LD		Control			
	Mean	SD	Mean	SD	t	p
Grade 3						
Reading	3.14	.56	4.09	.43	6.36	.000
Language	2.82	.79	4.09	.43	6.12	.000
Spelling	2.73	.70	3.95	.37	7.23	.000
Math	2.77	.73	4.00	.00	11.08	.000
Printing/ Writing	3.41	.79	3.77	.69	1.62	.112
Soc Studies	3.27	.63	3.86	.47	3.53	.001
Total	18.14	2.62	23.77	1.38	8.94	.000
Grade 4						
Reading	2.52	.51	3.48	.67	5.47	.000
Language	2.78	.85	3.57	.84	3.13	.003
Spelling	2.78	.79	3.22	1.00	1.63	.109
Math	2.91	.59	3.22	.60	1.73	.091
Printing/ Writing	3.57	.95	3.69	.72	.53	.598
Soc Studies	3.22	.74	3.48	.79	1.16	.253
Total	17.78	2.95	20.65	2.44	3.59	.001
Grade 5						
Reading	2.59	.71	3.65	.61	4.67	.000
Language	2.53	.87	4.18	.64	6.28	.000
Spelling	2.00	.87	3.35	1.00	4.23	.000
Math	2.41	.79	3.71	.69	5.08	.000
Printing/ Writing	3.18	.88	3.88	.70	2.59	.014
Soc Studies	2.88	.60	3.59	.62	3.38	.002
Total	15.59	3.24	22.35	2.32	7.00	.000
Grade 6						
Reading	2.95	.78	3.68	1.06	2.45	.019
Language	3.42	.77	4.21	.86	2.99	.004
Spelling	2.53	.96	3.95	.91	4.67	.000
Math	3.11	.94	3.79	.86	2.35	.024
Printing/ Writing	3.74	.45	4.32	.58	3.42	.001
Soc Studies	2.95	.97	3.89	.88	3.16	.003
Total	18.68	3.56	23.84	3.80	4.32	.000

representative sample of those children in two schools, who because of learning difficulties, tend to be selected for learning disability remedial assistance. They are similar in age and socio-economic status background to the Control subjects. In terms of IQ, they are well within the normal range, but nevertheless slightly lower than Control subjects. Academic achievement levels, on the other hand, reflect highly significant differences between the two groups. Here, LD subjects performed on the average at statistically significantly lower levels, in comparison to Control children, in all subjects. In this regard, LD children appear to fit the "classic" description of LD children--they have normal intelligence with academic deficiencies in one or more subject areas.

### Instruments

#### General Self-Concept

General self-concept was assessed with the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969). The Piers-Harris instrument consists of 80 declarative "Yes-No" items, balanced to minimize response acquiescence. The items contribute to six subscales, derived through factor analysis (statements of behavior, intellectual and school status, physical appearance, anxiety, social popularity, and happiness). Scores may range from 0 (low self-concept) to 80 (high self-concept). The test manual reports a normative mean of 51.84 (SD = 13.87). Cronbach's alpha for the Full



Scale reported over six studies was in the range of .78 to .93, while test-retest stability over a two-to-four month period was .77.

The Piers-Harris scale is one of the most frequently used measures of general self-concept at the elementary level. Following their review of the instrument, Robinson and Shaver (1973) concluded that it is a useful measure for research purposes.

### **Academic Self-Concept**

Academic self-concept was assessed with the Student's Perception of Ability Scale (SPAS), developed by Boersma and Chapman (1977). Descriptively, the SPAS contains 70 forced-choice "Yes-No" items relating to feelings and attitudes about school performance in five basic academic areas (reading, spelling, language arts, arithmetic, and penmanship), and also to school in general. The items contribute to six subscales, derived through factor analysis, which include Perception of General Ability, Perception of Arithmetic Ability, General School Satisfaction, Perception of Reading and Spelling Ability, Perception of Penmanship and Neatness (each of which contains 12 items), and Confidence in Academic Ability (10 items). Approximately half of the items are worded positively and half negatively in order to control for response acquiescence.

The SPAS was constructed for use with children in

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Grades 3 to 6, with items being read aloud at all levels. Academic self-concept scores derived from the SPAS may range from 0 (low academic self-concept) to 70 (High academic self-concept). Technical data on the SPAS (Boersma, Chapman & Maguire, 1979) reveals a standardization sample mean over four grade levels of 46.24 (SE = 11.71). Cronbach's alpha for the Full Scale was .915, whereas Arithmetic, Reading/Spelling, and Friendship/Neatness values were between .822 and .855. General Ability was .785, School Satisfaction .741, and Confidence .686. Test-retest reliability over a four- to six-week period for the Full Scale was .843, whereas subscale stability coefficients ranged from .714 to .824. The above data suggest that the SPAS is a relatively reliable and a stable instrument over time.

Studies with the SPAS indicate that it discriminates strongly from general self-concept, as measured by the Piers-Harris (Boersma & Chapman, 1978b), thereby suggesting that the instrument is tapping a unique dimension of self-concept. Further, the SPAS moderately correlates ( $r = .49$ ) with concurrent end-of-year grade average (Boersma & Chapman, 1978b), and also moderately predicts grade average 12 months later ( $r = .46$ ). In terms of experimental validity, two recent studies are also of interest. In one study, the SPAS clearly distinguished between Grade 3 LD and normally achieving students with similar mean Full Scale WISC-R IQ scores (Boersma & Chapman, 1978a). In a second

study, strong differences were noted between two groups of full-time special class elementary students, and a group of normally achieving students (Lorance, Chapman & Battle, in press). In both of these studies, the low achieving LD and special class students reported significantly lower academic self-concepts than the normal achievers. In short, the SPAS appears to be a useful measure of academic self-concept, containing good internal validity and promising external validity.

#### **LOCUS OF CONTROL**

The short form of the Intellectual Achievement Responsibility Questionnaire (IAR) was used to assess academic locus of control. This form was recommended by Crandall (1968) for use with elementary school children. The IAR attempts to assess children's beliefs in reinforcement responsibility specifically in academic achievement situations. As such, it focuses on perceived control in events which involve significant others, such as parents, teachers, and peers.

Of the 34 items in the IAR, 20 are included in the elementary short form. One half of these deal with internal responsibility for success experiences (I+), while the other half assess responsibility for failures (I-). Scores on each subscale range from 0 (most external) to 10 (most internal). Spearman-Brown split-half reliabilities are reported as .54 for the I+ and .57 for the I- subscales (Crandall, Katkovsky

& Crandall, 1965). Correlations between the regular and short-form subscales are reported to be .90 for the I+ and .91 for the I-. Two-month test-retest reliabilities are reported to be in the range of .47 to .66 for the I+ scale, and .69 to .74 for the I- scale (Robinson & Shaver, 1973). In terms of convergent validity, Robinson and Shaver cite the moderately high IAB correlations with report-card grades (ranging from the .30's to the .50's). In support of the discriminant validity, Robinson and Shaver further cite the low correlations between IAB and IQ scores ( $r$ 's  $\approx$  .14 to .26).

Many studies have used the IAB. Evaluating some of these studies, Robinson and Shaver (1973) conclude that the measure is a "carefully developed scale" which shows acceptable reliability and evidence of discriminant and convergent validity. In line with this, Phares (1976) has noted that the IAB is probably the most suitable measure of perceived control for children, especially in terms of school achievement.

### Expectations

Self-expectations for future academic achievement were estimated with the Projected Academic Performance Scale (PAPS) developed by Chapman and Boersma (1978). This instrument contains 42 four-response multi-choice items, which contribute to six subscales, each containing seven items (Spelling, Reading, Language Arts, Math, Social

Studies, and Science). The items deal with predicted performance in the near and long-term future. Responses are weighted on a four-point metric, with higher values reflecting higher expectations. Full Scale scores range from 42 (low expectations) to 168 (high expectations).

Technical data compiled to date on the Projected Academic Performance Scale (Chapman & Boersma, 1979) indicate a Full Scale mean over Grades 3 to 6 of 121.41 (SD = 17.37). In terms of internal consistency, Cronbach's alpha was .901, while the test-retest stability coefficient over a four-to-six week period was .801.

Studies with the Projected Performance scale show that the instrument has a moderate correlation with end-of-year grade point average ( $r = .40$ ), and also moderately predicts report grades 12 months later ( $r = .38$ ). With regard to external validity, Boersma and Chapman (1978a) recently reported that the measure clearly differentiated between Grade 3 LD and normally achieving children, with the LD students reporting significantly lower achievement expectations. The above data suggest that although the Projected Performance scale is a relatively new instrument, it has good internal characteristics and promising external validity.

Mother and Teacher expectations for future student achievement were assessed with a modified version of the Projected Academic Performance Scale, reworded and shortened for use with adults. Here, mothers and teachers were

required to rate 12 items on a four-point scale, which dealt specifically with predicted student achievement in the academic areas included in the children's Projected Performance instrument. Two expectations for each subject area were assessed: one referring to predicted performance "next year," and the other in terms of performance "when X is older." Full Scale scores range from 12 to 48. Two separate adult formats of the instrument were prepared, one for use with mothers and the other for teachers. The mothers' version (PAPS-M) presented items in a multi-choice format, grouped according to subject areas (Spelling, Reading, Language Arts, Math, Social Studies, and Science). For teachers, the scale (PAPS-T) was presented on two single pages, each of which had the names of all students in the class listed down the left-hand side. At the top of each page was one of the two expectation questions, along with the four answer choices. The six subject areas were presented in columns across the page. Teachers were requested to mark in each column for each student the number of the multi-choice answer deemed most appropriate. With a sample of some 563 mothers of elementary children in Grades 3 to 6, Chapman and Boersma (1979) reported a mean PAPS-M score of 35.30 ( $SD = 5.94$ ), and for 25 teachers of 671 elementary children, a mean PAPS-T score of 33.05 ( $SD = 7.73$ ). They further noted high correlations between teachers' expectations and grade-point-average ( $r = .77$ ), and a moderate relationship between mothers' expectations

and grade-point-average ( $r = .59$ ).

### Mothers' Attitudes

Mothers' perceptions of their children's academic self-concept were assessed by having them complete the Student's Perception of Ability Scale in the same way as they thought their child would complete it. Such an approach appears to be novel as a way of obtaining perceptions of school-related feelings in children, and was designed to determine the sensitivity of mothers to those feelings.

Finally, Mothers' reactions to their children's achievement-related school experiences were assessed with the intellectual subscale of the Parent Reaction Questionnaire (Mazur, Preston & Crandall, 1964). This subscale contains 12 items each describing a typical situation in which a child shows successful or unsuccessful achievement behavior that is likely to draw an evaluative response on the part of the parent. Each item is followed by five or six statements from which the parent is asked to select their most typical reaction. The alternatives to each statement include positive (praise, affection, recognition, encouragement, and reassurance) and negative (criticism, annoyance, and correction) reactions, plus one neutral reaction. The items relate to both successful and unsuccessful achievement behaviors. Scores, which may range from 0 to 12, combine to yield separate measures of positive and negative reactivity. In the present study parents were

requested to rate one reaction per item. The number of positive and negative reactions were then summed with the resulting scores being analyzed separately.

Although the Parent Reaction Questionnaire has been used for a number of years, no data regarding its reliability and validity have been reported. Numerous studies, however, have reported a strong relationship between positive parental reactions and the development of internal locus of control in their children (e.g., Katkovsky, Preston & Crandall, 1964; Katkovsky, Crandall & Good, 1967; Loeb, 1975).

### Hypotheses

#### Children's Perceptions and Expectations

One of the main purposes of this study was to investigate three salient affective characteristics of elementary learning disabled children, viz., self-concept (general and academic), academic locus of control, and self-expectations for future academic success. It seems clear from research cited in Chapter Two that school failure is often associated with the development of negative affective characteristics. Further, as failure experiences accumulate with increasing age, school-related affect becomes more negative. In that LD children are characterized by their histories of academic failure, it seems likely that they will develop increasingly negative school-related affect. However, this negative attitude will not necessarily



extend beyond academic matters. Accordingly, the following hypotheses were proposed.

1. General Self-Concept. Studies on general self-concept with failure-prone children have usually produced ambiguous findings. Because general self-concept taps a broader range of feelings and attitudes than just school-related factors, it seems possible that general self-concept will not necessarily be affected by academic failure, at least at the elementary level. Therefore, it was predicted that:

- 1.1 There will be no significant difference in general self-concept scores on the Piers-Harris Self-Concept Scale between LD and Control subjects.

2. Academic Self-Concept. In terms of academic self-concept, it seems likely that persistent failure experiences will lead to the development in children of beliefs that they have lower abilities than other children. Further, some of the studies reviewed in Chapter Two (e.g., Kifer, 1975) suggest that such beliefs become more negative as failure experiences accumulate over time. Thus, it was

predicted that:

- 2.1 LD subjects will obtain significantly lower scores on the Student's Perception of Ability Scale than Control subjects.

- 2.2 The difference in Perception of Ability scores between LD and Control subjects will increase as a function of increasing grade level.

**3. Academic Locus of Control.** In terms of academic locus of control, it seems likely that lower self-perceptions of ability will be accompanied by beliefs that when ~~success~~ outcomes do occur, they are not caused by one's own abilities, but rather by ~~external~~ causes, such as the nature of the task, or the kindness of the teacher. On the other hand, it would seem likely that ~~failure~~ events will be associated with an ~~internal~~ orientation whereby such outcomes are expected and are seen as being a function of one's inadequate abilities. Therefore, it seems likely that LD children will be more external in their explanations for success events than normally achieving children, but not necessarily more external when it comes to explanations for failure events. With these points in mind, the following predictions were made:

3.1 LD subjects will obtain lower scores on the I+ (successful events) subscale of the Intellectual Achievement Responsibility Questionnaire than Control subjects.

