

Academic and motivational pathways through middle childhood

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Academic and motivational pathways through middle childhood

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We have two goals in this chapter: First, we review the literature on longitudinal changes in academic self-concepts and motivational orientation. Second, we discuss the associations among academic self-concepts, school success, and emotional development. We do this by linking different longitudinal patterns of school adjustment to individual differences in social/emotional development. By focusing on school adjustment, we test the notion that academic competence is an important part of the overall portrait of positive adjustment and more general interpersonal competency during both middle childhood and early adolescence (e.g., Eccles & Midgley, 1989; Erikson, 1968; Roeser et al., 1994).

Introduction

During middle childhood, children progressively move from home into wider social contexts that exert important influences on their cognitive, behavioral, and socio-emotional development. In particular, the commencement of formal schooling initiates a series of new life experiences for children. School experiences encourage the development of intellectual and interpersonal competencies, and introduce the child to new social roles wherein status is conferred based upon competence and performance (e.g., Higgins & Parsons, 1983). According to Erikson (1968), the accomplishment of a "sense of industry" in school during these years, as well as a sense of cooperation and mutuality in social interactions with peers and adults outside the home is critical to healthy development. If children fail to develop these requisite skills, and thereby meet the challenges of adaptation associated with entry into formal schooling, Erikson suggested that a "sense of inferiority" would develop that could exert long lasting consequences on children's intellectual, emotional, and interpersonal well-being.

Since the time of Erikson's (1959, 1963) seminal writings on children and youth, a great deal of research attention has been given to understanding how children's self-appraisals and

behavioral competencies are related to the quality of their intellectual, social, and emotional functioning across the first two decades of life. Researchers interested in the development of the self-system during childhood have corroborated the notion that feelings of competence and personal esteem are of central importance for a child's psychosocial well-being (see Eccles, 1983; 1994; Harter, 1985; Rosenberg, Schooler, & Schoenbach, 1989). For instance, children who fail to develop positive self-perceptions of competence in the academic or social domains during the elementary school years report more of the symptoms associated with both "internalized" distress such as depression and social isolation (Asher, Hymel, & Renshaw, 1984; Cole, 1991) and "externalized" distress such as anger and aggression (Ollendick, Greene & Weis, 1989; Parkhurst & Asher, 1992). Studies of psychiatric difficulties during childhood and adolescence have also documented that children's feelings of competence in various activity domains, especially academics, serve as protective factors against both concurrent and later problem behaviors (e.g., Achenbach, Howell, Quay, & Conners, 1991; Lord, Eccles & McCarthy, 1994; Rae-Grant, Thomas, Offord, & Boyle, 1989). Finally, research on children who experience difficulties with learning early in school has shown that these children are at increased risk for behavioral, academic, and psychiatric difficulties contemporaneously and subsequently - such children are also particularly likely to be retained in grade and to later drop out of school prior to the completion of high school (e.g., Alexander, Entwisle, & Horsey, 1997; Cairns, Cairns, & Neckerman, 1989; Hinshaw, 1992; Offord & Fleming, 1995; Roderick, 1994; Rutter, 1988). It could be that some learning problems are manifestations of more serious underlying pathology. Alternatively, the frequent feelings of frustration and incompetence that accompany a child's lack of success early in her school career may coalesce over time into a negative pattern of adaptation towards schooling (e.g., Cairns et al., 1989).

All of these results suggest that academic success during middle childhood is critical to a successful developmental trajectory through this period and into adolescence precisely because academic success is critical to developing a healthy, positive view of one's competence and a positive motivational orientation toward learning in school. Although we know that a distressingly

large percentage of children in elementary and secondary schools experience academic difficulties and are at-risk for academic failure and disengagement (e.g., 25% - Dryfoos, 1990; 1994), work documenting longitudinal changes in both ability self-concepts and academic motivation over this period is just beginning to emerge. There is even less work documenting the relation of early school adjustment and competence to the development of other personal difficulties in the late childhood and adolescent years. The relative lack of cross-fertilization among the researchers interested in the different areas of a child's development has resulted in a fragmented understanding of developmental patterns of intellectual, emotional, social, and behavioral functioning (see also Millstein, Petersen, & Nightengale, 1994). Although there is some cross-sectional evidence to suggest that academic problems are related to difficulties of adjustment in other domains of functioning (e.g., emotional, interpersonal, behavioral), few longitudinal studies have simultaneously examined the interweaving developmental lines of academic and social-emotional adjustment from childhood to adolescence.

Developmental Patterns across the Middle School Years in Academic Motivation

Over the years, psychologists have proposed many different components of academic motivation. In an effort to systematize this vast literature, Eccles, Wigfield, & Schiefele (1997) suggested that one could group these various components under four basic questions: Can I succeed at this task? Do I want to do this task? Why am I doing this task? and What do I have to do to succeed at this task? They hypothesized that the answers to these questions would determine children's engagement with academic tasks as well as their general commitment to the educational goals of their parents and teachers. Children who develop positive, productive answers to these questions are likely to engage in their school work and to thrive in their school settings. Children who develop less positive and/or less effective answers to these questions are likely to experience school failure and to withdraw their psychological attachments from the activities associated with school - increasing the likelihood that they will turn to less productive and more risky activity

settings for their psychological nurturance. In this chapter, we focus on the first three of these questions.

In this section, we review what is known about developmental changes over the middle childhood years in children's answers to these questions. We focus this summary on those constructs most directly linked to the Eriksonian perspective outlined earlier (that is, those constructs linked to one's sense of industry) and to school engagement.

Can I Succeed at This Task?

Several theorist have proposed constructs linked to this question. We focus on those related to ability self-perceptions and expectations of success. These include such expectancy-related theories as Eccles et al.'s expectancy-value theory, Bandura's self-efficacy, and various control theories.

Expectancy Theories

Eccles et al. Expectancy - Value Theory. Eccles and her colleagues have elaborated and tested one expectancy - value model of achievement-related choices and engagement, (e.g., Eccles, 1987; Eccles et al., 1983; Eccles, Adler, & Meece, 1984; Eccles & Wigfield, 1995; Meece, Wigfield, & Eccles, 1990; Wigfield & Eccles, 1992). The most recent version of this model is depicted in Figure 1. In this model expectancies and values are assumed to influence performance, persistence, and task choice directly. Expectancies and values are assumed to be influenced by task-specific beliefs such as perceptions of one's own competence, perceptions of the difficulty of different task, and individuals' goals and self-schema. These social cognitive variables, in turn, are influenced by individuals' perceptions of other peoples' attitudes and expectations for them, by their own interpretations of their previous achievement outcomes, and by their affective memories of, or affective expectations about, similar tasks. Individuals' task-perceptions and interpretations of their past outcomes are assumed to be influenced by socializer's

behaviors and beliefs, by the individuals' own histories of success and failure, and by the broader cultural milieu and unique historical events.

--Insert Figure 1 about here--

In this expectancy - value model, ability beliefs are conceived as broad beliefs about competence in a given domain, in contrast to one's expectancies for success on a specific upcoming task. Consequently, Eccles et al. (1983) defined expectancies for success as children's beliefs about how well they would do on either immediate or future tasks and beliefs about ability as children's evaluations of their more general level competence in different areas. However, their empirical work has shown that children and adolescents do not distinguish between these two different levels of beliefs: The children's responses to these two types of scales always load together on the same factor (Eccles & Wigfield, 1995). Apparently, even though these constructs are theoretically distinguishable from each other, in real-world achievement situations they are highly related and empirically indistinguishable.

Self-Efficacy Theory

Bandura (1977, 1997) has also proposed a social cognitive model of motivated behavior that emphasizes the role of perceptions of efficacy and human agency in determining individuals' achievement strivings. Bandura (1977) defined self-efficacy as individuals' confidence in their ability to organize and execute a given course of action to solve a problem or accomplish a task. In his recent writings (e.g., Bandura, 1997), he characterizes self-efficacy as a multidimensional construct that can vary in strength, generality, and level (or difficulty). That is, some people have a strong sense of self-efficacy and others do not; some individuals' efficacy beliefs encompass many situations whereas others have narrow efficacy beliefs; and some individuals believe they are efficacious even on the most difficult tasks, whereas others do not.

As in Eccles' expectancy - value theory, Bandura's self-efficacy theory focuses on expectancies for success. Bandura distinguished between two kinds of expectancy beliefs: (a)

outcome expectations (beliefs regarding which behaviors are likely lead to specific outcomes, e.g., studying hard increases the chances of doing well on tests), and (b) efficacy expectations (beliefs about whether one can effectively perform the behaviors necessary to produce the outcome, e.g., I will be able to study hard enough to do well on the next test). Furthermore, Bandura proposed that efficacy expectations are the major determinant of goal setting, activity choice, willingness to expend effort, and persistence (see Bandura, 1997). By and large, the evidence supports this prediction. For example, high personal academic expectations (i.e., high efficacy expectations) predict subsequent performance, course enrollment and occupational choice for all ethnic groups studied (see Gurin & Epps, 1974; Schunk, 1991; Zimmerman, et al., 1992).

Bandura (1977, 1997) proposed that individuals' efficacy expectations (also called perceived self-efficacy) are determined by four things: Previous performance (people who succeed will develop a stronger sense of personal efficacy than those who do not); vicarious learning (watching a model succeed on a task will improve one's own self-efficacy regarding the task); verbal encouragement by others, and the level of one's physiological reaction to a task or situation. Bandura primarily analyzed physiological reactions in terms of their negative consequences: when individuals are over-aroused and anxious, the self-efficacy will be lower.

Bandura (1997) also outlined a theoretical analysis of the development of self-efficacy. First, he proposed that experiences controlling immediate situations and activities provide the earliest sense of personal agency. Through these experiences, infants learn that they can influence and control their environments. If adults do not provide infants' with these experiences, the infants are not likely to develop a strong a sense of personal agency. Second, because self-efficacy requires the understanding that the self produced an action and an outcome, Bandura (1997) argued that a more mature sense of self-efficacy should not emerge until children have at least a rudimentary self-concept and can recognize that they are distinct individuals - which happens sometime during the second year of life (see Harter, 1997). Through the preschool period, children are exposed to extensive performance information that should be crucial to their emerging

sense of self-efficacy. However, just how useful such information is should depend on the child's ability to integrate it across time, contexts, and domains. Since these cognitive capacities emerge gradually over the preschool and early elementary school years, young children's efficacy judgments should depend more on immediate and apparent outcomes than on a systematic analysis of their performance history in similar situations (see Parsons & Ruble, 1972, 1977; Shaklee & Tucker, 1979). More work is needed to understand how children become able to integrate diverse sources of information about their performances (e.g., information about their own performance, social comparison information, etc.) to develop a stable sense of self-efficacy.