3.2 The difference in I+ scores between LD and Control subjects will increase as a function of increasing grade level.

3.3 There will be no difference in I- (failure events) scores between the LD and Control subjects.

#### **4. Self-Expectations of Future School Achievement.**

Since LD children receive a great deal of failure feedback, it seems likely that they will anticipate further failure on future tasks, and therefore, that their expectations for success will be lower. It also seems logical that the more

failure feedback such children receive, the lower will be their expectations of future academic success. Accordingly, it was hypothesized that:

4.1 LD subjects will obtain significantly lower scores on the Projected Academic Performance Scale than Control subjects.

4.2 The difference in Projected Performance scores between LD and Control subjects will increase as a function of increasing grade level.

### **Adults' Perceptions and Expectations**

Also of interest are the school-related perceptions and reactions of mothers, along with mothers' and teachers' expectations for future academic performance. As indicated in Chapter Two, mothers are of particular interest because of their crucial role in the development of achievement behaviors. In addition, mothers are usually more often involved in liaison between home and school, and therefore more frequently in touch with their children's school performance and school-related attitudes.

In general, studies indicate that low expectations are associated with low levels of achievement. Low expectations also appear to contribute to interactions with children which are less positive and encouraging. Similarly, studies of parent-child interactions suggest that poor school performance is associated with less supportive and more rejecting parents. In line with these findings, the following hypotheses were tested.

**5. Mothers' Reactions to their Children's School-Related Behaviors.** Previous studies of parental interaction patterns indicate that parents of low achieving children tend to have more negative interactions with their children. This occurs, possibly, as a result of disappointment or frustration with the failure of such children to perform at higher levels. Therefore, it seems likely that mothers of LD children will also experience such frustrations and accordingly have less supportive interactions with their children. In line with this, it was predicted that:

5.1 Mothers of LD subjects will obtain lower positive reactivity and higher negative reactivity scores on the Parent Reaction Questionnaire than mothers of Control subjects.

5.2 The difference in scores between LD and Control mothers will increase as a function of increasing grade level.

**6. Mothers' Perceptions of Academic Self-Concept.** It is also important to know whether mothers of LD children are sensitive to the school-related feelings and self-perceptions of their children. In line with this, one would expect that as mothers receive feedback from their children regarding feelings and attitudes towards school-related events and outcomes, they will develop an awareness of their children's academic self-perceptions. If mothers of LD children are sensitive to their children's feelings, then there should be a fair degree of congruence

between LD children's ratings of self-perceptions of ability, and mothers' predictions of those ratings. Similarly, if mothers of normally achieving children are sensitive to their children's school-related feelings, then they too should report perceptions which are congruent with the academic self-concepts of the Control children. On that basis, the following hypotheses were proposed:

6.1 There will be no significant difference in SPAS scores between LD subjects and LD mothers.

6.2 There will be no significant difference in SPAS scores between Control subjects and Control mothers.

### 7. Mothers' Expectations of Future School Achievement.

As feedback is provided by both the child and the school on the success and failure experiences of children, it seems likely that mothers will bring their achievement expectations into line with performance outcomes. For mothers of LD children, these expectations will likely be lower and become increasingly more negative as a function of increasing grade level. Accordingly, it was predicted that:

7.1 Mothers of LD subjects will report lower scores on the Projected Academic Performance Scale-M than mothers of Control subjects.

7.2 The difference in Projected Performance scores between LD and Control mothers will increase as a function of increasing grade level.

### **8. Teachers' Expectations of Future School Achievement.**

Finally, because LD children have histories of past failure, and have been graded and labelled accordingly, it seems likely that teachers will hold lower expectations for such students than for normally achieving students, even though such children are assumed to have "normal" abilities. Predictions as to grade level effects are not relevant here since teachers normally deal with students only for a one-year period, rather than over an extended "developmental" period. The only relevant hypothesis here then is:

8.1 Teachers will report lower scores on the Projected Academic Performance Scale-T for LD subjects than for Control subjects.

### **Procedure**

The Student's Perception of Ability Scale, Projected Academic Performance Scale, Piers-Harris Children's Self-Concept Scale, and the Intellectual Achievement Responsibility Questionnaire were administered on two separate testing occasions (two days apart) during the months of April and May, 1977. The children were tested in their regular classrooms groups as part of a larger study. Thus, LD and Control subjects were not aware that their responses would form the basis of a more specific, detailed investigation.

Subjects were informed that the "questionnaires" were being used in a large survey to find out something about

"kid's feelings and attitudes towards school and their schoolwork." Teachers were not present during testing, and strong emphasis was placed on the need for honest responses, with children being told that neither parents nor teachers would be allowed to see the answer booklets. It was further emphasized that the questionnaires were not "tests," and that there were no right or wrong answers to the questions.

Testing time on each occasion was approximately 35 to 40 minutes. All items were read aloud by the tester to the students in order to ensure that possible confounding effects due to reading problems would be minimized. Clarification of questions was given if sought by any student. This was necessary in less than 1% of the cases.

The same experimenter (female) administered all instruments. The Perception of Ability and Projected Academic Performance scales were given on the first occasion, whereas the Piers-Harris and Intellectual Achievement Responsibility Questionnaire were given on the second. For pragmatic reasons counterbalancing of these instruments was not attempted. It should be noted however, that results of a pilot study with 67 Grade 3 and 4 children with the SPAS and PAPS instruments indicated that no significant carryover effects occurred as a function of order of presentation. In terms of carryover between sessions, the two-day interval should have minimized such effects. Finally, because of their different content and format, carryover from the Piers-Harris to the IAH also

seems most unlikely.

Teacher expectation data were obtained at the same time as subjects were being tested. Since teachers were completing Projected Performance questionnaires for all students in each class, they were not aware that the LB Control subjects would form the sample for a separate investigation. Accordingly, possible confounding effects arising from knowledge of the study's purpose were reduced.

Mother expectations, reactions, and perceptions of the academic self-concepts of their children were collected by mail, again as part of a larger study. Here, a letter was sent from the Principals of the two participating schools to the homes of all children in Grades 3 to 6. Mothers were advised that their children were taking part in a major research project investigating the influence that attitudes towards school and school subjects play in learning.

Cooperation was sought from mothers in completing the questionnaires relating to the study.

One week later, the questionnaire materials were posted, along with a covering letter. This letter informed them that the study was focussing on the role of children's school-related feelings to academic performance, and that information was being sought in order to "obtain a more comprehensive and accurate picture of how children feel about school." Confidentiality of the data was emphasized. Also enclosed was a self-addressed stamped envelope in which to return the material. Mothers who had not returned their



booklets after two weeks were telephoned and prompted to complete and return their materials. A second telephone call was made again two weeks later to those few mothers whose data were still outstanding. The above procedure yielded a return rate of 85% from a possible 643 mothers. In terms of subjects in the present study, it is interesting to note that 90% of the LD mothers returned their questionnaire booklets.

### Design

The hypotheses presented in this study were tested by means of a 2 X 2 X 4 analysis of variance design. The respective levels were Group (LD and Control), Sex (Boys and Girls), and Grade Level (Grades 3, 4, 5, & 6). Group and grade level differences are clearly central to the present investigation, while the Sex level was included in order to determine whether specific sex effects either contributed to or confounded group or grade differences. Product-moment correlations were also computed in order to examine the relationships amongst the variables.

## CHAPTER IV

### RESULTS

In presenting the results, product-moment correlations between the affective variables investigated in this study will be reported first. Here, correlational data for a sample of 429 elementary school children will be presented. The use of such data from a larger sample as a basis for considering relationships between the affective variables should avoid any problems of calculating correlations using the extreme groups of LD and Control children. Secondly, correlations for each of the LD and Control samples will be presented separately in order to identify significant differences in correlations between these two groups. The larger sample will give some perspective for interpreting the LD and Control correlations. Following the presentation of correlational data, analyses of variance results relating to children's self-concept, locus of control, and expectations will be reported. Finally, the analyses of mothers' perceptions, reactions, and expectations, and of teachers' expectations will be considered.

#### Correlational Data

In order to investigate the relationship between the affective variables in this study, product-moment correlations were calculated on data for 429 of the original 643 elementary school children from whom the present LD and Control subjects were selected. This subsample was used

because of the completeness of computer files on which relevant data were stored. Of those 429 children, 122 were in Grade 3, 106 in Grade 4, 111 in Grade 5, and 90 were in Grade 6.

Correlations were calculated for general and academic self-concept; locus of control; students', mothers', and teachers' expectations; and mothers' reactions, and perceptions of their children's academic self-concept. End-of-year Report Card grades were also included as an index of academic achievement. The correlation coefficients for these variables are shown in Table 4. Coefficients of .30 or greater were considered to be psychologically significant, and in all cases were statistically significant at or beyond the .001 level.

In terms of the children's variables, it is interesting to note that Piers-Harris Full Scale scores show very low and statistically non-significant relationships with all the other variables in the matrix. Such a finding suggests that for these students, general self-concept (at least as measured by the Piers-Harris) is neither related to school achievement, nor to the other school-related perceptions, attitudes, and expectations.

On the other hand, stronger relationships were observed for the children's academic affective variables. Of particular interest here is the finding that SPAS and Projected Performance Full Scale scores correlated highly with each other (.560), and also moderately with Report

Table 4

Product-Moment Correlations<sup>1</sup> for the Affective  
Variables and Report Card Grades (n = 429)

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	Report-Card Grades (C)	Piers-Harris (C)	SPAS (C)	Projected Performance (C)	IAR: I+ (C)	IAR: I- (C)	SPAS (M)	Projected Performance (M)	Positive Reactivity (M)	Negative Reactivity (M)	Projected Performance (T)
	1	2	3	4	5	6	7	8	9	10	11
1	-	-0.19	.486	.364	.278	.045	.613	.573	.175	-.234	.746
2		-	.015	-.019	-.003	.020	.037	.034	.026	.009	-.077
3			-	.560	.416	-.089	.518	.358	.125	-.136	.402
4				-	.353	-.143	.300	.118	.123	-.124	.357
5					-	.131	.244	.179	.030	-.016	.176
6						-	-.005	-.040	-.124	.100	-.011
7							-	.659	.212	-.240	.490
8								-	.225	-.236	.523
9									-	-.851	.156
10										-	-.196

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<sup>1</sup>Decimals omitted

C = Children    M = Mothers    T = Teachers

grades (.486 and .364 respectively) and IAR:I+ scores (.416 and .353). These findings are consistent with the literature which suggests that self-perceptions of ability and expectations for future performance should be interrelated.

In addition, the ability of SPAS and Projected Performance scores to predict classroom achievement is in keeping with the notion that school-related affective characteristics are associated with academic achievement. This relationship was reflected in the present sample where higher grades occurred with higher levels of academic self-concept and expectations for achievement.

With respect to locus of control, the only IAR scores greater than the .30 criterion were for the I+ scale. As noted, I+ scores correlated positively with SPAS and Projected Performance scores, indicating that the tendency to attribute responsibility for successful school outcomes is moderately related to higher academic self-concept and expectations. The relationship between I+ scores and Report grades, however, was relatively weak (.278), and did not reach the .30 criterion. No significant correlations were observed for the I- scale, which suggests that the ability to accept responsibility for failure events in the present sample is neither related to classroom achievement, nor to academic self-concept and self-expectations.

As far as the mother variables are concerned, mothers' SPAS and Projected Performance scores correlated highly with each other (.659), and with Report grades (.613 and .573

respectively). It is interesting to note in this case that the correlations are somewhat higher than they were for the children. Thus, mothers' perceptions of their children's school-related feelings and attitudes, and their expectations for their children's future achievement are interrelated. Moreover, these variables appear to be strongly associated with reported classroom achievement.

It is further interesting to observe the relationship between mothers' SPAS and children's SPAS scores. The correlation (.518) between these two variables, while quite high, suggests that mothers are not totally accurate in terms of how they see their children's own self-perceptions of ability. Mothers' SPAS scores also show a moderate relationship with children's Projected Performance ratings (.300). Here, mothers who see their children as possessing relatively high academic self-concepts tend to have children who hold higher achievement expectations. For mothers' Projected Performance ratings, significant relationships with both children's SPAS (.358) and Projected Performance (.318) scores were observed. These correlations suggest that expectations held by mothers are moderately associated with their children's academic self-perceptions and expectations.

Of additional interest are the low (<.30) correlations observed for Parent Reaction Questionnaire scores. Although Positive and Negative reactivity scores show a strong negative intercorrelation (-.851), their low relationship with other variables suggests that mothers' attitudes and

reactions to their children's school success and failures are not associated with their affective development, or with their classroom achievement, at least as measured by this instrument.

Considered together, then, the correlational data for mothers suggest that they are relatively aware of how well their children are performing in school, and that this awareness, probably resulting from feedback transmitted by both the children and their teachers, is reflected in their own perceptions of their children, and in their performance expectations. Mothers' self-report reactions to "everyday" achievement situations, however, do not appear to be associated with their children's achievement-related affective development, or to school grades.

Finally, in terms of the teacher variable, it was found that Projected Performance scores show a high correlation with actual Report grades (.746), indicating that teacher expectations and achievement levels are strongly related. Teachers' Projected Performance ratings are also moderately related to both children's and mothers' SPAS (.402 and .490 respectively) and Projected Performance (.357 and .523) scores. Thus, teacher expectations are not only associated with current levels of classroom achievement, but also with student and mother perceptions of ability and expectations.

To summarize, the correlational data on the affective measures investigated in this study suggest that classroom achievement; academic self-concept; student, mother, and

teacher expectations; and mothers' perceptions of academic self-concept are all moderately interrelated. In terms of locus of control, attribution of responsibility for successful outcomes correlated with academic self-concept and self-expectations, but not with Report grades. On the other hand, control over failure experiences did not correlate significantly with any of the other affective measures studied, or with achievement. Similarly, general self-concept and mothers' reactions were not related to achievement, or to other perceptions and expectations.

Table 5 presents additional correlations for the LD ( $n=81$ ) and Control ( $n=81$ ) samples separately. The intent here was to ascertain whether intercorrelations for these variables differed as a function of the group. More specifically, an attempt was made to identify differences in correlations of .225 or more, where one of the two coefficients met the .30 or greater criterion used in the previous correlation analyses. The .225 difference exceeds, in all cases, the .05 level of significance for differences between correlations.

The overall reduction in the size of coefficients, compared to those reported above for the sample of 429 children, is probably due largely to the restriction in range resulting from using LD or normally achieving groups. Notwithstanding these generally lower correlations, however, most coefficients for both the LD and Control groups, reflect similar relationships between variables as for the



larger sample presented in Table 4.

In terms of differences between LD and Control group intercorrelations, five comparisons exceed the .225 criterion. None of the differences, however, involved change in sign. The significant comparisons were for the following sets of variables presented in Table 4: 8,3; 11,3; 8,5; 4,7; 7,11. In all cases, the LD sample had lower and statistically non-significant correlations in comparison to the Control group. Specifically, LD Sample revealed a lower relationship with both mothers' Projected Performance (LD  $r = .087$ ; Control  $r = .319$ ; Difference = .232) and teachers' Projected Performance (LD  $r = .055$ ; Control  $r = .303$ ; Difference = .248) scores. This difference suggests that academic self-concept in LD children is not necessarily associated with achievement expectations of mothers and teachers to the degree that it is for Control children.

Similarly, IAH:I+ scores for LD children were not significantly related to mothers' Projected Performance scores (LD  $r = .061$ ; Control  $r = .345$ ; Difference = .284), whereas they were for Controls. For LD subjects then, attributions for successful school experiences and achievement expectations held by mothers show a negligible relationship to each other when compared with Control subjects.

A difference between children's Projected Performance ratings and mothers' SFAS predictions for the two groups was

Table 5

Product-Moment Correlations of Affective Variables  
and Report Card Grades for the LD and Control Groups

Control Sample (n=81)											
	Report-Card Grades (C)	Piers-Harris (C)	SPAS (C)	Projected Performance (C)	IAP: I+ (C)	IAB: I- (C)	SPAS (H)	Projected Performance (H)	Positive Reactivity (H)	Negative Reactivity (H)	Projected Performance (T)
	1	2	3	4	5	6	7	8	9	10	11
1	-	-.056	.305	.188	.098	-.176	.581	.354	.103	-.215	.525
2	-.121	-	-.061	-.021	.046	.060	.062	-.027	-.086	.100	-.027
3	.305	-.073	-	.390	.335	.194	.497	.319	.112	-.151	.303
4	.287	-.076	.464	-	.211	-.154	.390	.215	.003	-.052	.241
5	.267	.089	.399	.179	-	.059	.184	.345	-.081	.050	.072
6	-.081	.014	-.271	-.355	.080	-	-.194	-.024	-.209	.275	-.243
7	.412	-.096	.429	.160	.278	-.271	-	.495	.066	-.182	.350
8	.270	-.216	.087	-.028	.061	.098	.660	-	.054	-.143	.231
9	.086	.078	.033	-.028	.103	-.109	.228	.120	-	-.888	-.023
10	-.113	-.064	-.011	-.038	-.115	.154	-.184	-.055	-.877	-	-.031
11	.404	-.156	.055	.188	.002	-.214	.115	.123	.225	-.216	-

Decimals omitted

C = Children H = Mothers T = Teachers

also observed (LD  $r = .100$ ; Control  $r = .390$ ; Difference = .230). These data suggest that unlike normally achieving children, LD students' expectations are not necessarily higher when their mothers see them as having more positive academic self-concepts.

The last significant difference noticed between correlations was for mothers' SPAs and teachers' Projected Performance scores (LD  $r = .115$ ; Control  $r = .350$ ; Difference = .235). Whereas Control mothers' beliefs regarding their children's academic self-concepts were moderately related to teachers' achievement predictions, this was not the case for LD mothers.

Overall, the results indicate that similar relationships exist between the affective variables for both groups, although the correlations tend to be lower for the LD group. In addition, Control group intercorrelations (Table 5) are generally in agreement with those observed for the 429 children reported earlier (Table 4). With respect to the five statistically significantly different relationships, there is some indication that LD children's affective characteristics and the perceptions and expectations of their mothers and teachers have a weaker relationship than is the case for normally achieving children. In line with this, it should further be noted that LD mother/teacher perceptions and expectations are still moderately associated with report grades. Thus, although affective characteristics and classroom achievement are

interrelated for both LD and Control children, the relationship between the LD children's affective state and the perceptions of their mothers and teachers seems less clear.

### **ANALYSIS OF VARIANCE DATA**

#### **General Self-Concept**

The results of the three-way analyses of variance for general self-concept indicate no significant differences between the LD and Control groups on the Piers-Harris Children's Self-Concept Scale. Indeed, for the Full Scale no significant group or interaction effects were observed (see Table 6 for ANOVA summary data).

Full and subscale means, standard deviations, and F-Ratios are presented in Table 7. In terms of subscale ANOVAS, there was a significant Group by Sex interaction on the Intellectual/School Status subscale ( $F = 4.09$ ;  $df = 1, 146$ ;  $p < .05$ ), with LD girls obtaining lower scores than Control girls (LD  $M = 11.29$ ,  $SD = 3.40$ ; Control  $M = 12.92$ ,  $SD = 4.08$ ). All other subscale main and interaction effects were non significant. Full and subscale data as a function of Grade level are shown in Appendix A.

In sum, as far as LD and Control group differences are concerned, the results of this study suggest that general self-concept, as measured by the Piers-Harris, is not related to school failure experiences. This finding is consistent with the Piers-Harris correlations reported

Table 4

ANOVA Summary Data for Pierce-Harris General  
Self-Concept Full Scale Scores

Source	df	S.S.	F-Ratio	Probability
A (Group)	1	49.560	0.289	.592
B (Sex)	1	0.534	0.003	.955
AB	1	350.886	2.046	.155
C (Grade)	3	300.637	1.753	.159
BC	3	434.003	2.530	.059
AC	3	44.544	0.260	.854
ABC	3	114.071	0.665	.575
Errors	146	171.510		

6

Table 7

Means, Standard Deviations, and *t*-Statistics for  
Piore-Harris Full and Subscale Scores

	LD		Control		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Full Scale	57.86	12.41	58.01	13.72	0.209	.592
Behavior	14.71	3.66	14.09	3.86	0.400	.528
Intellectual/ School Status	12.31	3.59	12.09	3.74	0.072	.742
Physical Appearance	7.23	3.08	7.22	2.90	0.000	.995
Anxiety	7.78	2.88	8.23	2.70	1.309	.254
Popularity	8.53	2.67	8.82	2.61	1.309	.254
Happiness	5.43	3.11	4.74	3.16	1.211	.273

earlier, where it was noted that general self-concept does not appear to relate to either Report grades, or to other more specifically academic affective characteristics.

### Academic Self-Concept

The findings for academic self-concept are consistent with the hypothesis that the LD group would obtain significantly lower Student's Perception of Ability Scale (SPAS) scores than the Control group. But contrary to the original hypothesis, there were no grade level effects. Analysis of variance summary data for Full Scale SPAS scores are presented in Table 8, while Table 9 shows Full and subscale means and standard deviations, and Appendix B contains Full and subscale data as a function of Grade level for the LD and Control groups.

In terms of Full Scale SPAS scores, there was a statistically significant group effect. Here, an 11.84 difference (approximately 1 raw standard deviation) was observed between the two groups (LD  $M = 37.88$ , Control  $M = 49.72$ ;  $F = 33.58$ ;  $df = 1, 146$ ;  $p < .001$ ), with LD children reporting considerably lower self-perceptions of ability than normally achieving children. There were no other main or interaction effects. The frequent failure experiences that typify the academic histories of LD children, therefore, appear to be associated with the development of distinctly lower academic self-concepts.

Specific SPAS subscale findings are of additional

Table 8  
**ANCOVA Summary Data for Full Scale SPAS Scores**

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	4712.740	33.577	.000*
B (Sex)	1	134.526	0.958	.329
AB	1	2.607	0.019	.892
C (Grade)	3	34.776	0.248	.863
BC	3	162.113	1.155	.329
AC	3	28.677	0.204	.893
AEC	3	183.019	1.304	.275
Errors	146	140.355		

\*Significant effect



interest (see Table 9). The significantly lower scores obtained by LD children on the Reading/Spelling subscale (LD  $M = 6.89$ , Control  $M = 10.07$ ;  $F = 45.03$ ;  $df = 1, 146$ ;  $p < .001$ ) is in keeping with the fact that subjects in the LD sample had been identified as learning disabled on the basis of reading problems. Comparatively lower self-perceptions were also observed for all other subscales, with the exception of Penmanship/Neatness. LD Subjects obtained lower scores on the subscales tapping General Ability (LD  $M = 5.67$ , Control  $M = 8.37$ ;  $F = 29.12$ ;  $df = 1, 146$ ;  $p < .001$ ), and perceptions of Arithmetic ability (LD  $M = 7.33$ , Control  $M = 9.68$ ;  $F = 17.55$ ,  $p < .001$ ). These children also reported more negative attitudes towards school in general (School Satisfaction: LD  $M = 7.44$ , Control  $M = 8.73$ ;  $F = 7.19$ ;  $df = 1, 146$ ;  $p < .01$ ), and expressed less confidence in their academic ability (Confidence: LD  $M = 3.32$ , Control  $M = 4.64$ ;  $F = 12.61$ ,  $df = 1, 146$ ;  $p < .001$ ). The only sex effect was on the Penmanship/Neatness subscale, where girls obtained higher scores than boys (Girls  $M = 8.54$ ; Boys  $M = 7.32$ ;  $F = 4.68$ ;  $df = 1, 146$ ;  $p < .05$ ). This difference suggests that girls see themselves as being neater and producing tidier work. There were no other main or interaction effects.

Overall, then, the SPAS results indicate that problems primarily in reading, together with low achievement levels in other subjects, are associated with the development of strong negative self-perceptions of ability, together with negative school attitudes and less academic confidence in

**Table 9**  
**Means, Standard Deviations, and F-Ratios for SFAS**  
**Full and Subscale Scores**

	LC		Control		F	p
	Mean	SD	Mean	SD		
Full Scale	37.88	12.66	49.72	10.64	33.58	.000*
General Ability	5.67	2.76	8.37	2.79	29.12	.000*
Arithmetic	7.33	3.19	9.68	2.80	17.55	.000*
School Satisfaction	7.44	2.98	8.73	2.31	7.19	.008*
Reading/Spelling	6.89	3.65	10.07	2.30	45.03	.000*
Penmanship/Neatness	7.22	3.26	8.22	3.01	3.39	.068
Confidence	3.32	2.07	4.64	2.17	12.62	.000*

\*Significant effect

one's self. These different self-attitudes were evident at the Grade 3 level, and remained constant through to Grade 6. Older LD children did not, however, appear to develop more negative academic self-concepts as a function of increasing grade level.

### **Academic Locus of Control**

For academic locus of control, analyses were performed separately on the I+ and I- subscales of the Intellectual Achievement Responsibility Questionnaire (IAR). Table 10 presents ANOVA summary data for each scale, and Table 11 contains individual means and standard deviations for the respective variables.

As predicted, LD subjects obtained lower scores on the I+ scale than Control subjects (LD  $M = 6.26$ , Control  $M = 7.36$ ;  $F = 9.46$ ;  $df = 1, 146$ ;  $p < .001$ ). These data indicate that LD children have a greater tendency than Control children to ascribe responsibility for successful academic outcomes to external sources, such as the teacher's generosity or the easy nature of the task. The failure to find a significant Grade level effect indicates that the group differences observed on the I+ scale remained constant from Grades 3 to 6. No significant effects were found for sex, nor were there any significant interactions.

With respect to the I- subscale, the only significant effect was for Grade level (see Table 10), where there was a tendency for older students in both groups to obtain higher

Table 10  
ANOVA Summary Data for I+ and I-  
Subscale Scores

## I+ Subscale

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	37.079	9.463	.002*
B (Sex)	1	0.143	0.036	.849
AB	1	1.432	0.365	.546
C (Grade)	3	3.107	0.793	.499
BC	3	1.574	0.402	.752
AC	3	0.887	0.226	.878
ABC	3	1.201	0.306	.821
Errors	146	3.912		

\*Significant effect

## I- Subscale

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	1.157	0.176	.676
B (Sex)	1	0.444	0.068	.795
AB	1	3.802	0.578	.448
C (Grade)	3	17.741	2.670	.048*
BC	3	7.037	1.069	.364
AC	3	0.937	0.142	.934
ABC	3	5.607	0.852	.467
Errors	146	6.577		

\*Significant effect

I- scores. Scheffe multiple comparisons of means were run in order to ascertain where the significant Grade effect occurred. The results revealed that the Grade effect was due to a marginally significant 1.89 point increase from Grade 3 to Grade 6 ( $F = 7.21$ ;  $df = 3, 146$ ;  $p = .07$ ). This increase suggests that subjects were developing more internal orientations regarding the causes of failure outcomes.

The finding of a non-significant effect for Groups on the I- scale is supportive of the hypothesis that LD subjects would indicate attributions of responsibility for failure events that were similar to those of normally achieving Control subjects. The Grade level effect suggests that these attributions tend to become increasingly internal for both groups over Grades 3 to 6. Such a tendency indicates a decrease in ascribing responsibility for unsuccessful outcomes to other people and the nature of the task, and an increase in viewing lack of effort or ability as factors which often contribute to failure in school.

Considered together, the results for academic locus of control, as measured by the IAE, suggest that LD children are more external than normal achievers in accepting responsibility for success outcomes, but they attribute a similar degree of responsibility for failure outcomes as normally achieving children.