The Development of Competence -Related/Expectancy Beliefs

Most of the work on the development of children's achievement-related beliefs has looked at the development of children's ability and expectancy-related beliefs (e.g., see Eccles, et al., 1997; Stipek & Mac Iver, 1989). Researchers have studied three kinds of age-related changes in these beliefs: change in the mean levels of children's responses to specific scales, change in the factor structure of these responses, and change in children's understanding of these concepts. We focus on the first. We also discuss various ways of assessing and describing longitudinal patterns of change at the level of the individual. However, it is essential to understand exactly how children of different ages think about competence and ability before we can interpret the age differences in their responses to our scales, we briefly discuss this third type of change.

Changes in Children's Understanding of Competence-Related Beliefs.

Several researchers have investigated children's understanding of competence-related beliefs, focusing primarily on children's understanding of ability and intelligence. For example, Nicholls and his colleagues asked children questions about ability, intelligence, effort, and task difficulty, and how different levels of performance can occur when children exert similar effort (e.g., Nicholls, 1990; Nicholls et al., 1990). They found four relatively distinct levels of reasoning: At level one (ages 5 to 6), effort, ability, and performance are not clearly differentiated in terms of cause and effect. At level two (ages 7 to 9), effort is seen as the primary cause of performance

outcomes. At level three (ages 9 to 12), children begin to differentiate ability and effort as causes of outcomes, but they do not always apply this distinction. Finally, at level four, adolescents clearly differentiate ability and effort, and understand the notion of ability as capacity; they also believe that ability can limit the effects of additional effort on performance, that ability and effort are often related to each other in a compensatory manner, and, consequently, that a successful outcome that required a great deal of effort may reflect limited ability.

Dweck and her colleagues (e. g., Dweck & Elliott, 1983; Dweck & Leggett, 1988) have also discussed how children view ability. In their view, children hold one of two views of intelligence or ability: An entity view that intelligence is a stable trait, or an incremental view that intelligence is changeable and can be increased through effort. Like Nicholls (1990), Dweck stressed how children's conceptions of ability and intelligence have important motivational consequences, particularly when children experience failure. Believing that ability is an entity increases the debilitating effects of failure. Children holding this view likely believe they have little chance of ever doing well, because their ability cannot be improved after failure. In contrast, believing that effort can improve performance should protect children from a learned helpless response to failure precisely because these children should continue to try even if they are not doing well on a given task. Although much less work has been done on the impact of an entity versus an incremental view of intelligence on children when they are doing well, some evidence suggests that an entity view can undermine learning and motivation even when one is doing well: In particular, children with an entity view of intelligence tend to avoid challenging tasks in order to insure their continued success (see Dweck & Leggett, 1988).

Dweck and her colleagues have done less developmental work than Nicholls and his colleagues. Consequently, we know less about the age-related changes in children's endorsement of entity versus incremental views of intelligence. Nicholls' work suggests that younger children should be less likely to believe ability is stable or fixed; and by and large evidence supports this prediction (see Eccles et al., 1997). Nonetheless, both Heyman, Dweck, & Cain (1993) and,

Burhans and Dweck (1995) found that some quite young children do have doubts about their ability to do certain tasks, even if they try hard.

Change in the Mean Level of Children's Competence-Related Beliefs.

Several researchers have found that children's competence-related beliefs for different tasks decline across the elementary school years and into the middle school years (see Dweck & Elliott, 1983; Eccles et al., 1984; Eccles & Midgley, 1989; Stipek & Mac Iver, 1989). To illustrate, in Nicholls (1979), most first graders ranked themselves near the top of the class in reading ability, and there was essentially no correlation between their ability ratings and their performance level. In contrast, the 12 year olds' ratings were more dispersed, and their correlation with school grades was .70 or higher. Similar results have emerged in cross-sectional and longitudinal studies of children's competence beliefs in a variety of academic and non-academic domains by Eccles and her colleagues (e.g., Eccles et al. 1993; Wigfield et al. 1998) by and Marsh (1989). These declines, particularly for math, often continue into and through secondary school (Eccles et al., 1983; Eccles et al., 1989; Wigfield et al., 1991).

Some of the findings from our work are summarized in Figure 2, which illustrates the longitudinal changes in elementary school children's ability self-concepts for math, English, and sports. A set of predominantly white middle class children (N=615) initially in grades K, 1st, and 3rd were given a written survey in their classrooms each year for three consecutive years. Together these three cohorts provide a picture of the developmental changes in ability self-concepts over the entire elementary school period. The survey included measures of their ability self-concepts in math, English, and sports. Scales were composed of several items responded to on a seven point Likert scale anchored with verbal labels at the extreme endpoints and the midpoint (see Eccles et al., 1993 and Wigfield et al., 1998 for full details). We have aggregated the data across cohorts to produce a single age-linked function for each domain.

-Insert Figure 2 about here -

Figure 2 illustrates a clear decline in children's ability self-concepts in reading from grade 1 through grade 4, followed by a slight upturn between grades 5 and 6. Ability self-concepts in both math and sports follow a similar though less extreme picture with the biggest declines occurring between grades 1 and 2. Follow-up data from these same children suggest that these declines continue into the early junior high school years and then asymptote across the transition into junior high school.

Similar results have been found in the Michigan Study in Adolescent Life Transitions (MSALT, see Eccles et al, 1989 and Wigfield et al, 1991 for details of study). These students were studied at four time points over the junior high school transition (two times in the sixth grade and two times in the seventh grade). Students' confidence in their math and English abilities and self-esteem were assessed at each time point. Confidence in both academic domains showed a marked decline over this school transition and continued to decline during the first year of junior high school. Self-esteem also showed a marked drop over the school transition followed by a partial rebound during the seventh grade school year (Wigfield et al., 1991).

Expectancies for success also decrease during the elementary school years. In most laboratory- type studies, 4 and 5 year old children's expect to do quite well on a specific task, even after repeatedly failure (e.g., Parsons & Ruble, 1977; Stipek, 1984). Across the elementary school years, the mean levels of children's expectancies for success both decline and become more sensitive to both success and failure experiences. Consequently, both competence beliefs and expectancies become more accurate or realistic in terms of their relation to actual performance history (see Eccles, Midgley, & Adler, 1984, Parsons & Ruble, 1972, 1977; Stipek, 1984).

In contrast to research based on self-report measures, researchers using either different kinds of questions, or observing young children's reactions to their performance on different tasks have found that not all young children are optimistic about their abilities. In a study by Heyman, Dweck, and Cain (1993), for example, some preschool children reacted quite negatively to failure.

Similarly, in Stipek, Recchia, and McClintic (1992), children as young as 2 react both behaviorally and emotionally to failure experiences.

In summary, there is a drop in children's ability self-concepts and expectations for success over the elementary school years. In part this drop reflects the initially high, and often unrealistic, expectations of kindergarten and first grade children. Stipek (1984) has argued that young children's optimistic expectancies reflect hoped for outcomes rather than real expectations; in contrast, Parsons and Ruble (1977) suggested that, because young children's skills do in fact improve rapidly, high expectancies for future success may be based on experience (see also Dweck & Elliott, 1983, Eccles et al., 1984). As the rate of improvement slows, children may learn that current failures are more predictive of subsequent performance. Other changes are also likely contribute to this decline - changes such as increased exposure to failure feedback, increased ability to integrate success and failure information across time to form expectations more closely linked with experience, increased ability to use social comparison information, and increased exposure to teachers' expectations.

Some of these changes are directly linked to the transition into elementary school. Entrance into elementary school and then the transition from kindergarten to first grade introduces several systematic changes in children's social worlds. First, classes are age stratified, making within-age ability social comparison much easier. Second, formal evaluations of competence by "experts" begins. Third, formal ability grouping begins usually with reading group assignment. Fourth, peers have the opportunity to play a much more constant and salient role in children's lives. Each of these changes should impact children's motivational development. Such changes could contribute to the increase in children's response to failure feedback as they move from preschool and kindergarten into the first grade (Parsons & Ruble, 1972, 1977; Stipek, 1984). Parents' expectations for, and perceptions of, their children's academic competence are also influenced by report card marks and standardized test scores given out during the early elementary school years, particularly for mathematics (Alexander & Entwisle, 1988; Arbretton & Eccles, 1994). But more

systematic studies of the effects of transition into elementary school, and transitions from kindergarten to first grade, are needed.

There are significant long term consequences of children's experiences in the first grade, particularly experiences associated with ability grouping and within-class differential teacher treatment. For example, teachers use a variety of information to assign first graders to reading groups including temperamental characteristics like interest and persistence, race, gender, and social class (e.g., Alexander, Dauber & Entwisle, 1993; Brophy & Good, 1974). Alexander et al. (1993) demonstrated that differences in first grade reading group placement and teacher-student interactions have a significant effect (after controlling for initial individual differences in competence) on motivation and achievement several years later. Furthermore, these effects are mediated by both differential instruction and the exaggerating impact of ability-group placement on parents' and teachers' views of the children's abilities, talents, and motivation (Pallas et al. 1994).

Individual differences in developmental trajectories. All of the data reported above focused on mean level changes at the population level. Changes at this aggregate level likely reflect either shared maturational influences or shared changes in school characteristics (see Eccles, Midgley, & Adler, 1984; Eccles et al., 1997). These findings, however, mask individual differences in these developmental trajectories. Work in the arenas of underachievement, test anxiety, and learned helplessness (reviewed later) provides clear evidence of strong individual differences in these trajectories: Some children evidence a negative self-concept pattern as soon as they enter the first grade and remain low throughout their schooling years; others start high and show the type of gradual decline evident in the mean level graphs; still others start low and rebound and others start and remain high throughout their schooling years.

We have been exploring these individual differences in our Childhood and Beyond (CAB) study. The results summarized here are taken from Roeser, Eccles, Yates, Lord, Harold, Wigfield and Blumenfeld, 1995. This study was designed to look at two issues: (1) individual differences in the trajectories of children's academic ability self-concept, and (2) the relation of these different

trajectories to other indicators of social development and mental health. We describe the results relevant to the first goal here; the results relevant to the second goal are presented later.

To assess trajectories of academic risk and resilience, we grouped children based upon their level of academic functioning at two points in time: during early elementary school and later in middle school. We then examined a constellation of related indices of academic functioning as a means of corroborating our characterizations of children and youth as “academically at-risk” or “not-at-risk” during these times. To address an issue that Sroufe and Jacobvitz (1989) call “the equivalency problem” of examining coherence in risk status over time, we created indices of academic risk status that were functionally equivalent, even though objectively different, during both middle childhood and early adolescence. Because the criteria by which children judge their academic competence are known to change with development and increasing cognitive sophistication and because so many young children express such optimistic expectations and ability self-concepts (Eccles, Wigfield, & Schiefele, 1997; Stipek, 1984), we relied on teacher reports of children’s academic competence during the early grades to assess academic risk status. We did this by asking teachers to rate each child’s academic abilities (in reading and math) and chances of future academic success relative to her same-aged peers. Other research has shown that teacher’s ratings of children’s competence have good concurrent and long-term predictive validity in terms of children’s performance on cognitive tests and academic school achievement (e.g., Stevenson, Parker, Wilkinson, Hegion, & Fish, 1976; Wigfield et al., 1998).