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**Table 11**  
**Means and Standard Deviations for IAH**  
**I+ and I- Subscale Scores**

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**I+ Subscale**

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		<b>ID</b>		<b>Control</b>	
		<hr/>		<hr/>	
	<b>n</b>	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>
<hr/>					
Grade 3	44	6.14	1.97	7.18	1.90
Grade 4	46	6.00	1.91	7.26	1.82
Grade 5	34	6.41	2.20	7.18	1.54
Grade 6	38	6.58	2.78	7.84	1.46
Total	162	6.26	2.08	7.36	1.73

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**I- Subscale**

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		<b>ID</b>		<b>Control</b>	
		<hr/>		<hr/>	
	<b>n</b>	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>
<hr/>					
Grade 3	44	5.46	2.37	5.09	3.03
Grade 4	46	6.65	1.90	6.26	2.44
Grade 5	34	5.65	3.09	6.24	2.67
Grade 6	38	7.26	2.15	7.05	2.14
Total	162	6.26	2.48	6.12	2.69

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### **Self-Expectations for Future Achievement**

Analyses of Projected Academic Performance Full Scale scores revealed a significant Group effect ( $F = 7.76$ ;  $df = 1, 146$ ;  $F < .01$ ), with LD subjects, as predicted, obtaining lower scores than Control subjects (see Table 12). The hypothesis that the difference between the LD and Control groups would increase over grade level was not supported. No other significant Full Scale interaction effects were observed, nor was there a Sex effect.

Table 13 presents Full and subscale means, standard deviations, and F-Ratios, and Appendices C and D show Full and subscale data for the two groups at each grade level. Here, it will be noted that the group difference was due to LD subjects obtaining 9.05 fewer points (about 1/2 a standard deviation) than Control subjects (LD  $M = 114.79$ , Control  $M = 123.88$ ). This difference in Projected Performance Full Scale scores was reflected primarily in the areas of Spelling, Reading, and Math, in that statistically significant group differences were also observed for these subscales. No significant differences between the LD and Control groups, however, were found for Language Arts, Social Studies, or Science. Thus, the LD subjects appear to have lower achievement expectations for the "core" elementary areas of spelling, reading, and math, although their predictions with respect to language arts, social studies, and science are similar to those of normally achieving students.

Table 12

ANCOVA Summary Data for Projected Academic  
Performance Full Scale Scores

Source	df	M.S.	F-ratio	Probability
A (Group)	1	2417.170	7.756	.006*
B (Sex)	1	654.413	2.099	.149
AB	1	77.900	0.250	.618
C (Grade)	3	3.824	0.012	.998
BC	3	306.322	0.983	.03
AC	3	295.735	0.949	.415
ABC	3	203.445	0.653	.582
Errors	146	311.671		

\*Significant effect



Table 13

Means, Standard Deviations, and F-Ratios for Project  
Academic Performance Full and Subscale Scores

	LD		Control		F	p
	Mean	SD	Mean	SD		
Full Scale	114.75	16.67	123.88	18.06	7.76	.006*
Spelling	18.21	3.35	20.96	33.83	20.20	.000*
Reading	19.06	3.57	21.80	4.03	14.70	.000*
Language Arts	18.32	3.52	19.24	4.15	1.79	.183
Math	19.75	4.27	21.42	4.81	4.18	.042*
Social Studies	19.28	3.80	20.20	4.67	1.65	.201
Science	20.16	3.97	20.26	4.64	0.20	.655

\*Significant effect

No significant interactions were observed for any of the subscales. But there was a significant Grade effect for Spelling ( $F = 2.97$ ,  $df = 3, 146$ ,  $p < .05$ ), and a significant Sex effect for Science ( $F = 15.08$ ,  $df = 1, 146$ ,  $p < .001$ ). On the Spelling subtest, Scheffe multiple comparisons of means revealed that the Grade effect was due to children in Grade 4 obtaining significantly lower scores than Grade 5 children (Grade 4  $M = 18.20$ , Grade 5  $M = 20.47$ ;  $F = 7.57$ ,  $df = 3, 146$ ,  $p < .05$ ). On the other hand, the sex effect was due to boys reporting higher expectations for achievement in Science than girls (Boys  $M = 21.06$ , Girls  $M = 18.52$ ;  $F = 15.08$ ,  $df = 1, 146$ ,  $p < .001$ ).

In sum then, LD children clearly hold lower expectations for future academic performance than normally achieving children. This more pessimistic attitude was primarily prevalent for the "core" elementary areas of reading, spelling, and math. Considered together with the other variables previously discussed, the results are supportive of the hypotheses that LD and normally achieving children would be clearly differentiated in terms of school-related affective development. Compared to normally achieving students, the history of academic failure which typifies and defines learning disabilities, appears to be associated with the following: (1) lower self-perceptions of ability, (2) greater external attributions of responsibility for school successes, and (3) lower expectations regarding future academic performance. Correlational data further

supports this observation. Moreover, these relatively negative affective characteristics were well established at the Grade 3 level.

In terms of the hypotheses that differences in affective characteristics between LD and normally achieving children would become greater over grade level, this was not confirmed. The group difference remained relatively constant for all grades. Thus, older LD children in this sample, with presumably longer histories of failure than the younger subjects, did not appear to have developed more negative affective characteristics. Finally, it is interesting to note that although LD children have developed somewhat negative school-related affective characteristics, this has not generalized to all subjects, and their general self-concepts do not appear to have been adversely affected by their histories of school failure.

#### **Mothers' Reactions to their Children's Achievement Behaviors**

Separate analyses were performed for the Positive and Negative Reactivity subscales of the Parent Reaction Questionnaire (PRQ). Table 14 presents ANOVA summary data for each subscale.

For the Positive subscale, a significant Group effect was observed ( $F = 5.32$ ;  $df = 1, 146$ ;  $p < .05$ ), with mothers of LD children obtaining lower scores than mothers of Control children (LD  $M = 5.17$ ,  $SD = 1.80$ ; Control  $M = 5.83$ ,  $SE = 2.02$ ). No other significant main effects were found,

Table 10

**ANOVA Summary Data for Parent's Reaction Questionnaire  
Positive and Negative Reactivity Subscale Scores**

**Positive Reactivity**

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	20.629	5.320	.022*
B (Sex)	1	4.814	1.066	.303
AB	1	7.284	1.935	.166
C (Grade)	3	1.733	6.460	.710
BC	3	4.607	1.224	.303
AC	3	1.195	0.317	.813
ABC	3	2.521	0.669	.572
Errors	146	3.765		

\*Significant effect

**Negative Reactivity**

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	27.166	8.084	.005*
B (Sex)	1	1.902	0.566	.453
AB	1	0.716	0.213	.645
C (Grade)	3	6.272	1.867	.138
BC	3	3.143	0.935	.425
AC	3	1.562	0.464	.707
ABC	3	1.645	0.545	.649
Errors	146	3.360		

\*Significant effect

nor were there any significant interactions. This result supports the hypothesis that there would be a difference in Positive Reactivity scores between the two groups of mothers. Moreover, it reveals that LD mothers report fewer positive or encouraging reactions to their children's achievement behaviors than mothers of normally achieving Control children. The prediction that the difference in scores between the two groups of mothers would increase over grade level, however, was not supported (see Appendix F). Thus, longer histories of school failure do not appear to be associated with increasingly fewer positive reactions by LD mothers.

A significant Group effect was also noted in terms of the Negative Reactivity subscale ( $F = 8.08$ ;  $df = 1, 146$ ;  $p < .01$ ). Here, mothers of LD subjects obtained higher scores than mothers of Control subjects (LD  $M = 6.33$ ,  $SD = 1.71$ ; Control  $M = 5.43$ ,  $SD = 1.93$ ), thereby indicating that they have typically more negative reactions to their children's school-related achievement behaviors. Again, as with the Positive Reactivity subscale, no other significant effects were found. Thus, there was no support for the hypothesis that there would be a grade level effect (see Appendix E).

In sum, the above findings for the PRQ suggest that mothers of LD children have fewer positive and more negative reactions to their children's school-related events and behaviors, compared to mothers of children who experience "normal" academic achievement in school. A tendency to

report increasingly negative reactions to older LD children was not observed. The low correlations between PRC scores and the other variables investigated in the present study suggest that mothers' self-reported reaction patterns are, however, only marginally related to achievement levels and affective development.

### Mothers' Perceptions of their Children's Academic Self-Concept

In terms of mothers' ratings of the SPAS instrument, the intent here was to obtain an indication of the degree of congruence between mothers' perceptions of the school-related attitudes and feelings of their children, and their children's own reported self-perceptions. It was predicted that no differences would be found in each of the LD and Control groups between children's and mothers' SPAS scores.

The ANOVA summary data for Full Scale SPAS scores for LD mothers and LD children are presented in Table 15. There was no significant Group effect, as the Full Scale means show in Table 16. Here, mothers and children obtained similar overall scores (Children's  $M = 37.88$ ,  $SD = 12.66$ ; Mothers'  $M = 38.61$ ,  $SD = 14.33$ ). In addition, no significant Sex or Grade effects were observed (see Appendix E for Grade level data), and the only significant interaction was for Grade by Sex. Scheffe multiple comparisons of means were run to ascertain where the interaction effect was occurring. It was found to be due to a 13.48 point difference in scores at

the Grade 4 level between ratings for girls and ratings for boys, with mothers of girls and their daughters reporting higher scores than mothers of boys and their sons (Girls  $M = 45.64$ , Boys  $M = 32.16$ ;  $F = 9.70$ ;  $df = 3, 146$ ;  $p < .05$ ).

Table 16 presents SPAS subscale data. Here a significant Group effect was found for General Ability ( $F = 13.28$ ;  $df = 1, 146$ ;  $p < .001$ ), with LD mothers reporting higher scores than their LD children (Mothers  $M = 7.64$ ,  $SD = 3.31$ ; Children  $M = 5.67$ ,  $SD = 2.76$ ). This suggests that these mothers believe their children hold higher self-perceptions of abilities in general, than the children themselves report. No other group differences were observed although several other effects were found. Among these were a Sex by Grade interaction for General Ability, a Grade level effect for Reading/Spelling, and a Sex effect for Penmanship/Neatness. The Sex by Grade interaction on the General Ability subscale ( $F = 3.81$ ;  $df = 3, 146$ ;  $p < .02$ ) was due to lower ratings of boys than girls at the Grade 4 level (Boys  $M = 5.19$ , Girls  $M = 7.43$ ). In terms of the Reading/Spelling Grade effect, LD children and LD mothers at the Grade 6 level tended to rate this subscale higher than children and mothers at other grade levels (Grade 3  $M = 6.93$ ; Grade 4  $M = 5.24$ ; Grade 5  $M = 5.82$ ; Grade 6  $M = 8.45$ ). Finally, the Sex effect for Penmanship/Neatness ( $F = 7.99$ ;  $df = 1, 146$ ;  $p < .01$ ) was due to higher ratings reported for girls than for boys (Boys  $M = 6.80$ , Girls  $M = 8.44$ ).

Table 15

ANOVA Summary Data for LD Children's and LD Mothers'  
SPAS Full Scale Scores

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	17.313	0.096	.757
B (Sex)	1	139.822	0.772	.381
AB	1	0.135	0.000	.978
C (Grade)	3	169.953	0.939	.424
BC	3	552.476	3.052	.031*
AC	3	81.910	0.452	.716
ABC	3	140.188	0.774	.510
Errors	146	181.030		

\*Significant effect



Table 16

Means, Standard Deviations, and F-Ratios for LD Children's  
and LD Mothers' SPAS Full and Subscale Scores

	Children		Mothers		F	P
	Mean	SD	Mean	SD		
Full Scale	37.88	12.66	38.61	14.33	0.09	.257
General Ability	5.67	2.76	7.64	3.31	13.28	.000*
Arithmetic	7.33	3.19	7.00	4.02	0.66	.417
School Satisfaction	7.44	2.98	7.48	3.27	0.00	.981
Reading/Spelling	6.89	3.65	6.25	4.25	0.54	.462
Penmanship/ Neatness	7.22	3.26	7.86	5.39	0.44	.505
Confidence	3.32	2.07	2.77	1.13	2.72	.101

\*Significant effect

Overall then, LD mothers and their children reported SPAS scores which were generally congruent with each other. The only notable incongruence was on the General Ability subscale, where LD mothers tended to report higher perceptions of their children's ability. There was also an indication that Reading/Spelling problems are not perceived as being major at the Grade 6 level, and that girls are generally thought of as being neater.

Turning to the data for Control mothers and their children, it is interesting to note that there were no significant Full Scale SPAS main effects or interactions (see Table 17). In terms of the SPAS subscales (means, standard deviations, and F-Ratios are reported in Table 18, whereas Appendix B shows Grade level data), only one Group effect was found. As with LD mothers, Control mothers rated the general ability of their children higher than the children rated their own ability (Children  $M = 8.37$ ,  $SD = 2.79$ ; Mothers  $M = 10.27$ ,  $SD = 2.13$ ;  $F = 22.57$ ;  $df = 1, 146$ ;  $p < .001$ ). In both cases then, mothers seem more optimistic than their children in terms of perceptions of general academic ability.

Several other statistically significant effects were observed. Sex differences were found for the School Satisfaction ( $F = 7.02$ ;  $df = 1, 146$ ;  $p < .01$ ), Reading/Spelling ( $F = 5.33$ ;  $df = 1, 146$ ;  $p < .05$ ), and Penmanship/Neatness ( $F = 9.65$ ;  $df = 1, 146$ ;  $p < .01$ ) subscales. In each case, higher mean ratings were reported

Table 17

ANOVA Summary Data for Control Children's and  
Control Mothers' SPAS Full Scale Scores

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	245.488	2.175	.142
B (Sex)	1	132.001	1.169	.281
AB	1	0.235	0.002	.964
C (Grade)	3	74.839	0.663	.576
BC	3	144.562	1.281	.283
AC	3	55.151	0.489	.691
ABC	3	59.681	0.529	.663
Errors	146	112.860		

for girls than for boys. Finally, a significant Grade effect was obtained on the Arithmetic subscale ( $F = 3.20$ ;  $df = 3, 146$ ;  $p < .05$ ). Here, there was a tendency for lower scores to be reported at the Grade 5 level, than at each of the other levels scores (Grade 5  $M = 8.32$ , Grade 6  $M = 10.29$ ;  $F = 8.33$ ;  $df = 3, 146$ ;  $p < .05$ ).