When the youth were in grades 7 and 8, we relied upon their own self-reports of academic competence to assess their academic risk status. Similar to the questions asked of teachers during the early elementary school years, several of the items in the self-report academic competence scale assessed how these early adolescents felt they compared to their same-aged peers in terms of their abilities in reading and math. By the early adolescent years, the use of social comparison information to determine one’s abilities in a given domain is, for better or worse, a functional part of youth’s self assessments (e.g., Harter, 1985; Ruble, 1983). Thus, we believe that these two assessments of children’s academic competence, one based upon elementary school teachers’

ratings, and one based on adolescent self-reports, are more functionally “equivalent” indicators of risk than relying on self-reports at both time points. Because the younger children rate their academic abilities so high, it is quite difficult to identify a group at-risk children in terms of their academic potential. Consequently, we felt it necessary to use the teachers’ ratings for the younger children. By grades 7 and 8, there is a very high correlation between youth and teacher ratings of academic competence. Consequently, we felt justified in using their self-reports.

To identify children at risk at time 1, we created a composite measure of teacher’s perceptions of children’s academic competence in reading and math, as well as their expectancies for children’s future academic success. The children were identified as at academic risk at time 1 if they were rated in the lowest 33% of the distribution of their teachers’ ratings. Our original sample consisted of 397 first and second graders during the 1988 school year. Of these children, 137 (35%) were categorized as having poor school adjustment, and were thus designated as “academically at-risk.” The remaining 260 children were categorized as academically “not-at-risk.” Representative numbers of girls and boys were categorized into each of these groups [$\chi^2(1, 396) = 0.13, p = .72$].

To corroborate and triangulate our characterization of the children as either academically at-risk or not-at-risk based upon these teacher ratings, we conducted a series of multivariate analyses of variance using measures from the children’s teachers, mothers, and the children themselves. We also looked at group differences in measures drawn from the children’s school academic records that we assumed would covary with our characterization of children’s academic risk status. The results of these analyses are presented in Table 1. The at-risk children score significantly worse than the other children on all of these measures.

-Insert Table 1 about here-

To identify the children at risk in grades 7 or 8, we used adolescent self-report measures of their academic competence in reading and math. Criteria similar to those used during the early elementary school years were used to characterize adolescents as academically “at-risk” or “not-at-risk.” Youth who were in the lowest 33% of the overall sample distribution on a measure of their

self-reported academic competence were designated as “academically at-risk.” Youth in the upper 66% percent of the distribution were categorized as “not-at-risk.” Of the sample of 363 seventh and eighth graders who were available for follow-up during the 1994 school year, 109 (30%) were categorized as being “academically at-risk,” and 254 as “not-at-risk.” Representative numbers of girls and boys were categorized into each of these groups [$\chi^2(1, 363) = 2.68, p = .10$], with a trend towards boys being slightly over-represented in the “at-risk” group. Table 2 shows the results for corroborating measures of academic difficulties during early adolescence. Again the at-risk youth scored more poorly than the not-at-risk youth on all of these indicators of academic adjustment, as well as on the indicators of social adjustment.

-Insert Table 2 about here-

Next we used these risk scores to identify different patterns of change in risk status across the years that span middle childhood to early adolescence. To do this, we grouped children into four “academic risk trajectory” groups. These included children who were or were not at risk at both times, children who evidenced academic risk early on but not later, and children who did not evidence academic risk early on but did so later. A summary of these four groups is presented in Table 3. As you can see, there is a great deal of stability in these trajectories (62% remained in the same risk category across time). Nonetheless, the Chi-squared statistic for this two by two table is significant ($X^2 [1,289] = 17.85, p = .001$) - indicating some instability in this matrix as well. Despite the mean level changes in academic self-concepts reported above, fewer children than the empirically-generated expected frequency (given the marginals and the distribution of the sample into the two at risk categories at both time points) fell into the decliner category and more children than the empirically-generated expected frequency fell into the incliner category.

-Insert Table 3 about here-

We then assessed the trajectories of change on other indicators of academic confidence, valuing and performance to see how these four groups differed across these years. The results are illustrated in Figures 3-6. The four groups did not differ during their elementary school years in

either their own estimates of academic competence and the value they reported attaching to doing well in school. They clearly did differ at Time 4. A slightly different picture emerged for academic performance. Both the incliners and stably school adjusted showed an increase in their academic performance between grades 2-3 and grades 3-4. The incliners showed an additional increase between grades 3-4 and grades 7-8 - at which time they were performing almost as well as the stably adjusted group. Their first grade teachers had been wrong about their potential. The four groups also differed in their self-esteem at Time 2. This result is discussed more later.

-Insert Figures 3-6 about here-

Apparently, although children's confidence in their academic abilities declines over time on the average, a substantial number of children identified as at risk by their teachers due to their academic limitations appear to enter adolescence with reasonably high ability self-concepts and good academic records. We discuss exactly who these children are later. But before leaving this discussion it is important to point out that one needs to be careful about assuming that the mean level declines in academic self-concepts represent the tip of a dangerous iceberg. Instead, some of this decline likely reflects the overly optimistic scores of young children and the more realistic self concept scores of older children. Furthermore, even though first grade teacher ratings have emerged in several studies as significant predictors of adolescent school achievement, these data clearly indicate that a non-trivial number of the children rated by their first grade teachers as at academic risk look fine by the time they are in middle school.

Control Theories

Control theorists have also proposed motivational components related to the question "Can I succeed" that are related to other aspects of social development, such as, individual's feelings of efficacy and industry, and general mental health. More specifically, these theorists propose that individuals with a strong sense of internal locus of control will be more likely to engage in, and succeed at, academic tasks and will feel better about themselves more generally than will children

with an external locus of control. Empirical work has confirmed these predictions (see Weisz, 1984 for reviews of this evidence). In addition, contemporary control theorists have elaborated broader conceptual models of control. Connell (1985), for example, added unknown control as a third control belief category (in addition to internal [one's own effort and ability] and external control[luck and powerful others]) and argued that younger children are particularly likely to use this category.

Connell and Wellborn (1991) then integrated control beliefs into a broader theoretical framework in which they proposed three basic psychological needs for competence, autonomy, and relatedness (see also Ryan, 1992). They linked control beliefs to competence needs: Children who believe they can control their achievement outcomes should feel more competent. They hypothesized that the extent to which these three needs are fulfilled is influenced by the following contextual characteristics: the amount of structure, the degree of autonomy provided, and the level of involvement in the children's activities. Finally, they proposed that the ways in which these three psychological needs are fulfilled determine engagement in different activities. When the psychological needs are fulfilled, children will be fully engaged. When one or more of the needs is not fulfilled, children will become disaffected (see Connell, Spencer, & Aber, 1994; Skinner & Belmont, 1993, for supportive evidence). In this way, Connell and Wellborn have linked control beliefs to more general psychological functioning.

Building on Connell's work, Ellen Skinner and her colleagues (e.g., Skinner, 1995) proposed a more elaborated model of perceived control. Focusing on understanding goal-directed activity, Skinner describes three critical beliefs: means-ends beliefs, control beliefs, and agency beliefs. Means-ends beliefs concern the expectation that particular causes can produce certain outcomes; these causes include Weiner's (see 1992) various causal attributions and Connell's (1985) unknown control. Agency beliefs are the expectations that one has access to the means needed to produce various outcomes. Control beliefs are the expectations individuals have that they can produce desired events.

Developmental changes in control beliefs. In her discussion of the ontogeny of control beliefs, Skinner (1995) stressed the importance of perceived contingency between individuals' actions and their successes. She also stressed the importance of success itself for developing positive control beliefs. Finally, she discussed how children's understanding of causality and explanations for outcomes likely changes over age with these beliefs, particularly the means-ends beliefs, becoming more differentiated as children get older. What is similar across all ages is the importance of fulfilling the need for competence.

In their review of studies of children primarily 8-9 years and older, Skinner and Connell (1986) concluded that there is an increase in perceptions of internal control as children get older. In contrast, based on a series of studies of children's understanding of skill vs. chance events, Weisz (1984) concluded that the developmental sequence is more complex. The kindergarten children in these studies believed outcomes of chance tasks were due to effort, whereas the oldest groups (eighth graders and college students) believed that such outcomes were due to chance; fourth graders were confused about the distinction. Thus, in this work, the youngest children had strong internal control beliefs- so strong in fact that they believed in internal control over outcomes even when none was possible, suggesting that, with age, children came to understand better which kinds of events they can control, and which they can not. Similarly, Connell (1985) found a decrease in the endorsement of all three of his locus of control constructs (internal control, powerful others control, and unknown control) from grades 3 through 9. Like Weisz's (1984) work, the unknown belief results suggest that older children have a clearer understanding of what controls achievement outcomes. However, the older children also rated the other two sources of control as less important, making interpretation of the findings difficult.

In summary, children's competence beliefs and expectancies for success become more negative as they get older, at least through early adolescence. The negative changes in children's achievement beliefs have been explained in two ways: (1) Because children become much better at understanding, interpreting, and integrating the evaluative feedback they receive, and engage in

more social comparison with their peers, many children should become more accurate or realistic in their self-assessments, leading some to become relatively more negative (see Dweck & Elliott, 1983; Higgins & Eccles Parsons, 1983; Nicholls, 1984; Parson & Ruble, 1977; Ruble, 1983; Shakely & Tucker, 1979; Stipek & Mac Iver, 1989), and (2) Because school environment changes in ways that make evaluation more salient and competition between students more likely, some children's self-assessments will decline as they get older (e.g., see Eccles, Midgley, & Adler, 1984; Eccles & Midgley, 1989; Stipek & Daniels, 1988). For example, there has been some speculation that the declines in ability self-concepts between grades 2 and 4 reflect changes in teachers' grading practices and stress on competition among students at about the third grade. However, evidence regarding this type of change is not yet widely available.

We also discussed individual differences in these patterns of change. Some children show these declines; others do not. Some start quite low and remain low; others start high and remain quite high throughout their elementary school years. Very little work has been done on identifying the characteristics of children and their social environments that distinguish these groups from each other.

Theories Concerned With the Question "Do I Want to Do This Task?"

Although theories dealing with competence, expectancy, and control beliefs provide powerful explanations of individuals' performance on different kinds of achievement tasks, these theories do not systematically address another important motivational question: Does the individual want to do the task? Even if people are certain they can do a task, they may not want to engage in it. The theories presented in this section focus on this aspect of motivation.

Eccles, Wigfield, and Colleagues' Work on Subjective Task Values

Eccles and her colleagues have elaborated the concept of task value. Building on earlier work on achievement values (e.g., Battle, 1966), intrinsic and extrinsic motivation (e.g., Deci, 1975), and Rokeach's (1979) view that values are shared beliefs about desired end-states, Eccles et

al. (1983) outlined four motivational components of task value: attainment value, intrinsic value, utility value, and cost. Like Battle (1966), they defined attainment value as the personal importance of doing well on the task. Drawing on self-schema and identity theories (e.g., Kohlberg, 1966, Markus & Nurius, 1984), as well as the work by Feather (1982, 1992) and Rokeach, they also linked attainment value to the relevance of engaging in a task for confirming or disconfirming salient aspects of one's self-schema (see Eccles, 1984, 1987). Like Harter (1997), Deci and his colleagues (Deci, 1975; Deci & Ryan, 1985; Ryan, Connell, & Deci, 1985), Csikszentmihalyi (1988), Renninger (1990), and Schiefele (1991), Eccles et al. defined intrinsic value in terms of the enjoyment the individual gets from performing the activity, or the subjective interest the individual has in the subject.

Eccles et al. defined utility value in terms of how well a task relates to current and future goals, such as career goals. A task can have positive value to a person because it facilitates important future goals, even if he or she is not interested in task for its own sake. For instance, students often take classes that they do not particularly enjoy but that they need to take to pursue other interests, to please their parents, or to be with their friends. In one sense then this component captures the more "extrinsic" reasons for engaging in a task (see Deci & Ryan, 1985; Harter, 1985). But it also relates directly to the internalized short and long term goals an individual may have.

Finally, Eccles and her colleagues identified "cost" as a critical component of value (Eccles et al. 1983; Eccles, 1987). Cost is conceptualized in terms of the negative aspects of engaging in the task, such as performance anxiety and fear of both failure and success as well as the amount of effort that is needed to succeed and the lost opportunities that result from making one choice rather than another.

Eccles and her colleagues have conducted extensive empirical tests of different aspects of this model. For example, they have shown that ability self-concepts and performance expectancies predict performance in mathematics and English, whereas task values predict course

plans and enrollment decisions in mathematics, physics, and English and involvement in sport activities even after controlling for prior performance levels (Eccles, 1984; Eccles et al. 1983; Eccles, Barber et al, 1995; Eccles Adler, & Meece, 1984; Eccles & Harold, 1991). They have also shown that both expectancies and values predict career choices (see Eccles, et al. in press).

Development of subjective task values. There has been much less work on the development of subjective task values during the middle childhood years. Eccles, Wigfield, and their colleagues have examined change in the structure of children's task values, as well as mean level change in children's valuing of different activities. Even young children distinguish between their competence beliefs and their task values. In Eccles et al. (1993), Eccles and Wigfield (1995) and Wigfield et al. (1998), children's competence-expectancy beliefs and subjective values within the domains of math, reading, and sports formed distinct factors at all grade levels from first through twelfth. Thus, even during the very early elementary grades children appear to have distinct beliefs about what they are good at and what they value.

As with competence-related beliefs, studies generally show age-related declines in children's valuing of certain academic tasks (e.g. Eccles et al., 1983, 1993; Eccles & Midgley, 1989; Wigfield & Eccles, 1992). For instance, in longitudinal analysis of elementary school children, beliefs about the usefulness and importance of math, reading, instrumental music, and sports activities decreased over time (Wigfield et al., 1998). In contrast, the children's interest decreased only for reading and instrumental music - not for either math or sports. The data for interest in math, reading and sports is illustrated in Figure 7.

-Insert Figure 7-

Using data from other samples, the decline in valuing of math continues through high school (Eccles, 1984). Eccles et al. (1989) and Wigfield et al., (1991) also found that children's ratings of both the importance of math and English and their liking of these school subjects decreased across the transition to junior high school. In math, students' importance ratings

continued to decline across seventh grade, whereas their importance ratings of English increased somewhat during seventh grade.

Researchers have not yet addressed changes in children's understandings of the components of task value identified by Eccles et al. (1983), although there likely are age-related differences in these understandings. An eight year old is likely to have a different sense of what it means for a task to be "useful" than an 11 year old does. Further, it is likely that there are differences across age in which of the components of achievement values are most dominant. Wigfield and Eccles (1992) suggested that interest may be especially salient during the early elementary school grades. If so, then young children's choice of different activities may be most directly related to their interests. And if young children's interests shift as rapidly as their attention spans, it is likely they will try many different activities for a short time each before developing a more stable opinion regarding which activities they enjoy the most. As children get older the perceived utility and personal importance of different tasks may become more salient, particularly as they develop more stable self-schema and long range goals and plans. These developmental patterns have yet to be assessed empirically.

A related developmental question is how children's developing competence beliefs relate to their developing subjective task values? According to both the Eccles et al. model and Bandura's self-efficacy theory, ability self-concepts should influence the development of task values. In support of this prediction, Mac Iver, Stipek, and Daniels (1991) found that changes in junior high school students' competence beliefs over a semester predicted change in children's interest much more strongly than vice versa. Does the same causal ordering occur in younger children? Recall that Bandura (1997) argued that interests emerge out of one's sense of self-efficacy and that children should be more interested in challenging than in easy tasks. Taking a more developmental perspective, Wigfield (1994) proposed that initially young children's competence and task value beliefs are likely to be relatively independent of each other. This independence would mean that children might pursue some activities in which they are interested regardless of how good or bad

they think they are at the activity. Over time, particularly in the achievement domain, children may begin to attach more value to activities on which they do well for several reasons: First, through the processes associated with classical conditioning, the positive affect one experiences when one does well should become attached to activities yielding success (see Eccles, 1984). Second, lowering the value one attaches to activities that one is having difficulty with can be an effective way to maintain a positive global sense of efficacy and self-esteem (see Eccles, Wigfield, & Blumenfeld, 1984; Eccles, 1984; Harter, 1990). Thus, at some point the two kinds of beliefs should become positively related to one another. In partial support of this view, Wigfield and colleagues (1998) found that relations between children's competence beliefs and subjective values in different domains indeed are stronger in older than younger elementary school-aged children. The causal direction of this relation, however, has not yet been tested empirically.

Interest Theories

Closely related to the intrinsic interest component of subjective task value is the work on "interest" (Alexander, Kulikovich, & Jettison, 1994; Hidi, 1990; Renninger, Hidi & Krapp, 1992; Schiefele, 1991). Researchers in this tradition differentiate between individual and situational interest. Individual interest is a relatively stable evaluative orientation towards certain domains; situational interest is an emotional state aroused by specific features of an activity or a task. Two aspects or components of individual interest are distinguishable (Schiefele, 1991): feeling-related and value-related valences. Feeling-related valences refer to the feelings that are associated with an object or an activity itself - feelings like involvement, stimulation, or flow. Value-related valences refer to the attribution of personal significance or importance to an object. In addition, both feeling-related and value-related valences are directly related to the object or task rather than to the relation of this object or task to other objects or task. For example, if students associate mathematics with high personal significance because mathematics can help them get prestigious jobs, then we would not speak of interest. Although feeling-related and value-related valences are highly correlated (Schiefele, 1997), it is useful to differentiate between them because some

individual interests are based primarily on feelings, while other interests based on more personal significance (see Eccles, 1984; Wigfield & Eccles, 1992). Further research is necessary to validate this assumption.

Much of the research on individual interest has focused on its relation to the quality of learning (see reviews by Alexander et al., 1994; , Renninger, Hidi & Krapp, 1992, and Schiefele, 1997). In general, there are significant but moderate relations between interest and text learning. More importantly, interest is more strongly related to indicators of deep-level learning (e.g., recall of main ideas, coherence of recall, responding to deeper comprehension questions, representation of meaning) than to surface-level learning (e.g., responding to simple questions, verbatim representation of text; Schiefele, in press b; Schiefele & Krapp, in press) .

Most of the research on situational interest has focused on the characteristics of academic tasks that create interest. (e.g., see Hidi 1990; Teigen, 1987). Among others, the following text features arouse situational interest: personal relevance, novelty, activity level, and comprehensibility (Hidi 1990). Empirical evidence has provided strong support for the relation between situational interest and text comprehension and recall (see reviews by Schiefele, 1997; Wade, 1992).

Developmental changes in interest. Based on Piaget's (1948) theory, Travers (1978) analyzed the earliest phase of interest development. He assumed that only "universal" interests would be evident in very young children, for example, the infant's search for structure. Later, depending on the general cognitive development of the child, these universal interests should become more differentiated and individualized. According to Roe and Siegelmann (1964), the earliest differentiation occurs between interest in the world of physical objects versus interest in the world of people. Todt (1990) argued that this early differentiation eventually leads to individual differences in interests in the social vs. the natural sciences.

The next phase of interest development - between 3 and 8 years of age - is characterized by the formation of gender-specific interests. According to Kohlberg (1966), the acquisition of gender identity leads to gender-specific behaviors, attitudes, and interests. Children strive to behave consistently with themselves and, thus, evaluate "male" and "female" activities or objects differently. Activities or objects that are consistent with the children's gender identity will be more positively evaluated than other activities or objects. As a consequence, boys and girls develop gender role stereotypes interests (see Eccles, 1987; Eccles & Bryan, 1994; Ruble & Martin, 1997).

Like the work of Eccles and colleagues discussed earlier, several European researchers have found that interest in different subject areas school declines continuously during the school years. This is especially true for the natural sciences (e.g., Baumert, 1995; Hedelin & Sjöberg, 1989; Lehrke, Hoffmann, & Gardner, 1985). For example, Hedelin and Sjöberg (1989) investigated students in grades 1 through 9 of the Swedish comprehensive school. Similar to the findings of Eccles, Wigfield, and their colleagues in studies of American children (e.g., Eccles et al., 1993; Wigfield et al., 1991), the students' ratings of their interest in mathematics and Swedish reading and writing declined over time, especially in mathematics. These researchers have identified a number of instructional variables that contribute positively or negatively to interest in school mathematics and science such as: clarity of presentation, monitoring of what happens in the classroom, supportive behavior, cognitively stimulating experiences, and achievement pressure (e.g., Baumert, 1995; Eder, 1992; Lehrke, 1992).

Intrinsic Motivation Theories

The theories described in this section deal with the distinction between intrinsic motivation and extrinsic motivation. When individuals are intrinsically motivated they do activities for their own sake and out of interest in the activity. When extrinsically motivated, individuals do activities for instrumental or other reasons, such as receiving a reward.