Overall then, mothers of Control children obtained SPAS scores which, with the exception of the General Ability subscale, were similar to those obtained by the Control children themselves. The moderate correlation of .497 between Control children's and Control mothers' Full Scale SPAS scores, however, suggests that this congruence is not necessarily indicative of a high level of accuracy on the part of mothers in predicting their child's academic self-concept status. There was also a tendency for mothers to perceive of girls' academic abilities more positively than boys'.

Overall, mothers' SPAS results reveal a considerable degree of congruence with their children's SPAS results. However, when the moderate correlations (LD  $r = .429$ ; Control  $r = .497$ ) between mothers' and children's SPAS scores within each group are taken into account, the congruence does not necessarily indicate total accuracy. Collectively, mothers obtained similar mean scores, but are only moderately accurate when these scores are compared to those of their children at the individual level. In respect, it is interesting to note that 56 (69.1%) of the

Table 18  
Means, Standard Deviations, and F-ratios for  
Control Children's and Control Mothers'  
Full and Subscale SPAS Scores

	LD		Control		F	p
	Mean	SD	Mean	SD		
Full Scale	49.72	10.64	52.15	10.28	2.18	.142
General Ability	8.37	2.79	10.27	2.13	22.57	.000*
Arithmetic	9.68	2.80	9.58	3.09	0.33	.566
School Satisfaction	8.73	2.31	9.06	2.33	1.30	.257
Reading/ Spelling	10.07	2.30	10.35	2.28	0.58	.444
Penmanship/ Neatness	8.22	3.01	7.69	3.40	0.36	.549
Confidence	4.64	2.17	5.25	2.26	2.06	.153

\*Significant effect

mothers and 54 (66.6%) of the control mothers reported Full Scale SPAS scores which differed from their children's Full Scale scores by at least 5 points. A substantial majority of mothers in both groups, therefore, are not very accurate in perceiving their children's academic self-concept.

### **Mothers' Expectations of Future School Performance**

The results of analyses of mothers' Projected Academic Performance Full Scale scores (PAPS-M) revealed a highly significant Group effect ( $F = 26.82$ ;  $df = 1, 146$ ;  $p < .001$ ), with LD mothers obtaining significantly lower ratings than Control mothers (LD  $M = 30.44$ ,  $SD = 4.85$ ; Control  $M = 35.18$ ,  $SD = 4.99$ ). No other significant main effects were noted, nor were there any significant interaction effects.

Summary Full Scale ANOVA data are presented in Table 19. These results are consistent with the hypothesis that LD mothers would hold lower academic achievement expectations than Control mothers. Once again no support was found for the prediction that the difference in expectations between the two groups of mothers would increase over grade level (see Appendices C and D). Thus, the relatively low expectations held by LD mothers were evident at the Grade 3 level, and remained constant through to Grade 6.

Table 20 shows Full and subscale means, standard deviations, and F-Ratios. Here, it should be noted that LD mothers reported significantly lower expectations for all the subject areas assessed, and not just for the

Table 19  
 ANCOVA Summary Data for Mothers' Projected  
 Academic Performance Full Scale Scores

Source	df	M.S.	F-Ratio	Probability
A (Group)	1	713.010	26.822	.000*
B (Sex)	1	1.691	0.063	.801
AB	1	6.345	0.239	.626
C (Grade)	3	20.442	0.769	.513
BC	3	10.461	0.394	.758
AC	3	5.886	0.221	.881
ABC	3	20.653	0.778	.508
Errors	146	26.583		

\*Significant effect

**Table 20**  
**Means, Standard Deviations, and F-Ratios for**  
**Mothers' Projected Academic Performance**  
**Full and Subscale Scores**

	LE		Control		F	p
	Mean	SD	Mean	SD		
Full Scale	30.44	4.85	35.19	4.99	26.823	.000*
Spelling	5.09	1.25	6.09	1.31	22.184	.000*
Reading	5.21	1.22	6.40	1.14	39.547	.000*
Language Arts	4.96	0.97	5.74	1.09	19.106	.000*
Math	5.05	1.30	5.77	1.30	6.211	.014*
Social Studies	5.15	0.93	5.63	1.06	6.607	.011*
Science	4.99	1.05	5.57	1.04	8.477	.004*

\*Significant effect



reading/language arts areas where the learning problems of LD children are most apparent. No significant interactions were observed for the subscales. There were, however, two significant sex effects (Language Arts and Science), and two significant Grade effects (Spelling and Reading).

The sex differences in the Language Arts area, were due to mothers of girls holding higher expectations than mothers of boys (Boys  $M = 5.22$ , Girls  $M = 5.61$ ;  $F = 5.48$ ;  $df = 1, 146$ ;  $p < .05$ ). Conversely, for Science, boys' mothers reported higher expectations than girls' mothers (Boys  $M = 5.39$ , Girls  $M = 5.06$ ;  $F = 4.30$ ;  $df = 1, 146$ ;  $p < .05$ ). In terms of Spelling, the Grade level effect ( $F = 4.76$ ;  $df = 3, 146$ ;  $p < .01$ ) was due to increased mean expectations at each grade level (Grade 3 = 5.29; Grade 4 = 5.33; Grade 5 = 5.77; Grade 6 = 6.08). Similarly, the significant Grade level effect for Reading ( $F = 2.83$ ;  $df = 3, 146$ ;  $p < .05$ ) reflected an increase in mean expectation scores over Grade 3 to Grade 6 (Grade 3 = 5.54; Grade 4 = 5.65; Grade 5 = 5.97; Grade 6 = 6.13).

To summarize, mothers of LD children reported having significantly lower achievement expectations than mothers of normally achieving Control children. Further, these lower expectations were expressed in all the academic subject areas tapped by the PAIS-M. Differences in expectations held by LD and Control mothers however, did not appear to change as a function of grade level. Rather, the different predictions were evident at the Grade 3 level, and remained

constant through to Grade 6. The mothers as a combined group, though, did report increasing expectations over grade level for spelling and reading.

### TEACHERS' EXPECTATIONS OF FUTURE SCHOOL PERFORMANCE

Finally, results of teachers' ratings on the Projected Academic Performance Scale (PAPS-1) are reported. Table 41 reveals a highly significant full scale Group effect, similar to that observed for mothers, ( $F = 37.57$ ;  $df = 1, 146$ ;  $p < .001$ ). Here, teachers reported lower Projected Performance scores for LD children in comparison to control children (LD  $M = 26.61$ ,  $SD = 6.25$ ; control  $M = 31.94$ ,  $SD = 6.04$ ). No significant Sex effect was observed, nor were there any full scale interaction effects. A significant Full Scale Grade level difference, however, was noticed ( $F = 3.63$ ;  $df = 3, 146$ ;  $p < .05$ ). In order to determine the major source of this effect, Scheffe multiple comparisons of means were carried out. The results revealed a marginally significant increase in mean PAPS-1 scores at the Grade 6 level compared to the combined Grades 3 to 5 mean scores (Grades 3-5  $M = 29.08$ ; Grade 6  $M = 32.05$ ;  $F = 6.62$ ;  $df = 3, 146$ ;  $p < .10$ ).

In terms of subscale scores for the teachers' Projected Performance measures, means, standard deviations, and F-Ratios are presented in Table 22. (See Appendices C and D for Grade level data.) These data reveal that teachers reported significantly lower performance expectations for LD

Table 21

ANOVA Summary Data for Teachers' Projected Academic  
Performance Fullscale Scores

Source	df	M.S.	F-Ratio	Probability
A (Group))	1	1375.020	37.569	.000*
E (Sex)	1	13.078	0.357	.551
AE	1	3.994	0.109	.742
* C (Grade)	3	132.295	3.633	.014
EC	3	60.218	1.645	.182
AC	3	66.103	1.806	.149
AEC	3	33.116	0.905	.440
Errors	146	36.599		

\*Significant effect

children in all subject areas tapped by the PAPS-T, in comparison to the normally achieving Control children. This effect was similar to that obtained for mothers' PAPS subscale scores.

In addition, significant Grade level effects were observed for the Spelling ( $F = 3.74$ ;  $df = 3, 146$ ;  $p < .02$ ), Language Arts ( $F = 2.74$ ;  $df = 3, 146$ ;  $p < .05$ ), Social Studies ( $F = 3.30$ ;  $df = 3, 146$ ;  $p < .05$ ), and Science ( $F = 3.81$ ;  $df = 3, 146$ ;  $p < .02$ ) subscales. An examination of means in each case showed a tendency for Grade 6 teachers to report higher ratings than teachers at the Grades 3 to 5 levels. An inspection of raw data as a function of class grouping revealed no obvious reason for this teacher effect, other than a generalized tendency amongst all Grade 6 teachers to report higher ratings for most children in their classes. Thus, the source of high Grade 6 scores is not clear. Of further interest is the significant Group by Grade level interaction observed for the Math subscale ( $F = 3.74$ ;  $df = 3, 146$ ;  $p < .02$ ). Scheffe tests revealed that this interaction effect was due to a proportionately greater difference in mean Math scores between LD and Control subjects at the Grade level, in comparison to differences in means at each of the Grades 3, 4 and 5 levels (all  $p$ 's  $< .05$ ). Thus, in terms of grade effects, Grade 6 teachers reported higher expectations for both the Control and LD groups in four of the six subscales, (Spelling, Language Arts, Social Studies, and Science). In addition to this, a

Table 22  
Means, Standard Deviations, and F-Ratios for  
Teachers' Projected Academic Performance  
Full and Subscale Scores

	LD		Control		F	p
	Mean	SD	Mean	SD		
Full Scale	26.62	6.25	32.94	6.04	37.57	.000*
Spelling	4.42	1.24	5.52	1.26	29.44	.000*
Reading	4.40	1.33	5.61	1.37	30.76	.000*
Language Arts	4.62	1.28	5.47	1.03	19.99	.000*
Math	4.16	1.36	5.12	1.36	35.65	.000*
Social Studies	4.59	1.14	5.42	0.99	18.30	.000*
Science	4.43	1.08	5.41	1.10	24.45	.000*

\*Significant effect

Grade 6 math difference was also observed in favor of Control subjects. By implication, Grade 6 teachers may be indicating that as LD students enter high school, they expect them to experience considerable difficulty with Math.

In sum, teachers were similar to mothers in that they reported significantly lower expectations in all subject areas tapped by the Projected Academic Performance Scale. Further, a tendency for Grade 6 teachers to report significantly higher expectations for both groups on all subscales except Reading and Math was noted. In terms of Math, higher ratings at the Grade 6 level were made for Control subjects, but not for LD subjects. Thus, although strong group differences were found for teacher expectations, with the exception of the Math subscale, these differences were present at the Grade 3 level, and remained constant through to Grade 6.

## CHAPTER V

### DISCUSSION

The discussion section will parallel the results chapter. Accordingly, the children's variables will be dealt with first. Here, the findings for general self-concept, academic self-concept, academic locus of control, and performance expectations will each be considered. Next, attention will focus on the adult variables, namely, mothers' perceptions, reactions, and expectations, along with teachers' expectations. Following the discussion of the children and adult variables, an integration will be presented in terms of implications for the intellectual and emotional development of learning disabled children. Finally, the educational significance of the present study will be considered, along with possible directions for future research.

#### Children's Perceptions

For general self-concept, the prediction that there would be no significant differences between the LD and Control children in their ratings on the Piers-Harris Children's Self-Concept Scale was clearly supported. Indeed, neither the Full Scale nor any of the subscales discriminated between the two groups. Further, the correlational data revealed that general self-concept has a negligible relationship, at least in this sample, with Report Card grades, and also with the other more

specifically school-related affective variables. These results suggest that school experiences, attitudes, and achievement levels are relatively independent of general self-perceptions and evaluations, and that histories of school failure, which characterize LD students, do not appear to generalize to overall feelings of inadequacy or diminished self-worth.

Such findings are in agreement with other studies which have shown that little relationship exists between general self-perceptions and attitudes, and achievement in school (e.g., Cobb, Chisson & Davis, 1975; Bettschen, Winne & Wideen, 1977). As Bloos (1976) notes, following his extensive review of the literature, low achievers and high achievers may be high, average, or low in general self-concept. Children who experience predominantly negative outcomes in their academic work, may be able to derive more positive indications of their self-worth and adequacy in other areas, such as music, athletics, or in various hobbies. Certainly for the LD children in the present study, the Piers-Harris results suggest that perceptions of physical attributes and peer popularity, along with feelings of happiness and levels of anxiety, have not been adversely affected by school failure.

An additional finding of interest was that the Intellectual/School Status subscale of the Piers-Harris failed to discriminate between the LD and Control groups, although there was a slight tendency for LD girls to obtain



lower scores than Control girls. This result is consistent with a study reported by Boersma and Chapman (1978). They found that the Intellectual/School Status Piers-Harris subscale failed to correlate significantly with either Report Grades or with academic self-concept, as measured by the Student's Perception of Ability Scale. The result is also in line with Marx and Winne's (1978) observations that subscales of general self-concept instruments, including the Piers-Harris, have poor discriminant validity.

Overall then, the present study adds to those investigations which have failed to find a significant relationship between school learning and general self-concept. In addition, it is evident that the failure experiences which typify LD children are not necessarily accompanied by broad perceptions of diminished self-worth or inadequacy.

Turning to academic self-concept, however, the results reveal a very different picture. As predicted, the LD group reported significantly lower self-perceptions on all subscales of the Student's Perception of Ability Scale (except Permanship/Neatness, which was nevertheless in the expected direction), in comparison to the normally achieving Control group.

Considering that these LD children had been referred for Remedial instruction primarily on the basis of reading problems, it is not surprising that they should report lower self-perceptions of ability on the Reading/Spelling

subscale. Further, the significantly lower perceptions of arithmetic and general academic ability for LD children are in keeping with their predominantly lower levels of performance across most, if not all, academic subjects. Such findings are in agreement with the notion that frequent failure experiences in specific subjects are usually associated with the development of relatively low perceptions of ability in those subjects (Brookover et al., 1965, 1967; Shavelson et al., 1976).