Self-determination theory. Over the last 25 years, many studies have documented the debilitating effects of extrinsic incentives and pressures on the motivation to perform even

inherently interesting activities (e.g., see Amabile, Hill, Hennessey & Tighe, 1994; Deci, 1975, Deci & Ryan, 1985; Lepper, 1988). Interest in intrinsic motivation has grown out of two theoretical traditions: (1) Traditions that assume that humans are motivated to maintain an optimal level of stimulation (Hebb, 1982), and (2) and traditions that posit that basic needs for competence (White, 1959) and personal causation or self-determination (deCharms, 1968) underlie intrinsically motivated behavior. Deci and Ryan (1985) integrated these two traditions into their theory of self-determination. In addition, they argued that intrinsic motivation is maintained only when actors feels competent and self-determined. Evidence that intrinsic motivation is reduced by exerting external control and by giving negative competence feedback supports this hypothesis (see Deci and Ryan, 1985). Deci and Ryan (1985) argued, however, that the basic needs for competence and self-determination also play a role in more extrinsically motivated behavior. Consider, for example, a student who consciously and without any external pressure selects a specific major because it will help him earn a lot of money. This student is guided by his basic needs for competence and self-determination but his choice of major is based on reasons totally extrinsic to the major itself. Finally, Deci and Ryan (1985) postulated that a basic need for interpersonal relatedness explains why people turn external goals into internal goals through internalization.

Individual difference theories of intrinsic motivation. Until recently intrinsic motivation researchers like Deci and Ryan and Csikszentmihalyi have dealt with conditions, components, and consequences of intrinsic motivation without making a distinction between intrinsic motivation as a state versus intrinsic motivation as a trait-like characteristic. However, interest in trait-like individual differences in intrinsic motivation has increased recently, particularly among educational and sport psychologists (see Amabile et al., 1994; Gottfried, 1990; Nicholls, 1984, 1989; Schiefele, 1997). These researchers define this enduring intrinsic motivational orientations in terms of three components: (1) preference for hard or challenging tasks, (2) learning that is driven by curiosity or interest, and (3) striving for competence and mastery. The second component is most central to the idea of intrinsic motivation. Both preference for hard tasks and striving for competence can be linked to either extrinsic or more general need achievement

motivation. Nonetheless, empirical findings suggest that the three components are highly correlated. In addition, evidence suggests that high levels of trait-like intrinsic motivation facilitate positive emotional experience (Matsumoto & Sanders, 1988), self-esteem (Ryan, Connell & Deci, 1985), mastery-oriented coping with failure (Dweck, 1975), high academic achievement (Benware & Deci, 1984; Schiefele & Schreyer, 1994), and use of appropriate learning strategies (Schiefele & Schreyer, 1994).

Developmental changes in intrinsic motivation. Researchers in both Europe and the U.S.A. have found that intrinsic motivation in general and, for different subjects in particular, declines over the elementary school years (Harter, 1981; Helmke, 1993). The transition from elementary to middle school also results in a decrease in intrinsic motivation and interest in different school subjects (see Eccles, Wigfield, Midgley et al., 1993). Such changes are likely to lead to decreased school engagement. The possible origins of these declines has not been studied but it is likely they similar to the causes of declines in expectations and ability-related self-confidence - namely, shifts in the nature of instruction across grade levels, cumulative experiences of failure, and increasing cognitive sophistication.

Why Am I Doing This?

The last area of motivation related to issues of engagement is the new work in goal theory. This work focuses on why children think they are engaging in particular achievement-related activities and what they hope to accomplish through their engagement. Although this work has progressed independently, it has strong theoretical links to the work discussed earlier on the valuing of an activity and on intrinsic versus extrinsic motivation. We include it in this chapter because individual differences in goals are likely to affect both persistence and engagement, as well as the relations of performance outcomes and engagement to mental health and ability self-concepts. In addition, goal theories are currently very popular among researchers interested in both the determinants of performance and task choice (e.g., Butler, 1989a, 1989b), and the restructuring of schools to enhance motivation (e.g., Ames, 1992; Maehr & Midgley, 1991).

Goal Theories

Recently, researchers have become interested in children's achievement goals and their relation to achievement behavior (see Ames & Ames, 1989; Locke & Latham, 1990; Meece, 1991, 1994). Several different approaches have emerged. For instance, Bandura (1986) and Schunk (1990, 1991) focus on goals' proximity, specificity, and level of challenge and have shown that specific, proximal, and somewhat challenging goals promote both self-efficacy and improved performance. Other researchers have defined and investigated broader goal orientations (e.g., Ames, 1992; Blumenfeld, 1992; Butler, 1993; Dweck & Leggett, 1988; Nicholls, 1984). For example, Nicholls and his colleagues (e.g., Nicholls, 1979; Nicholls et al., 1990) defined two major kinds of motivationally relevant goal patterns or orientations: ego-involved goals and task-involved goals. Individuals with ego-involved goals seek to maximize favorable evaluations of their competence and minimize negative evaluations of competence. Questions like "Will I look smart?" and "Can I outperform others?" reflect ego-involved goals. In contrast, with task-involved goals, individuals focus on mastering tasks and increasing one's competence. Questions such as "How can I do this task?" and "What will I learn?" reflect task-involved goals. Dweck and her colleagues provide a complementary analysis distinguishing between performance goals (like ego-involved goals), and learning goals (like task-involved goals) (e.g., Dweck and Elliott, 1983; and Dweck and Leggett, 1988). Similarly, Ames (1992) distinguishes between the association of performance (like ego-involved) goals and mastery goals (like task-focused goals) with both performance and task choice. With ego-involved (or performance) goals, children try to outperform others, and are more likely to do tasks they know they can do. Task-involved (or mastery-oriented) children choose challenging tasks and are more concerned with their own progress than with outperforming others.

Other researchers (e.g., Ford, 1992; Wentzel, 1991) have adopted a more complex perspective on goals and motivation, arguing that there are many different kinds of goals individuals can have in achievement settings. For example, Ford proposed a complex theory based

on the assumption that humans are goal directed and self organized (e.g., Ford, 1992; Ford & Nichols, 1987). He defined goals as desired end states people try to attain through the cognitive, affective and biochemical regulation of their behavior. Furthermore, Ford considered goals to be only one part of motivation; in his model, motivation is the product of goals, emotions, and personal agency beliefs. Ford (1992, Ford & Nichols, 1987) outlined an extensive taxonomy of goals. Ford and Nichols distinguished most broadly between within person goals, which concern desired within-person consequences, and person-environment goals, which concern the relationship between persons and their environment. Similar to Rokeach's (1979) human values and Eccles' attainment value (Eccles, 1983), the within-person goals include affective goals (e.g., happiness, physical well-being), cognitive goals (e.g., exploration, intellectual creativity), and subjective organization goals (e.g., unity, transcendence). These goals include self-assertive goals such as self-determination and individuality, integrative social relationship goals such as belongingness and social responsibility, and task goals such as mastery, material gain, and safety. Finally, Ford (1992) derived a set of principles for optimizing motivation.

Development of children's goals. To date there has been surprisingly little empirical work on how children's goals develop. Nicholls (1979, 1984, 1990) suggested and documented that both task goals and ego goals are already developed by second grade (Nicholls et al., 1990). However, Nicholls (1989) also suggested that the ego-goal orientation becomes more prominent for many children as they get older, in part because of developmental changes in their conceptions of ability and, in part, because of systematic changes in school context.

Dweck and her colleagues (e.g., Dweck & Elliott, 1983; Dweck & Leggett, 1988) also predicted that performance goals should get more prominent as children go through school for two reasons: (1) they develop a more entity view of intelligence as they get older and (2) children holding an entity view of intelligence are more likely to adopt performance goals.

It is also likely that the relation of goals to performance changes with age due to the changing meaning of ability and effort. Butler's work is directly related to this hypothesis. In a

series of studies looking at how competitive and non-competitive conditions, and task and ego-focused conditions, influence pre- and elementary school-aged children's interests, motivation and self-evaluations, she identified several developmental changes: First, competition decreases children's subsequent interest in a task only if the children also have a social-comparative sense of ability (Butler, 1989a, 1990). Competition also increases older, but not younger, children's tendency to engage in social comparison (Butler, 1989a, 1989b). Second, although children of all ages engage in social comparison, younger children do it more for task mastery than for ego-related reasons; in contrast older children do it to assess their relative abilities (Butler, 1989b). Butler concluded that "older children's concerns with evaluating relative ability may exact a considerable price in terms of their ability to use others as resources and improving task mastery" (Butler, 1989b, p. 1359). Third, whereas, five, seven, and 10 year-old-children's self-evaluations are quite accurate under mastery conditions, under competitive conditions five and seven year olds inflate their performance self-evaluations more than 10 year olds (Butler, 1990). Apparently the influence of situationally induced performance goals on children's self-evaluations depends on children's age and cognitive sophistication.

Finally, Butler and Ruzany (1993) found evidence that different patterns of socialization influence children's ability assessments and reasons for social comparison. In a study comparing kibbutz-reared with city-reared Israeli children, the kibbutz children adopted a normative ability concept earlier than urban children. However, only the urban children's reasons for engaging in social comparison were influenced by their concept of ability: once they adopted a normative view they used social comparison to compare their abilities to those of other children. In contrast, the kibbutz children used social comparison primarily for mastery reasons, regardless of their conception of ability.

Developmental studies of multiple goals are badly needed. Neither Wentzel or Ford, the major theorists in this area, have done such work. Thus, we know very little about how these

kinds of multiple goals emerge during childhood and whether the relation of these different goals to performance varies across age and context.

Summary. In this section, we have reviewed the evidence for changes in children's goals for doing school work. Because interest in this area of motivation is fairly recent, much less empirical and theoretical work has been done on developmental changes - most of the work has focused instead on individual differences in goal orientation. But the little available developmental work reveals a pattern of change not unlike the patterns discussed earlier for expectancy-related beliefs and values. At the population level, there appears to be an increase in ego-focused goals and competitive motivation. Given what we know about individual differences in goal orientation, such a shift is likely to lead at least some children (particularly those doing poorly in school) to disengage from school as they get older.

In the next section, we focus more directly on work directly linking motivational constructs to healthy functioning. Much of this work has grown out of concern over particular motivational problems like test anxiety and learned helplessness. We discuss this work first. More recently, researchers have been studying the link between motivational constructs and mental functioning directly. We discuss this work second.

The Development of Motivational Problems

Many children begin to experience motivational problems during the elementary school years. These problems include lack of confidence in one's abilities, anxiety, and the belief that one can not control one's achievement outcomes. In this section, we focus on the motivational problems that have received the most research attention: test anxiety and learned helplessness.

Test Anxiety

Anxiety has long been an important topic in motivational research (see Weiner, 1992). Early research in this area was conducted by Sarason, Hill, and their colleagues using the Test

Anxiety Scale for Children. In one of the first longitudinal studies, Hill and Sarason (1966) found that anxiety both increases across the elementary and junior high school years and becomes more negatively related to subsequent grades and test scores. They also found that highly anxious children's achievement test scores were up to two years behind those of their low anxious peers and that girls' anxiety scores were higher than boys'. These researchers also determined that test anxiety is a serious problem for many children: For example, Hill and Wigfield (1984) estimated that as many as 10 million children and adolescents in the USA experience significant evaluation anxiety.

Researchers (e.g., Dusek, 1980; Hill & Wigfield, 1984; Wigfield & Eccles, 1989) postulate that high anxiety emerges when parents have overly high expectations and put too much pressure on their children; to date few studies have tested this proposition. Anxiety continues to develop in school as children face more frequent evaluation, social comparison, and (for some) experiences of failure; to the extent that schools emphasize these characteristics, anxiety becomes a problem for more children as they get older (Hill & Wigfield, 1984).

The nature of anxiety may also change with age. Typically, researchers in this area distinguish between two components of anxiety: a worry component and an emotional/physical component. Wigfield and Eccles (1989) proposed that anxiety initially may be characterized more by emotionality, but as children develop cognitively, the worry aspect of anxiety should become increasingly salient. This proposal also remains to be tested, but we do know that worry is a major component of the thought processes of highly anxious fifth and sixth graders (Freedman-Doan, 1994).

Anxiety Intervention Programs. Many programs to reduce anxiety have been developed (see Wigfield & Eccles, 1989). Earlier intervention programs emphasized the emotionality aspect of anxiety and focused on various relaxation and desensitization techniques. Although these programs did succeed in reducing anxiety, they did not always lead to improved performance, and the studies had serious methodological flaws. Anxiety intervention programs

linked to the worry aspect of anxiety focus on changing the negative, self-deprecating thoughts of anxious individuals and replacing them with more positive, task-focused thoughts. These programs have been more successful both in lowering anxiety and improving performance .

An important issue that has not been adequately addressed is how programs should be tailored for different-aged children. This consideration is particularly important for elementary school-aged children (see Wigfield & Eccles, 1989). Further, because children's anxiety depends so much on the kinds of evaluations they experience in school, changes in school testing and other evaluation practices could help reduce anxiety.

Learned Helplessness

As defined by Dweck and Goetz (1978), "learned helplessness ... exists when an individual perceives the termination of failure to be independent of his responses" (p. 157). Learned helplessness has been related to individuals' attributions for success and failure: helpless individuals are more likely to attribute their failures to uncontrollable factors, such as lack of ability, and their successes to unstable factors (see Dweck & Goetz, 1978). Dweck and her colleagues have documented several interesting differences between helpless and more mastery oriented children's responses to failure: When confronted by difficulty (or failure), mastery oriented children persist, stay focused on the task, and sometimes even use more sophisticated strategies. In contrast, helpless children's performance deteriorates, they ruminate about their difficulties, often begin to attribute their failures to lack of ability. Further, helpless children adopt an entity view that their intelligence is fixed, whereas mastery oriented children adopt an incremental view of intelligence.

Fincham and Cain (1986) provided a developmental analysis of helplessness. Citing Weisz's (1984) work, they noted the difficulties that young children have distinguishing between contingent and non-contingent events; thus young children may not be aware of which achievement outcomes they control and which they do not. They also noted that because young children do not

understand the differences between ability and effort as causes of performance, it is not likely that young children will show the differential attributional patterns linked to mastery-orientation versus learned helplessness. They concluded that researchers need to look at how children's understanding of contingencies, estimations of their own competence, and attributions for their outcomes work together in determining children's evaluations of their achievement outcomes. This kind of theoretically integrative work on learned helplessness has not yet been undertaken.

Instead, there are a few studies of age differences in learned helpless behavior. For example, consistent with the suggestion of Fincham and Cain (1986), Rholes et al. (1980) found that younger children did not show the same decrements in performance in response to failure as some older children do (see also Parsons & Ruble, 1972; Eccles-Parsons, 1982). However, Dweck and her colleagues' recent work (see Burhans & Dweck, 1995) shows that some young (5 and 6 year old) children respond quite negatively to failure feedback, judging themselves to be bad people (see also Stipek et al., 1992). These rather troubling findings show that negative responses to failure can develop quite early on. But does this mean that some very young children already have an entity view of intelligence and are attributing their failures to lack of this entity? Burhans and Dweck do not think so. Instead, they proposed that young children's helplessness is based on their belief that their worth as a person is based on their performance.

But what produces learned helplessness in children, even at these early ages? Dweck and Goetz (1978) proposed that it depends on the kinds of feedback children receive from parents and teachers about their achievement outcomes, in particular whether children receive feedback that their failures are due to lack of ability. Recently, Hokoda and Fincham (1995) found that mothers of helpless third grade children (in comparison to mothers of mastery-oriented children) gave fewer positive affective comments to their children, were more likely to respond to their children's lack of confidence in their ability by telling them to quit, were less responsive to their children's bids for help, and did not focus them on mastery goals. Dweck and Goetz argued further that girls may be more likely than boys to receive negative ability feedback in elementary school classrooms (see

Dweck, Davidson, Nelson, & Enna, 1978 for evidence supporting this view), and so are more likely to develop helplessness. Although some other researchers have not replicated Dweck et al.'s (1978) classroom findings regarding sex differences in feedback to children (e.g., Eccles et al., 1983), it is likely that children who receive feedback that their failures are due to lack of ability will be more likely to develop helplessness.

Alleviating Learned Helplessness. There are numerous studies designed to alleviate learned helplessness by changing attributions for success and failure so that learned helpless children learn to attribute failure to lack of effort rather than to lack of ability (see review by Forsterling, 1985). Various training techniques (including operant conditioning and providing specific attributional feedback) have been used successfully in changing children's failure attributions from lack of ability to lack of effort, improving their task persistence, and performance (e.g., Dweck, 1975). Two problems with these approaches have been noted. First, what if the child is already trying very hard? Then the attribution re-training may be counter productive. Second, telling children to "try harder" without providing specific strategies that are designed to improve their performance is likely to back fire -- children may put in massive amounts of effort and still not succeed if they don't know how to apply that effort. Therefore, some researchers (e.g., Borkowski et al., 1990) now advocate using strategy retraining in combination with attribution retraining so that the lower achieving and/or learned helpless children are provided with specific ways to remedy their achievement problems. Borkowski and his colleagues, for example, have shown that a combined program of strategy instruction and attribution re-training is more effective than strategy instruction alone in increasing reading motivation and performance in underachieving students (e.g., Borkowski & Muthukrisna, 1995; Paris & Byrnes, 1989; Pressley & El-Dinary, 1993).

Self-Efficacy Training. Self-efficacy training has also been used to alleviate learned helplessness. For example, Schunk and his colleagues have conducted several studies designed to improve elementary school-aged children's (often low-achieving children) math, reading and

writing performance through skill training, enhancement of self-efficacy, attribution re-training, and training children how to set goals (see Schunk, 1994). Modeling often is an important aspect of the training. A number of findings have emerged from this work. First, the training increases both children's performance and their sense of self-efficacy. Second, attributing children's success to ability has a stronger impact on their self-efficacy than does either effort feedback, or ability and effort feedback (e.g., Schunk, 1983). However, the effects of this kind of attributional feedback vary across different groups of children (see Schunk, 1994). Third, training children to set proximal, specific, and somewhat challenging goals enhances their self-efficacy and performance. Fourth, training that emphasizes process goals (analogous to task or learning goals) increases self-efficacy and skills in writing more than an emphasis on product (ego) goals; however, this is not true for reading (see Schunk 1991, 1994). Finally, like the work of Borkowski and his colleagues, Schunk and his colleagues have found that combining strategy training, goal emphases, and feedback to show children how various strategies relate to their performance has a strong effect on subsequent self-efficacy and skill development.

Summary

In summary, work on anxiety and helplessness shows that some children suffer from motivational problems that can debilitate their performance in achievement situations. Although most of the work in developmental and educational psychology has focused on these two problems, there likely are other important motivational problems as well. In particular, some children may set maladaptive achievement goals, others may have difficulties regulating their achievement behaviors, and still others come to de-value achievement. More comprehensive work on these kinds of motivational problems and how they affect children's achievement is needed.

Researchers interested in the remediation of these motivational difficulties have turned increasingly to programs targeting both cognitive and motivational components. This work now needs to be extended to children of different ages to determine whether the strategy instruction and motivation enhancement techniques need to be modified for younger and older children. Further,

work is needed on developing programs that integrate various approaches, particularly those approaches associated with self-efficacy, goal setting, and self-regulation. More broadly, however, as valuable as these individually focused programs are, they are likely to have little lasting benefit if home and school environments do not facilitate and support the changes. Therefore, some researchers have turned to changing school and classroom environments to facilitate motivation, rather than changing individual children.

Other theorists have focused more generally on the link between school experiences and emotional experiences. These theorists have been concerned with two issues: (1) the possible link between experiences in school and more general mental health, and (2) the emergence of what appear to be less adaptive motivational strategies as a means to protect one's mental health. Some of this work was summarized in the introduction to this chapter. In the next section, we focus on the work by Covington (1992) and on the work by Roeser (Roeser et al., 1994; Roeser & Eccles, in press) and Eccles (Eccles et al., 1997).

Self-Worth Theory

Covington was concerned with children's need to maintain positive self-esteem across a variety of situations. He was particularly concerned with how children would accomplish this goal when they faced with repeated failure experiences in school. In his self-worth theory, Covington (1992) defined the motive for self-worth as the tendency to establish and maintain a positive self-image, or sense of self worth. Because children spend so much time in classrooms and are evaluated so frequently there, Covington argued that they must protect their sense of academic competence in order to maintain their sense of self-worth. One way to accomplish this goal is by using those causal attribution patterns that enhance one's sense of academic competence and control: attributing success to both ability and effort along with attributing failure to insufficient effort (Covington & Omelich, 1979; Eccles-Parsons et al, 1982). Attributing failure to lack of ability is a particularly problematic attribution that students should try to avoid.

However, school evaluation, competition, and social comparison make it difficult for many children to maintain the belief that they are academically competent. Covington (1992) discussed the strategies many children develop to avoid appearing to lack ability. These include procrastination, making excuses, avoiding challenging tasks, and most importantly, not trying. Although trying is critical for success, if children try and fail, it is difficult to escape the conclusion that they lack ability. Therefore, if failure seems likely, some children will not try, precisely because trying and failing threatens their ability self-concepts. Covington called such strategies "failure avoiding strategies". Further, Covington discussed how even some high achieving students can be failure avoidant. Rather than responding to a challenging task with greater effort, these students may try to avoid the task in order to maintain both their own sense of competence, and others' conclusions regarding their competence. Covington (1992) suggested that reducing the frequency and salience of competitive, social comparative, and evaluative practices, and focusing instead on effort, mastery, and improvement, would allow more children to maintain their self-worth without having to resort to the failure-avoiding strategies just described. These suggestions have been incorporated into many other motivation theorists' recommendations for changing schools to enhance motivation (e.g., Ames, 1992; Maehr & Midgley, 1991).

Academic Self-Perceptions and Mental Health.