Results with the other subscales of the SPAS, however, suggest that academic self-concept in LD students is more than a mere reflection of past and current achievement levels. Rather, the low perceptions of ability in reading, spelling, and arithmetic appear to have generalized to comparatively negative attitudes towards school in general, and also to expressions of less confidence in academic ability. So, although diminished self-perceptions of ability in specific subject areas seem to reflect the reality of lower achievement levels, it is also important to observe that LD students have developed fairly broad negative feelings about school, along with relatively depressed levels of academic self-confidence.

Clearly then, the LD children in the present study are strongly characterized by their comparatively lower academic self-concepts. Moreover, these negative characteristics were well established at the Grade 3 level, and remained constant through to Grade 6. Such broad and fairly early indications

of low academic self-concepts in LD or low achievement children are in keeping with findings of other studies. For example, Boersma and Chapman (1978), in an investigation with Grade 3 LD and normally achieving children stratified on WISC-R IQs, found similar sharp differences between groups on the SPAS. Other studies comparing high and low achieving elementary children with similar IQ's have also found relatively negative academic self-concepts among the low achievers (e.g., Campbell, 1966; Fink, 1962; Kifer, 1975).

Bloom (1976) and Hanachek (1978) have both pointed out, that such relatively negative attitudes are generally established during the first few years in elementary school, often in response to repeated failure experiences in the heavily stressed area of reading. Thus, the present finding of low academic self-concepts associated with LD children at the Grade 3 level is not surprising. Indeed, it is supportive of the supposition that learning outcomes during the early elementary years play a crucial role in the development of self- and school-related perceptions and attitudes.

The implications for LD children of such relatively negative academic self-concepts seem important to consider. Bloom (1976) argues that when students believe that their abilities are inadequate, they are likely to approach learning with reluctance, dislike, or even avoidance. Similarly, Brookover et al. (1965, 1967), view

self-perceptions of academic ability as functionally limiting factors in school success. Thus, the amount of effort invested in future tasks will depend partly on the degree to which individuals perceive they are capable of meeting task requirements.

Some empirical support for these beliefs is found in studies conducted by Wattenberg and Clifford (1964), and Laney (1965). In two separate investigations, these researchers found that the self-perceptions of kindergarten children were significantly better predictors of reading ability 12 months to 2 1/2 years later than were measures of intelligence. Further attesting to the causal power of academic self-concept are the results from the major longitudinal study conducted by Brookover and his associates (1965, 1967). They found that levels of achievement improved following an academic self-concept enhancement program with high school underachieving students and their parents.

A positive academic self-concept, therefore, appears to be an important component in successful school learning. If, as the present study suggests, LD students have relatively negative self-perceptions of ability, then the motivation and task persistence necessary for success in school will likely be depressed. In sum then, the results for academic self-concept indicate that by the end of Grade 3, LD children have already developed comparatively low perceptions of their ability in specific subject areas. In addition, these self-perceptions appear to have generalized

to fairly negative attitudes toward school work in general, and to diminished levels of confidence in their academic abilities.

Further attesting to the possibility of these negative beliefs are the results for academic locus of control. As predicted, LD children obtained significantly lower scores on the I+ subscale of the ~~Intellectual Achievement~~ ~~Responsibility Questionnaire~~ than Control children. In this regard, LD children indicated a greater tendency than normally achieving children to ascribe responsibility for successful achievement outcomes to external sources, such as the teacher's momentary generosity, or the easy nature of the task. Concomitantly, LD children see ability and effort (internal factors) as being less influential in causing successful task outcomes, than do normal achievers. This relatively external orientation was found for both boys and girls, and was clearly evident by Grade 3. No trend towards increased externality for older LD children was noted.

In terms of control orientations for failure outcomes (I-), the LD students reported similar attributions to those observed for normally achieving students. Further, these locus of control perceptions showed a tendency in both groups towards increasing internality over grade level, particularly for Grade 6 children. Learning disabled children, along with normal achievers, therefore, indicated an increasing belief that failure outcomes are the result of insufficient ability and effort on their part.

Within these results an interesting pattern emerges. Learning disabled students tend to attribute frequent failures to a lack of ability, while at the same time ascribing responsibility for their relatively infrequent successes to external factors, such as the teacher being nice, or the task being easier than usual. Thus, as LD students proceed through elementary school, they accept an increasing amount of responsibility for their failures, yet take comparatively little credit for their successes.


While previous studies have also tended to report external control orientations among failure-prone or underachieving children (e.g., Chance, 1965; Kifer, 1975; Phares, 1976), few, if any, have drawn a distinction between attributions for successful events and those for failure events. Yet, the observations in this study highlight the fruitfulness of considering control orientations for successes and failures separately.

It seems logical to expect that low achieving students would come to believe (correctly or incorrectly) that their abilities were not adequate in facilitating successful task outcomes, and so attribute the relatively infrequent and unexpected success occurrences to external sources. Conversely, when failure outcomes occur, they are probably seen as further evidence of inadequate ability, and thereby attributed internally to the individual's own inadequacies. Such an interpretation is consistent with the findings of relatively negative academic self-concepts among LD children

observed in the present study. Continuing this line of reasoning, if LD children view successful school outcomes as only partly contingent upon effort and ability, while at the same time viewing failures as resulting from their intellectual inadequacies, then it is possible that these children may start "giving up" on themselves and quit trying. Support for this suggestion is found in numerous studies.

Dweck and Reppucci (1973), for example, report that children with external control orientations tend to give up earlier on difficult tasks than children who had internal beliefs. Similarly, Altschuler and Kassimore (1975) also noted that positive behavior was significantly less for children who believed that task outcomes were determined by external factors compared to those who thought the crucial determinants were based on internal sources. Others have found that externally oriented students are characterized by lower levels of intrinsic motivation (Litner & DuCette, 1974), less confidence in their ability to achieve (Arlin, 1975), and in more serious cases, a sense of "learned helplessness", where success is seen as unattainable irrespective of any effort that might be invested (Dweck, 1975). Under these circumstances, LD children will likely develop strong doubts about their abilities to perform successfully in future academic tasks, and concomitant beliefs that future performance will show little improvement.

The results for academic achievement expectations seem to support this latter suggestion. Here, it was observed that LD children had significantly lower ratings on the **Projected Academic Performance Scale** than the normally achieving control children. The overall difference between the two groups was reflected more specifically in terms of reading, spelling, and math performance, where in each case, LD students expressed lower short and long term expectations for future academic success than controls. As with the observations for academic self-concept, these differences were clearly evident by the Grade 3 level, and remained constant through to Grade 6.

Thus, in terms of the "core" elementary subject areas of reading, spelling,  math, LD children report expectations which are concomitant with their achievement levels, and also with their own perceptions of ability. So, persistent failure in these subjects appears to be accompanied by lower self-perceptions of ability, and lower expectations of future performance. Such findings are in agreement with previous studies which indicate that failure-prone and underachieving children generally hold lower expectations for future success when compared to high achievers with similar intellectual abilities (Adelman, 1969; Boersma & Chapman, 1979; Jeng, 1974).

The implications of low expectations for LD children would seem to be obvious. If experiences in their learning history lead them to believe that successful task outcomes



are a relatively rare occurrence, partly attributable to externally controlled factors, then repeated failure in the future will probably be viewed as consistent with their perceptions of ability. In turn, low perceptions of ability, in the presence of relatively external control orientations regarding the cause of successful learning outcomes, are very likely linked with low expectations. Together, these variables probably contribute to reduced motivation to learn, and thereby interfere with attempts aimed at helping such children reach their potential (Bar-Tal, 1978).

In summarizing the findings for the children's variables, the following picture emerges. Learning disabled children hold lower perceptions of ability in the core elementary areas of reading, spelling, and arithmetic. These lower perceptions appear to have generalized to relatively negative attitudes toward school tasks in general, and to diminished levels of confidence in their academic abilities. In view of such relatively negative academic self-concepts, it seems hardly surprising that LD children should believe that success in school, when it does occur, tends to be caused by external factors. Concomitantly, their achievement expectations regarding future academic performance are comparatively low, again reflecting beliefs of inadequate ability. Further supportive of the interrelationships among these affective variables are the correlational data, where moderate correlations were observed among academic self-concept, locus of control, and achievement expectation

scores. In addition, each of these variables was significantly related to report grades.

Interestingly, the negative school-related beliefs and attitudes observed in the LD children do not appear to have influenced their general self-concepts. Further, although the sharp differences in the academic affective characteristics were evident at the Grade 3 level, LD children did not report increasingly negative perceptions over grade level. Rather, the results showed fairly constant differences between the two groups from Grade 3 to Grade 6.

This failure to find increasingly negative affective characteristics in older LD children was unexpected. It had been assumed that older LD children would have accumulated a greater number of failure experiences than younger LD students, thereby contributing to the development of increasingly negative school-related feelings and attitudes. It is possible that older LD subjects in this study did not in fact have lengthy failure histories, and that their learning disability remedial placement was based on difficulties which had become manifest more recently. Conversely, and possibly more likely, it may be that a self-concept develops to a large degree during the first two years of school, and then remains basically unchanged unless cognitive achievement changes greatly.

Another possibility is that academic affect is defined and developed largely on the basis of comparison with classroom peers. Change or constancy of affective

characteristics, therefore, could be primarily a function of change or constancy in peer group membership (Boersma, Chapman & Fattle, in press). Festinger (1954), for example, argues that estimates of self-worth are formed largely on the basis of comparisons with individuals in the immediate peer reference group. In line with this, Strang, Smith and Rogers (1978) have found differences in the self-concepts of special class children, depending on whether they were segregated with similar learning-problem children, or whether they were mainstreamed with "normally" achieving children.

In that the present LD sample was receiving only part-time remedial assistance, their basis for comparison was probably the children in their home room. Academic rankings (in terms of peer group comparisons) from year to year for such LD students probably do not change very much. Indeed, report card grades and standardized achievement test scores for the LD children indicate that their overall degree of deficiency tends to remain constant. Accordingly, LD children probably do not perceive themselves as becoming increasingly "inferior" in their academic abilities.

#### Adult Perceptions

In terms of the Parent Reaction Questionnaire, the prediction that mothers of LD subjects would report more negative reactions to typical achievement events and outcomes than mothers of Control subjects received

substantial support. The strong significant differences, between the groups for both positive and negative reactions indicate that LD mothers responded more negatively and less positively to their children's achievement behaviors. This differential pattern of reactivity was already established by Grade 3, and remained constant through to Grade 6.

Such findings are consistent with results from other studies. For example, Boersma and Chapman (1978a) found that mothers of Grade 3 children reported fewer positive interactions with their children than mothers of normal achievers. Similarly, Hilliard and Roth (1969) also observed that mothers of underachieving students were more rejecting and less accepting than mothers of normally achieving students. In another study, Owen et al. (1971) reported that parents of "educationally handicapped" (LD) children were generally less affectionate toward their children, and put more pressure on them regarding performance in school.

In addition to supporting results from previous research, the present findings are also noteworthy because of the manner in which the data were collected. Though self-report data on aspects of child-rearing techniques would seem particularly susceptible to "faking," the fact that LD mothers in the present study reported more negative and fewer positive interactions with their children adds credibility to the results. Indeed, the strength of the finding suggests that the self-report data may have been more "honest" as a result of collecting it through the mail,

where the potentially threatening physical presence of an interviewer was non-existent.

A somewhat puzzling aspect of the mother reaction findings is the non-significant correlational relationship with either school grades or the other affective variables. Mothers' reactions appear to be associated with group membership (ID and normal achievers), but not actual achievement levels per se. Furthermore, the "quality" of mother-child interactions seems independent of school-related affective development in these children.

Such a result appears to be at variance with other studies. Coopersmith (1967), for example, noted a strong relationship between parental behaviors and self-esteem. Specifically, children and adolescents with low self-esteem tended to have parents who were rejecting, punitive, and inconsistent in their approach to child-rearing. In terms of achievement levels, numerous researchers have observed positive relationships between negative and rejecting styles of parenting, and low achievement in school (e.g., Cowen, Huser, Beach & Rappaport, 1970; Hilliard & Roth, 1969; Kriege, 1977). Furthermore, studies on child-rearing (e.g., Baumrind, 1971; Becker, 1964; Sears, Maccoby & Levin, 1957), leave little doubt that parenting styles are inextricably linked with childrens' personality characteristics and with their performance in school.

Just how parental influences operate is unclear. In that respect, little appears to have changed over the last

decade since Yarrow, Campbell and Burton (1968) concluded that "The compelling legend of maternal influences on child behavior...does not have its roots in solid data and its decisive verification remains...a subject for future research" (quoted in Entwistle & Hayduk, 1978, p.182). Thus, it is widely accepted that parental attitudes, aspirations, and child-rearing styles do relate to achievement motivation and performance (Bronfenbrenner, 1974; Coopersmith, 1967; Owen et al., 1970; Smith, 1968), but the behavioral dynamics of these parental influences have not been clearly delineated.

In terms of the present study, the effects of very specific mother-child interactions are also unclear, especially in view of the low correlations between reaction patterns and the other variables. One might speculate that the negative reactions reported by LD mothers may be little more than an indication that their children provide fewer positive achievement behaviors with which to evoke positive reactions. These negative tendencies could also represent some feeling of frustration among mothers, accompanied by a feeling of "helplessness" in not knowing what to do by way of constructive assistance for their children. Such attitudes of helplessness have been noted in other studies, where parents of educable retarded and minimally brain damaged children indicated feelings of frustration with the low achievement levels of their children (Love, 1970).

Speculation aside, the role played by mothers'

reactions in the academic and affective development of their children remains unclear. In view of the differential reaction pattern observed between the LD and Control mothers, however, it is interesting to consider whether such reactions are based on accurate perceptions of the children's school-related feelings and attitudes.

By having mothers rate the Student's Perception of Ability Scale "the same way they thought their child would complete it," it was assumed that an estimate of accuracy and sensitivity would be obtained within each group. In this respect, it was hypothesized that mothers would be fairly aware of their children's academic self-concept through the day-to-day contact with them and discussions over school events, activities and anxieties. Further, it was anticipated that a comparison of mothers' and children's SPAS scores within each group would provide an indication of the congruence of these scores.