We have also begun to assess the link between academic self-perceptions and mental health with our data from the Michigan Childhood and Beyond Study (CAB). Earlier (see Tables 1-3) we summarized the patterns of change across middle childhood in children's academic risk status. We reported that a substantial number of children identified as at-risk in the first grade are doing fine in terms of their academic self-concepts and their academic performance by the time they reach middle school. Now we discuss in more detail both who these children might be and the link between academic outcomes and mental health. The first issue we look at is the comorbidity of academic risks with mental health risks. The results reported in Tables 1 and 2 document this association.

Children identified as at-risk academically in both early elementary school and early adolescence also had more mental health problems than their not-at-risk peers.

But more importantly, are variations in mental health related to the trajectories of change in risk status? Yes! These results are summarized in Figure 6. The incliners had significantly higher self-esteem than the decliners at time 2 even though they were performing more poorly in terms of their grades (see Figure 5) at that time. Furthermore, when they were adolescents (at time 4), they still had significantly higher self-esteem; in addition, they were more satisfied with their lives and reported higher levels of ego resilience and less anger than the decliner group.

We have looked at the issue of co-occurrence in one other way (Roeser & Eccles, in press). Using only the middle cohort of children in the CAB study, we clustered the children based on two indicators of academic motivation (ability self-concept and academic valuing) and one mental health (a composite of scores on depressive affect, self-esteem, and anger scales) when they were in grade 8. Four distinct clusters of approximately equal size emerged: a well functioning group (high on all three indicators), a poor motivation group (low on the motivation indicators but high on mental health), a poor mental health group (low on mental health but high on the motivation indicators), and a multiple risk group (low on all three indicators). These results indicate that these two sets of indicators of social adjustment sometimes co-occur in the same individual and sometimes do not. We then followed these four groups back to grades two and three and compared their academic competence beliefs and grade point average. Several interesting patterns emerged. As one might expect, the well functioning group scored the highest on both of these indicators. In contrast, there were no differences in academic self-competence among the other three groups at grade 2. However, by grade 3 the multiple risk group had the lowest self-competence scores and remained the lowest from that point on. The multiple risk group also had a lower grade point average than the other three groups in grades 1-3 and 8, and they were the only group to show a decline in academic marks from the 4th to the 8th grade. The other groups showed an increase in marks over this period.

Clearly, these four groups of children had different trajectories of change in both their academic motivation and their mental health over the middle childhood years. We present these findings because they demonstrate the importance of taking a person-centered orientation to studying developmental trajectories. These patterns of individual differences would have gone unnoticed if we had relied only on population-centered and variable-centered analyses. Our next steps will be to identify the psychological, family, school, and peer group characteristics that distinguish among these four groups of children. Recent studies by Collins and his colleagues (in press) and by Keating and his colleagues (Keating, 1997; Miller, Keating, Marshment, & MacLean, 1997) suggest two very important influences: the child's ability to regulate his or her own behavior to the demands of the situation and the quality of family support for effective problem solving during the pre-school years.

Summary

We had two goals in this chapter: (1) to describe the developmental pathways associated with academic motivation and school engagement during middle childhood, and (2) to explore the link between academic adjustment and mental health during this same developmental period.

With regard to our second goal, the picture varies somewhat depending on whether one takes a population and/or variable-centered approach or an individual difference or person-centered approach. At the population level, there is clearly a link between psychological functioning in the domain of school and general mental health. At the individual differences level, there is a strong relation between these two domains of functioning in some children and no relation (or only a very weak relation) in other children. Additional work is badly needed before we can understand these individual variations.

The findings regarding our first goal also yield somewhat different conclusions depending on whether one adopts a variable- versus a person-centered approach. Evidence for changes at the population level points fairly consistently to declines in children's academic motivation and school

attachment/engagement during the elementary school years. On average, children begin elementary school quite confident of their own abilities and quite enthusiastic about school; and, on average, both of these sets of beliefs decline over the elementary school years, particularly between grades 2 and 4. Both psychological and situational causes for these patterns were discussed.

A different picture emerges when one conducts person-centered analyses. There are clear and consistent patterns of individual differences in these trajectories. Although it is the case that the vast majority of children do start elementary school with very high estimates of their own abilities, not all of these children evidence declines over the elementary school years, and the rate of decline varies in systematic ways across children with different psychological resources (assessed primarily in terms of self-esteem in the studies reported in this chapter).

The Roeser et al. (1995) study identified two pathways to diminished academic and social-emotional functioning in early adolescence - the straight path of chronic academic difficulties, and the less common path of declining academic performance and feelings of competence over time. Although these pathways at least suggest the possibility of different underlying mechanisms, one common characteristic of both of these groups of children is clear: somewhere between the later elementary years and the transition to middle school, these youth experience a serious decline in their academic motivation. It could be that children who are vulnerable in terms of academic motivation and achievement, either due to long term problems or some other factor during childhood, are most susceptible to the stresses involved with bio-psycho-social transitions during early adolescence (e.g., Eccles & Midgley, 1989, Simmons & Blyth, 1987). Although speculative, these data certainly suggest a disruption between the late elementary and middle school years in the two groups of children who ended up academically at-risk during early adolescence.

The "decliner" group certainly seemed to be a group of children who were capable, but seemed to have difficulties that went largely unnoticed in their early school years when they still appeared to be engaged in school. It could be that these children manifested their distress in an internalizing way that was not identified by their early teachers (e.g., Loeber et al., 1990; Lord et

al., 1994), or that the problems that they experienced later during adolescence resulted from events occurring during the later elementary school years. Whatever the case, it is clear that these children, despite their ability to do well in school, end up very disengaged from academics by the seventh or eighth grade. So much so, in fact, that they, more than any other group of children, were already entertaining the notion that they might drop out of school before graduating.

In summary, then, there appear to be two sub-group of children who are especially vulnerable to these declines: These children have lower self-esteem, less well developed self-control and self-organizational strategies, and more problematic behavioral patterns when they enter elementary school. Emerging evidence also suggests that they may have less supportive relationships at home and at school (Carlson et al, in press). The other group begins school looking fine and then begins to disengage as they approach and go through adolescence. We are not sure why this downward shift occurs for these children in particular.

Roeser et al. (1995) also documented two pathways towards positive academic and social-emotional adjustment during early adolescence - again a straight and a deviating one. By definition, the majority of children in this study evidenced positive academic and social emotional adjustment over time. This is as one might expect. However, we also identified a group of "academically resilient" children who, despite early difficulties, went on to achieve at a fairly high level during early adolescence. What is most interesting about these children is that, despite their lower academic marks, less favorable teacher beliefs concerning their abilities, and slightly lower intelligence scores early in elementary school, they had a positive profile of academic competence, value, and self-esteem beliefs all the way from childhood to early adolescence. That is, the optimism these children felt seemed to predict their later success in school and positive adjustment. Investigating the social and personal resources and the environmental experiences that have distinguished these resilient youth represents important future research direction.

The findings presented in this chapter also raise several interesting issues concerned with how children may compensate for difficulties they experience in the academic domain. This question is important given the fact that the academic realm is a central sphere of experience and

“work” for the children and adolescents, and competence and achievement in this sphere must be critically relevant to a their self-esteem (e.g., Eccles et al., 1983; Erikson, 1959; Harter, 1985). What happens when youth cannot claim that they feel academically competent? On the one hand, the findings of Roeser and his colleagues (Roeser & Eccles, in press; Roeser et al., 1995) suggest this is likley to lead to diminished self esteem and social-emotional experience for many children. On the other hand, Roeser et al (1995) also provides evidence of at least one mechanism of compensation: Youth who feel less academically competent and receive lower marks also come to devalue academics the most. Beginning with William James, several theorists of the self have noted that one way to maintain self-esteem in the face of relative incompetence is to devalue that domain (Eccles et al., 1983; Harter, 1985; Wigfield & Eccles, 1992). This may be one explanation for what occurred with the children in the “stable difficulties” and “decliner” groups. That is, those youth who experienced more and more difficulties in school lowered their perceptions of the importance, usefulness, and interest of their core academic subjects during seventh and eighth grade. This is particularly distressing given that “not liking school” is a primary reason for dropping out of school.

Another mechanism of compensation children can use is to change their valuing of, and engagement in, achievement-related activities in other relevant life domains. Although there are several “culturally mandated” dimensions of self that are likely central to esteem, including academics (e.g., Stein, Markus & Roeser, 1995), some children may be able to compensate for difficulties in one area by achievement in another. For instance, in her expectancy-value formulation of achievement motivation, Eccles et al. (1983) suggests that competence and valuing of any number of achievement domains, including the performing and fine arts, sports, and the social sphere, can serve as relevant sources of esteem. Furthermore, in this model, self-perceptions of relative incompetence in one area are assumed to relate to children’s feelings of competence and value in some other domain: those children with very low academic competence beliefs may develop other strengths and competencies to compensate for their relative lack of success at school. If successful, this strategy can provide the children with another ecological

niche in which to develop a sense of efficacy. Unfortunately, given that children must attend school until they are 16, this strategy is also likely to lead them to feel quite disaffected from the setting in which they must spend great deal of time.

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Table 1.
Teacher, Parent, School Record, and Child Self-Report Indices of
Academic and Social-Emotional Adjustment by Academic Risk Status
During Middle Childhood

Descriptive Variables	At-Risk Academically (<i>n</i> = 137)	Not-At-Risk Academically (<i>n</i> = 260)	Significance
Teacher's Ratings of Child - Academic Adjustment			
Academic Competence ^a	3.92	5.96	F (1,373) = 790.48****
Social Competence	4.44	5.19	F (1,373) = 37.09****
Academic Effort and Persistence	4.02	5.76	F (1,373) = 237.72****
Adjustment to School ^b	4.90	6.12	F (1,289) = 75.61****
Teacher's Ratings of Child - Social-emotional Adjustment			
Anxiousness	3.74	3.32	F (1,394) = 9.99**
Aggression/Impulsivity	3.22	2.48	F (1,394) = 24.92****
Prosociality	4.95	5.61	F (1,394) = 28.90****
Creativity	4.16	5.32	F (1,394) = 94.81****
Mother's Ratings of Child			
Academic Competence	5.22	6.05	F (1,276) = 54.92****
Children's Self-Reports			
Academic Competence	5.67	5.82	F (1,391) = 2.61
Academic Valuing	5.37	5.63	F (1,391) = 4.12*
General Self Esteem	2.84	3.04	F (1,391) = 5.35*
School Record Data			
Slosson I.Q. Measure	113.60	122.01	F (1,305) = 20.62****
Time 1 Academic Marks ^c	9.43	10.84	F (1,305) = 73.17****
Time 1 Academic Effort Marks ^c	9.94	11.40	F (1,305) = 35.86****
Time 1 School Conduct Marks ^c	9.47	10.68	F (1,305) = 20.36****

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; $N=397$; n 's vary due listwise deletion of cases and missing data.

^a Academic competence is the criterion variable used to designate students' academic risk status, with those students falling into the lower 33% of the distribution being categorized as being "academically at-risk."