The mean SPAS score findings supported the hypothesis that mothers in each group would report scores which were similar to those obtained by their children. This was true for the Full and subscale SPAS data, with the exception of General Ability, where mothers in both groups tended to overestimate their children's perceptions of general ability. Thus, mothers' average estimates of their children's academic self-concept were generally congruent with their children's own reported self-perceptions.

A consideration of the correlational data, however,

suggests that these perceptions were not totally accurate. Indeed, the correlations between mothers' and children's SPAS scores (LD  $r = .429$ ; Control  $r = .497$ ), along with the mother-children difference scores, suggests a relatively inaccurate perception at the individual level on the part of most mothers. Mothers, therefore, may not be reading their children's perceptions of ability as accurately as perhaps they should. Concomitantly, the correlations between mothers' SPAS scores and Report Grades (LD  $r = .412$ ; Control  $r = .581$ ) would seem to indicate that their estimates of academic self-concept are developed as much on the basis of school achievement as on the actual feelings and attitudes held by them towards their children.

In short, the mean SPAS findings for mothers' perceptions of their children then, reveal a degree of congruence within the LD and Control groups. But the correlational data suggest that this congruence is not indicative of very accurate estimates, especially in the LD children. Such projections appear to be formed as much on the basis of children's achievement levels, as on their actual self-perceptions of ability.

Finally, in terms of the adult expectations, strong group differences were observed. As predicted, mothers and teachers had significantly lower Projected Academic Performance expectations for LD than for the normally achieving Control children. These differences were evident for all subject areas assessed. Furthermore, the lower



expectations for LD children were observed at the Grade 3 level, and remained constant through to Grade 6. Such results are in agreement with other studies which have also found that parents and teachers tend to hold lower achievement expectations for students who have difficulty in school (Eccersma & Chapman, 1978; Braun, 1976; Brophy & Good, 1974).

Considering that the LD children in the present study were having problems primarily in reading, it is interesting to note that low expectations were reported in all subscales of the Projected Performance scale. This finding is probably indicative of the fact that LD students are generally performing at lower levels in all school subjects. In this respect, mothers and teachers may be merely reflecting current achievement levels of their children. It should be remembered, however, that all LD children were well within the normal IQ range, and therefore should have had "good" potential for school success (Vernon, 1972). Furthermore, these children were all currently receiving remedial assistance for their learning disability. With these points in mind, the low expectations reported by mothers and teachers may be unduly pessimistic. Alternatively, they may be indicating a belief that these children do not have the ability to do better, and/or that the remedial services will likely be of little benefit. If this is the case, these adults may be "giving up" on their LD children, or at least resigning themselves to the belief that the present

performance levels of these children cannot be altered in the current educational context.

Although considerable controversy surrounds the expectation literature, especially relating to teacher expectancy effects, the results of a number of studies highlight the possible adverse consequences of low expectations held by adults with respect to LD children. In terms of teachers, their expectations have generally been seen as valid and accurate indications of the various skills and abilities of students. A recent study by Crano and Mellon (1978), however, challenges that idea and lends support to the view that teacher expectations can become self-fulfilling prophecies. Applying a cross-lagged panel design to data on some 4,300 elementary school children followed from the beginning of Grade 1 to the end of Grade 4, these researchers found that "teachers' expectations caused children's performance to an extent appreciably exceeding that to which performance influenced expectations" (p. 47).

Other studies provide some clues as to how such expectation effects may translate into behavioral influences. Teachers have been found to interact less frequently and more negatively with low expectation students, pay less attention to their correct responses, and offer less positive reinforcement for those responses (Erophy & Good, 1974; Braun, 1976; Cooper & Good, 1977). As a result, these students may not be getting the same quality

of instruction, and accordingly may learn less than high expectation students who tend to enjoy more positive, warm, and supportive interactions with their teachers.

Biophy and Good (1974), following their extensive review of many studies over a 10 to 15 year period, maintain that such differential treatments may be indicative of teachers giving up on these students, and/or of not knowing how to instruct low achieving/expectation students appropriately. In this respect, Rose (1977) argues that many teachers behave as though they have abdicated their responsibility to low achieving students when they demonstrate negatively differential interaction patterns.

'Giving up,' or feelings of impotence on the part of the teacher even though they may be the result of accurate, false, or irrelevant information...is damaging to the children concerned (Rose, 1977, p. 5).

Thus, if the lower expectations held by teachers toward LD students are transformed into adversely differential classroom experiences for these children, they will likely contribute to the maintenance of low achievement levels.

The role of mothers' expectations is less clear. In one of the few studies to investigate parental expectations, Entwisle and Hayduk (1978) found over a two-year period, that parents' expectations were causally related to subsequent achievement. More specifically, over Grades 1 and 2, "children whose parents thought they would do better did do better, and vice versa" (p. 182). Just how these parental expectations effect achievement levels, however, is less

clearly understood. The dynamics may be similar to those operating in classrooms, and involve differential reinforcement and interaction patterns.

A final consideration for the adult variables is the correlational data. Here, it was observed that the perceptions and expectations of mothers and teachers have a weaker relationship with the LD children's affective variables than was the case for normally achieving children. The reasons for these weaker relationships are not clear, especially since the adult variables still showed moderate correlations with classroom achievement. It does seem possible, however, that mothers and teachers are more variable in how they "read" LD children. Thus, it may be that although their expectations and perceptions are fairly accurate in terms of current achievement for these children, they are not as accurate when it comes to perceiving the feelings and attitudes of LD students in comparison to normally achieving students. Perhaps LD children are more difficult to communicate with because of their tendency to be relatively inefficient in verbal expressive skills (Lerner, 1976). This in turn may lead to fewer interactions between children, and their mothers and teachers.

In sum, the findings for adult perceptions and expectations reveal a tendency among LD mothers to report more negative and less encouraging interactions with their children in terms of achievement behaviors. Further, mothers, along with teachers, indicated that they hold lower

achievement expectations for LD children, despite the fact that these children are of supposedly "normal" intelligence and were receiving remedial assistance to correct their learning problems. The data also revealed that mothers of both groups were not always accurate in estimating their children's academic self-concepts. Indeed, their estimates appear to be based as much on actual achievement levels as on the children's own reported self-perceptions and feelings. The lower correlations noted for the LL group between the children's affective variables and the perceptions and expectations of their mothers and teachers could be indicative of adult uncertainty in how to "read" the feelings and attitudes of low achieving children. This uncertainty, coupled with the generally more negative reactions and expectations, might be reflecting the frustration over how to best assist LD children in their learning problems. Further, the findings might also suggest that mothers and teachers may be somewhat resigned to the belief that these LD children are unlikely to remedy their learning deficiencies.

## CHAPTER VI

### CONCLUSION AND EDUCATIONAL IMPLICATIONS

In drawing together the findings of the present research the following picture emerges. Learning disabled children appear to develop a distinctively different set of affective characteristics in comparison to normally achieving children. These characteristics are marked by a relatively negative academic self-concept, reflecting low self-perceptions of ability, along with negative school attitudes and diminished levels of self-confidence. Accordingly, LD children do not expect to perform very well on future academic tasks, especially in the core subject areas of reading, spelling, and math. When successes do occur, they tend to be seen by these children as unexpected and not consonant with their low self-perceptions of ability. In turn, the cause of such success is often viewed as arising from the goodwill of the teacher, or the easy nature of the task. Continued failure, on the other hand, probably fulfills low achievement expectations, thereby further confirming low academic self-concepts. Through a process of "reciprocal interaction," these negative affective characteristics of LD children are probably mutually reinforcing, thus further contributing to their self-perpetuation.

Additional factors which are important in the affective development of LD children include the perceptions and expectations of mothers and teachers. Although the exact

causal relationship of these "significant other" variables with affective development was not clear, it seems unlikely that teachers and parents fail to exert any influence on the developing self-system of the child. The findings from numerous other studies indicate that continued negative maternal interactions, along with the communication of low performance expectations by parents, will have adverse effects on the academic expectations and self-concepts of children (Ercokoyer et al., 1965, 1967; Coopersmith, 1967; Hamachek, 1978; Smith, 1968). Similarly, if teachers translate low achievement expectations into differential interaction and teaching patterns, then it is likely that LD children will see such behaviors as confirmation that they do in fact have poor academic abilities (Brophy & Good, 1974; Finn, 1972).

If learning disabilities are primarily the result of a maturational lag, as many in the LD literature would suggest (Bryan & Eryan, 1975; Hallahan & Cruickshank, 1976; Ross, 1976), then there is an implicit possibility that in time LD children's academic performance may match their "potential". Even if the cause of learning disabilities is viewed as resulting from other factors (such as minimal brain dysfunction, perceptual disorders, or memory and attentional deficits), the possibility still exists that given appropriate remediation, the disability can be overcome. "Accurate" perceptions and expectations (in terms of past and current performance), therefore, should not suggest that

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LD children have reached their intellectual potential or indeed that they have limited academic abilities.

Unfortunately, repeated school failure experiences during the early elementary years do seem to adversely affect future academic achievement (Bloom, 1976; Hanachek, 1978), as does negative school-related affect. These factors in turn appear influential in terms of achievement motivation. As Bloom (1977) suggests:

where a student is convinced of his inadequacy, he finds no great energy to accomplish the next task, has little patience or perseverance when he encounters difficulties, and takes little care and thoroughness in accomplishing the task. (pp. 194-195)

Clearly then, the consequences of negative affective characteristics in LD children may lie in the perpetuation of their low levels of academic achievement. Under these circumstances, the prospects of LD students overcoming a developmental lag, or of remedying a specific cognitive disability, seem considerably reduced. As has been suggested earlier, successful school learning requires a belief that one has sufficient ability to complete most tasks (Brookover et al., 1967), and can be successful (Bandura, 1977; Rotter, 1966). It also requires the belief that successes are due primarily to efforts and abilities, rather than being caused by external and uncontrolled factors (Dweck, 1975). Numerous studies further suggest that school achievement is enhanced where parents and teachers hold positive perceptions and expectations, and attempt to fulfill them through patient,



supportive, and encouraging interactions (Hamachek, 1978).

Failure to attenuate the influence of negative affective development may have consequences beyond school learning. Some studies suggest that persistent failure in school, along with negative affective development frequently leads to adverse mental health (Bloom, 1976; Bernard, 1970), early high school drop-out (Hamachek, 1978), and, in serious cases, juvenile delinquency (Eachara & Zaba, 1978). Thus, the development of a negative self-system during the early elementary years may hold important implications for the education of learning disabled children.

In light of the findings of the present research, some changes in current approaches to the remediation of learning disabilities may be warranted. Stemming from the assumption expressed by most workers in the LD area, namely, that learning disabilities can be remedied, it seems reasonable to expect that efficient remedial services should lead to a decrease in performance deficits. A major conclusion of the present study, however, is that negative affective characteristics may attenuate the effects of remediation. Accordingly, remedial procedures should take into account that many LD children may have strong negative school-related perceptions and attitudes which are limiting the effectiveness of remedial programs. In line with this, the following remedial strategies seem tenable alternatives to the current part-time programming used for many mildly learning disabled children throughout North America.

Initially, it may be fruitful to place these children into full-time special class placement. This suggestion is based on the recognition that an important component in school learning is the role of social comparison. Academic success and failure is often defined largely in terms of performances relative to classroom (or grade level) peers (Covington & Beery, 1976). Similarly, self-perceptions and evaluations are also frequently defined in terms of how individuals view themselves in comparison to their immediate peer group (Brookover et al., 1965; Festinger, 1954).

Placement should be designed to provide a more homogeneous and less competitive learning environment. Various degrees of part-time placement could follow, leading eventually to full integration in the mainstream when both cognitive and affective change appeared adequate.

Some support for such a procedure may be found in a recent study by Strang, Smith and Rogers (1978). These researchers observed that self-concepts of academically handicapped children differed according to whether special class placement was full- or part-time. Self-concepts were higher when other children with learning problems were the main reference group, and declined when self-comparisons were restricted to regular class children.

A second suggestion involves the use of mastery learning procedures. Mastery learning, according to Bloom (1976), implies that under "appropriate" instructional conditions a large majority of students (95%) can learn most

(usually 80% to 90%) of what is taught in the regular school curriculum. Block and Anderson (1975) suggest that mastery should be set at the existing standards used by a given school system in defining "A" level test performance.

Mastery instructional conditions involve: (1) the formulation of specific learning objectives; (2) the systematic division of a course into smaller learning units which parallel the objectives; (3) the frequent use of "formative" diagnostic progress tests and feedback; and, (4) the provision of alternative learning materials or instructional "correctives" designed to help remedy difficulties as they arise. Attainment of the predetermined level of mastery is usually assessed by "summative" evaluation, or by a course examination.

From their extensive research on mastery learning, Bloom and his associates have found that under mastery conditions,

about four-fifths of the students attain the level of mastery reached by about one-fifth of the students under nonmastery conditions within the same calendar time or academic term. The cost of this increased achievement is about 10 percent to 20 percent more out-of-class time for students who need it. (Bloom, 1974, p. 9)

Bloom (1974) notes that the extra time required by some students usually declines considerably over the course of instruction.

For LD children, a mastery approach in the remedial setting would appear to offer a number of advantages. The procedures are flexible and allow individuals to progress at

their own pace. This flexibility is useful when one takes into account the wide range of disorders traditionally associated with learning disabilities. Further, mastery learning places a greater emphasis on success, and the attainment of specific identifiable goals. Students know what is required of them in terms of learning behaviors and achievement goals. Moreover, progress is contingent upon success, rather than on whether or not a student has failed or succeeded in preceeding tasks. If LD students are able to begin each new task knowing that they have been successful on prior tasks, they may eventually convince themselves that they do in fact have the ability to achieve at higher levels, and that they can accept credit and responsibility for bringing about successful task outcomes. Concomitantly, self-perceptions of ability and self-confidence should improve, along with the development of higher future achievement expectations.

Essentially then, the use of mastery learning procedures within the context of full-time remedial placement, may lead to the elimination of performance deficits in LD children, and to the development of more positive school-related affective characteristics.

As far as teachers and parents are concerned considerable research is still required in order to identify more precisely how, and under what circumstances, their perceptions and expectations influence the cognitive and affective development of LD children. Until such data are

available, however, the problems facing LD children still have to be set, and cannot wait indefinitely for future research to provide a more desirable empirical base on which to develop teacher and parent programs. The findings of the present study, though not entirely clear in terms of adult variables, imply that parents and teachers should be made aware that their interactions, beliefs, and feelings about children may perpetuate failure and negative school-related perceptions in LD children. Further, they should be taught how to monitor these possible influences on their children's feelings and attitudes.

In this respect, teacher education programs should draw attention to the possible influence of expectations and differential interaction patterns in LD children. Drawing on studies such as those reported by Brophy & Good (e.g., Brophy & Good, 1974; Good & Brophy, 1973), and through the use of micro-teaching techniques, attempts to make teachers aware of and sensitive to expectancy and interaction effects might be useful in helping to prevent adverse effects on LD children.

In terms of parents who have LD children, schools should play a more active role in providing information about the nature of their child's learning problem, what the school is doing to remedy the situation, and how parents can assist in the remedial process. A useful method of conveying such information might be in a conference called by the school principal, and attended by the child's parents, along

with the classroom teacher and remedial specialist. The presence of these specialists may seem formidable to many parents. However, the communication of information regarding a child's learning problem and reassurances to the effect that many learning problems can be remedied, seem to be a fundamental prerequisite for successful remediation. At least, inappropriate or misinformed beliefs and attitudes on the part of parents may be corrected.

The possibility of more specific assistance from schools might also be considered. Such assistance could take the form of micro-workshops dealing with both affective and cognitive problems associated with learning disabilities. Potential topics in these workshops might include: (1) the defining characteristics of learning disabilities, stressing the widespread professional belief that children's learning problems can probably be overcome; (2) affective and cognitive development in LD children; (3) possible effects of parental perceptions, expectations, and interactions on school achievement; (4) practical suggestions for helping children overcome specific cognitive difficulties; and, (5) practical techniques for developing positive parental perceptions and expectations.

The feasibility and usefulness of such a program would of course require careful planning and evaluation. However, several researchers (e.g., Erickover et al., 1965, 1967) have successfully trained parents of low achieving high school students to raise the expectations and perceptions

that they hold of their children. These children, in turn, showed a significant increase in academic self-concept and school achievement over a two year period. Thus, similar results with LD elementary children ought also to be obtained.

### Suggestions for Future Research

Inferences regarding the causal role of affective variables in academic achievement have been limited in the present study due to the cross-sectional nature of the design. Longitudinal research investigating the relationship between affective characteristics and achievement in LD children should help in identifying important predictive/causal variables. In this regard, the subjects in the present study are currently being followed up over a two year period. It is anticipated that such data will also provide clues regarding the stability of affective characteristics in LD children over time. Further, it will be interesting to note the effect on the cognitive and affective development of LD children following their transition from elementary to junior high school.

Future research might also consider the effects of part-time versus full-time remedial placement on the affective and cognitive development of LD children. Assessing these variables at the beginning of the school year, and again at the end should provide a basis for gauging the effectiveness of remedial procedures. In line

with this, the apparent success of mastery learning procedures suggests that this approach deserves careful consideration as a potential addition to present ID remedial programs.

Finally, as mentioned earlier, more research is clearly needed on the influence of parent and teacher perceptions, expectations, and interactions in the affective and cognitive development of ID children. At present, the dynamics involved in the transmission of these adult attitudes have received little empirical attention, especially as far as parents are concerned. Yet, there seems to be little doubt that parents and teachers do play a crucial part in children's affective and cognitive development. It would seem useful, therefore, to obtain a better understanding of how adult behavior patterns and interactions effect children. Such data could contribute to the development of procedures whereby teachers and parents might identify and remedy their own inappropriate perceptions and interactions.



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## APPENDIX A

Piers-Harris General Self-Concept Scale  
 Mean Scores as a Function of Group  
 and Grade Level

	LD		Control	
	Mean	SD	Mean	SD
Grade 3				
Behavior	14.73	2.49	14.14	3.63
Intellectual/ School Status	12.09	3.34	12.82	3.11
Physical Appearance	7.14	2.96	7.14	2.62
Anxiety	8.32	2.85	9.18	2.33
Popularity	8.05	2.18	8.68	2.42
Happiness	6.00	3.00	4.14	2.87
Full Scale	57.23	12.35	59.09	12.26
Grade 4				
Behavior	15.17	3.56	13.91	4.29
Intellectual/ School Status	12.09	3.67	11.78	3.67
Physical Appearance	7.23	2.83	7.48	2.72
Anxiety	8.87	2.72	8.74	2.67
Popularity	7.23	2.65	8.00	2.15
Happiness	4.91	3.28	5.22	3.28
Full Scale	57.61	12.81	57.70	14.99
Grade 5				
Behavior	15.24	2.36	15.12	2.89
Intellectual/ School Status	12.88	3.74	13.41	2.99
Physical Appearance	7.41	3.74	7.88	2.83
Anxiety	8.35	2.81	9.18	2.28
Popularity	7.94	3.56	8.18	2.68
Happiness	5.59	2.91	5.18	3.40
Full Scale	60.24	12.26	61.24	8.74
Grade 6				
Behavior	13.68	3.55	13.32	4.10
Intellectual/ School Status	12.32	3.60	10.42	4.36
Physical Appearance	7.21	2.84	6.42	3.27
Anxiety	8.53	2.28	8.16	2.96
Popularity	8.00	3.06	8.05	3.44
Happiness	5.26	3.06	4.47	2.96
Full Scale	56.79	11.81	54.26	16.23

## APPENDIX B

SPAS Full and Subscale Mean Scores for Children and Mothers  
as a Function of Group and Grade Level

	LD				Control			
	Children		Mothers		Children		Mothers	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Grade 3								
General Ability	6.27	2.32	8.16	3.13	7.64	2.42	10.59	1.47
Arithmetic	6.41	3.02	6.32	4.26	9.50	2.69	10.14	1.91
School Satisfaction	7.23	2.68	8.09	2.78	9.23	2.37	9.91	1.78
Reading/Spelling	7.91	3.01	5.91	4.36	10.14	2.28	11.00	1.48
Penmanship/Neatness	7.36	3.05	7.59	3.38	8.27	3.05	8.59	2.64
Confidence	4.05	2.29	2.73	1.66	5.00	2.50	5.18	1.77
Full Scale	39.23	11.50	39.18	11.74	49.77	10.82	55.23	7.15
Grade 4								
General Ability	4.52	2.48	7.22	3.20	9.26	2.54	10.13	2.68
Arithmetic	6.74	3.72	8.13	3.88	9.70	2.96	10.04	3.06
School Satisfaction	7.52	3.06	7.61	3.23	8.96	2.26	9.13	2.45
Reading/Spelling	5.78	3.76	4.70	3.34	10.30	1.99	9.78	2.83
Penmanship/Neatness	7.39	3.45	7.48	3.82	8.00	3.08	7.30	3.60
Confidence	3.00	2.13	2.44	1.93	4.96	2.03	5.13	2.11
Full Scale	34.96	15.15	37.56	15.42	51.17	10.50	51.52	11.54
Grade 5								
General Ability	6.12	3.14	6.88	3.72	7.53	2.89	10.24	1.73
Arithmetic	8.06	2.21	6.35	4.09	9.00	2.91	7.65	3.88
School Satisfaction	7.77	3.49	6.53	3.65	8.65	2.14	8.35	2.03
Reading/Spelling	6.00	4.04	5.65	4.36	10.12	2.47	10.82	1.82
Penmanship/Neatness	7.06	3.09	5.94	3.93	8.00	3.31	6.41	3.76
Confidence	2.94	1.63	2.77	1.96	4.53	1.85	5.24	2.24
Full Scale	37.94	10.38	34.06	17.15	47.82	10.42	48.71	9.39
Grade 6								
General Ability	5.95	2.76	8.21	3.02	8.37	2.79	10.27	2.13
Arithmetic	8.47	2.94	7.00	3.48	9.68	2.80	9.58	3.09
School Satisfaction	7.32	2.68	7.47	3.31	8.73	2.31	9.06	2.33
Reading/Spelling	7.84	3.22	9.05	3.63	10.07	2.30	10.35	2.28
Penmanship/Neatness	7.00	3.37	8.32	2.62	8.22	3.01	7.69	3.40
Confidence	3.21	1.88	3.21	1.67	4.64	2.17	5.25	2.26
Full Scale	39.79	11.82	43.26	11.10	49.72	10.64	52.15	10.27

## APPENDIX C

**Projected Academic Performance Full and Subscale  
Scores as a Function of Grade-Level for LD  
Children, Mothers, and Teachers**

	Children		Mothers		Teachers	
	Mean	SD	Mean	SD	Mean	SD
<b>Grade 3</b>						
Spelling	18.59	2.52	4.91	0.85	4.27	1.28
Reading	19.60	2.87	5.09	0.67	4.59	1.30
Language Arts	18.91	2.45	4.82	0.83	4.32	1.33
Math	19.64	3.04	5.00	0.79	4.00	1.48
Social Studies	19.41	3.23	5.09	0.90	4.50	0.99
Science	20.81	3.10	5.00	0.67	4.32	1.14
Full Scale	116.41	13.25	29.91	2.95	25.96	6.73
<b>Grade 4</b>						
Spelling	17.13	3.95	4.78	1.14	4.44	1.62
Reading	17.78	3.61	4.91	1.06	4.30	1.24
Language Arts	17.96	3.94	5.09	0.97	4.74	1.59
Math	19.04	5.21	5.17	1.67	4.65	1.46
Social Studies	18.83	4.24	5.13	1.07	4.48	1.35
Science	19.13	3.72	5.00	1.25	4.48	1.06
Full Scale	109.87	17.65	30.09	5.47	27.09	7.27
<b>Grade 5</b>						
Spelling	18.59	3.29	4.82	1.42	4.35	1.13
Reading	19.23	3.00	4.94	1.73	4.12	0.96
Language Arts	18.35	3.69	4.88	1.32	4.47	0.78
Math	19.94	3.55	5.12	1.74	4.00	0.97
Social Studies	19.82	2.79	5.24	1.06	4.71	1.07
Science	21.35	3.48	4.77	1.35	4.35	0.97
Full Scale	117.29	13.25	29.77	6.80	26.00	4.27
<b>Grade 6</b>						
Spelling	18.74	3.34	5.89	1.25	4.68	1.26
Reading	19.74	4.24	5.95	1.05	4.53	1.31
Language Arts	18.05	3.76	5.05	0.67	4.95	1.05
Math	20.58	3.76	4.90	1.41	3.89	1.25
Social Studies	19.21	4.50	5.16	0.59	4.74	1.07
Science	20.32	5.10	5.16	0.74	4.58	1.09
Full Scale	116.63	20.13	32.11	3.01	27.37	5.65

## APPENDIX D

Projected Academic Performance Full and Subscale  
Scores as a Function of Grade Level for Control  
Children, Mothers, and Teachers

	Children		Mothers		Teachers	
	Mean	SD	Mean	SD	Mean	SD
<b>Grade 3</b>						
Spelling	21.05	2.79	5.68	1.10	5.46	0.98
Reading	21.27	2.80	6.00	0.90	5.64	1.50
Language Arts	19.68	2.32	5.68	0.97	5.50	0.98
Math	19.19	3.28	5.96	0.93	5.46	1.12
Social Studies	20.45	2.73	5.55	0.78	5.59	1.07
Science	20.72	2.65	5.59	0.83	5.50	1.08
Full Scale	122.36	9.89	34.45	4.21	33.23	5.97
<b>Grade 4</b>						
Spelling	19.26	3.79	5.87	1.23	5.00	1.29
Reading	23.35	4.42	6.39	1.09	5.44	1.73
Language Arts	19.35	4.86	5.78	1.06	5.22	1.78
Math	22.39	5.19	5.65	1.34	5.09	1.38
Social Studies	21.74	4.80	5.83	1.09	4.96	0.99
Science	21.00	4.02	5.83	1.01	5.00	1.10
Full Scale	127.09	19.69	35.35	5.25	30.70	6.13
<b>Grade 5</b>						
Spelling	22.35	3.69	6.71	1.07	5.59	1.40
Reading	21.59	3.29	7.00	1.03	5.24	1.70
Language Arts	18.94	3.35	5.82	1.04	5.24	0.47
Math	21.29	4.48	5.53	1.98	5.00	1.08
Social Studies	19.82	3.50	5.53	1.04	5.24	0.55
Science	20.71	4.79	5.29	0.96	5.06	0.54
Full Scale	124.71	17.68	35.88	4.35	31.35	3.75
<b>Grade 6</b>						
Spelling	21.68	4.28	6.26	1.55	6.16	1.35
Reading	20.73	4.73	6.32	1.30	6.11	1.38
Language Arts	18.84	5.29	5.68	1.26	5.95	1.46
Math	22.95	5.09	5.90	1.48	6.47	1.31
Social Studies	18.36	6.24	5.58	1.27	5.95	0.89
Science	18.42	6.25	5.47	1.27	6.11	1.12
Full Scale	121.00	22.46	34.79	5.86	36.74	5.78



## APPENDIX B

Parent Reaction Questionnaire Scores for Mothers  
as a Function of Group and Grade Level

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Positive Reactivity

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Mean SD Mean SD

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Grade				
3	5.27	2.07	6.23	1.78
4	5.04	1.94	5.52	1.88
5	5.06	1.83	5.41	1.97
6	5.32	1.13	6.10	2.34

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Negative Reactivity

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Mean SD Mean SD

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Grade				
3	6.14	1.79	4.59	1.77
4	6.78	1.82	5.91	1.66
5	6.41	1.75	5.94	1.63
6	5.95	1.23	5.37	2.27

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