^b "Adjustment to school" was a measure taken from students' first grade teacher regardless of their cohort in 1988, and assessed how well the first grade teacher perceived the child's adjustment to school in general. A separate ANOVA was run for this scale due to the numbers of students with missing data.

^c Academic marks consisted of teacher-rated grades of students in the core subjects of math and reading. Marks were measured on a 16 point scale, with values roughly equalling specific letter grades. For instance, 1 = 'F', 3 = 'E', 6 = 'D', 9 = 'C', 12 = 'B', 15 = 'A', and 16 = 'A+'.

Table 2.
Youth Self-Reports of Academic and Social-Emotional Adjustment by Academic Risk Status During Early Adolescence

Descriptive Variables	At-Risk Academically ($n = 107$)	Not-At-Risk Academically ($n = 247$)	Significance
Youth Self-Reports - Academic Adjustment			
Academic Competence ^a	3.81	5.23	F (1,352) = 484.62***
Academic Valuing	3.77	4.69	F (1,352) = 111.95***
Grade Point Average ^b	2.91	3.48	F (1,352) = 89.71***
Likelihood of Dropping Out	1.41	1.12	F (1,352) = 9.18**
Youth Self-Reports - Social/Emotional Adjustment			
Anger	3.48	2.88	F (1,344) = 12.02***
Depressive Symptomatology	2.88	2.44	F (1,344) = 8.85**
Life Satisfaction	4.55	5.26	F (1,344) = 35.80***
Self Esteem	2.87	3.15	F (1,344) = 17.67***
Ego Resilience	4.71	5.39	F (1,344) = 36.84***

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; $N=354$; n 's vary due listwise deletion of cases and missing data.

^a Academic competence is the criterion variable used to designate students' academic risk status, with those students falling into the lower 33% of the distribution being categorized as being "academically at-risk."

^b Adolescents' self-reported GPA's were used. In other work with adolescents, we have found self-report measures to correlate .70 with actual school record data GPA's (Roeser, Lord & Eccles, 1994). In the measure reported here, 0 = Failing, 1 = D's, 2 = C's, 3 = B's, and 4 = A.

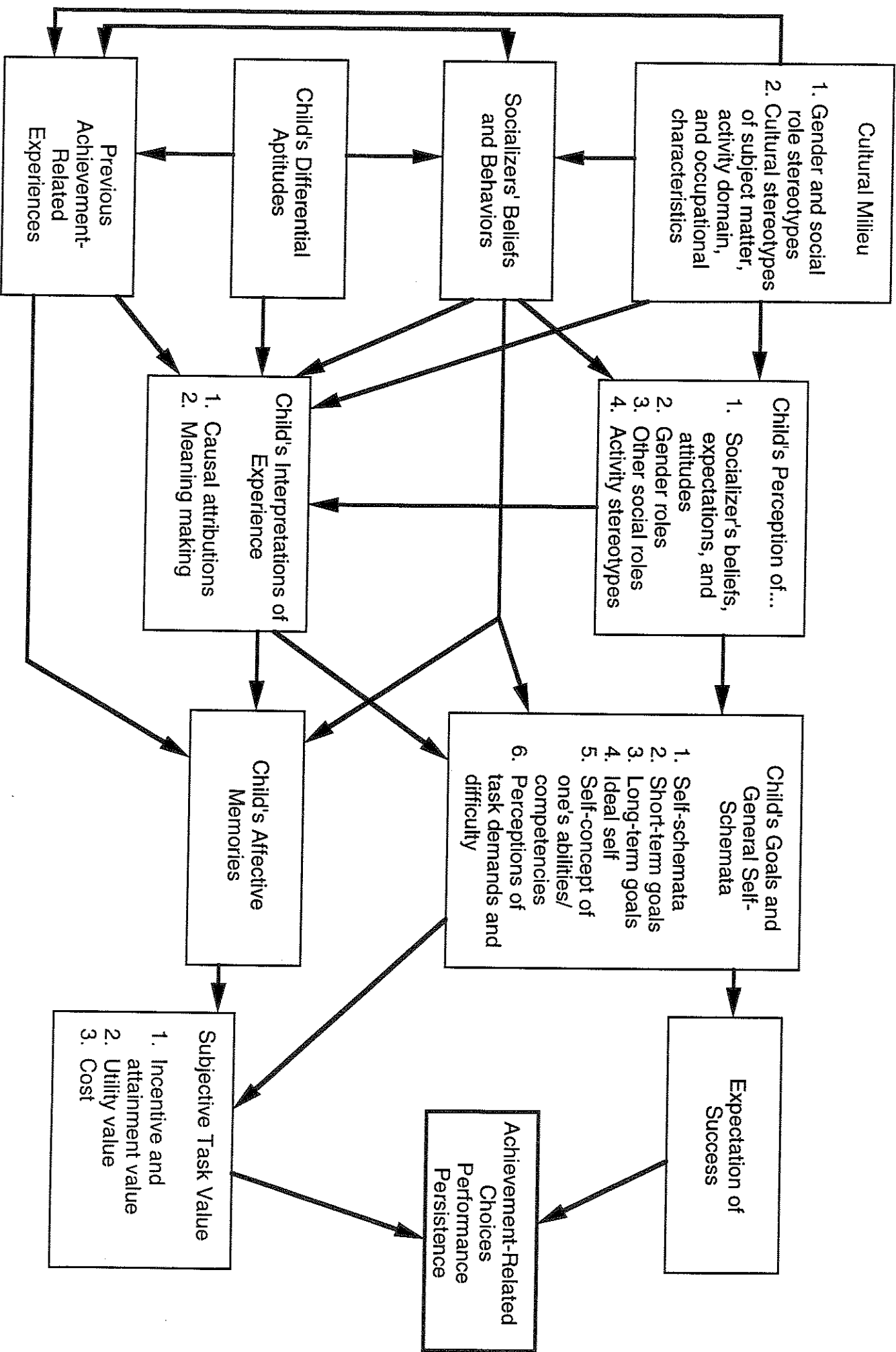
Table 3. Count of Youth by Academic Risk Status Over Time

	Academic Risk Status During Middle Childhood		
	Not At-Risk	At-Risk	Totals
Academic Risk Status During Early Adolescence			
Not At-Risk	122 (42%)	80 (28%)	202
"Stable-Adjusted"		"Incliners"	
At-Risk	29 (10%)	58 (20%)	87
"Decliners"		"Stable Difficulties"	
Totals	151	138	N=289

Figure Captions

- Figure 1. General Model of Achievement Choices
- Figure 2. Developmental Patterns in Ability Self-Concepts
- Figure 3. Youth Self-Report of Academic Competence by Academic Risk Trajectory
- Figure 4. Youth Self-Report of Academic Values by Academic Risk Trajectory
- Figure 5. Academic Achievement by Academic Risk Trajectory
- Figure 6. Youth Self-Report of Self Esteem by Academic Risk Trajectory
- Figure 7. Developmental Patterns for Interest

General Model of Achievement Choices



Developmental Patterns in Ability Self-Concepts

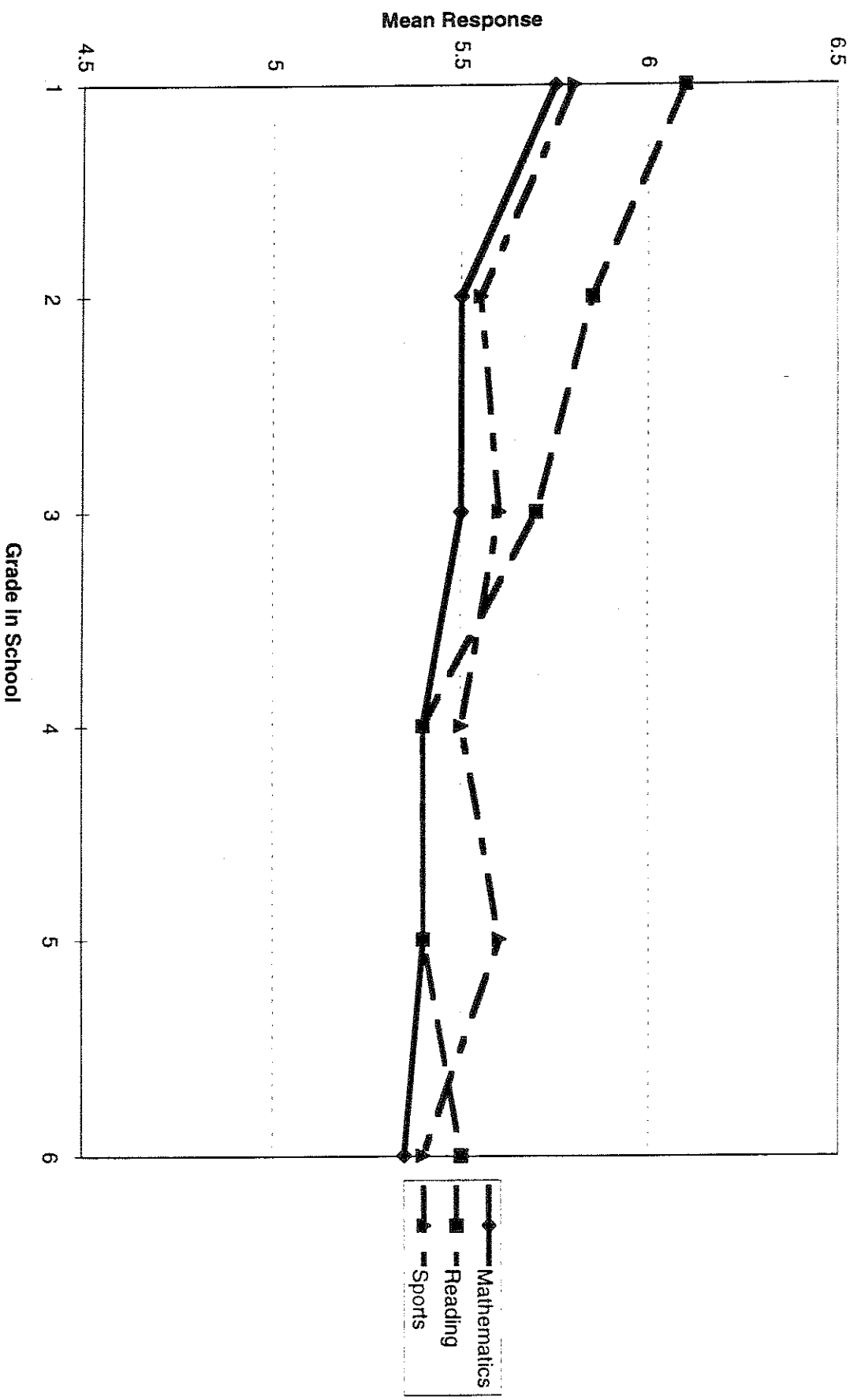


FIGURE 3.
Youth Self-Reports of Academic Competence
by Academic Risk Trajectory

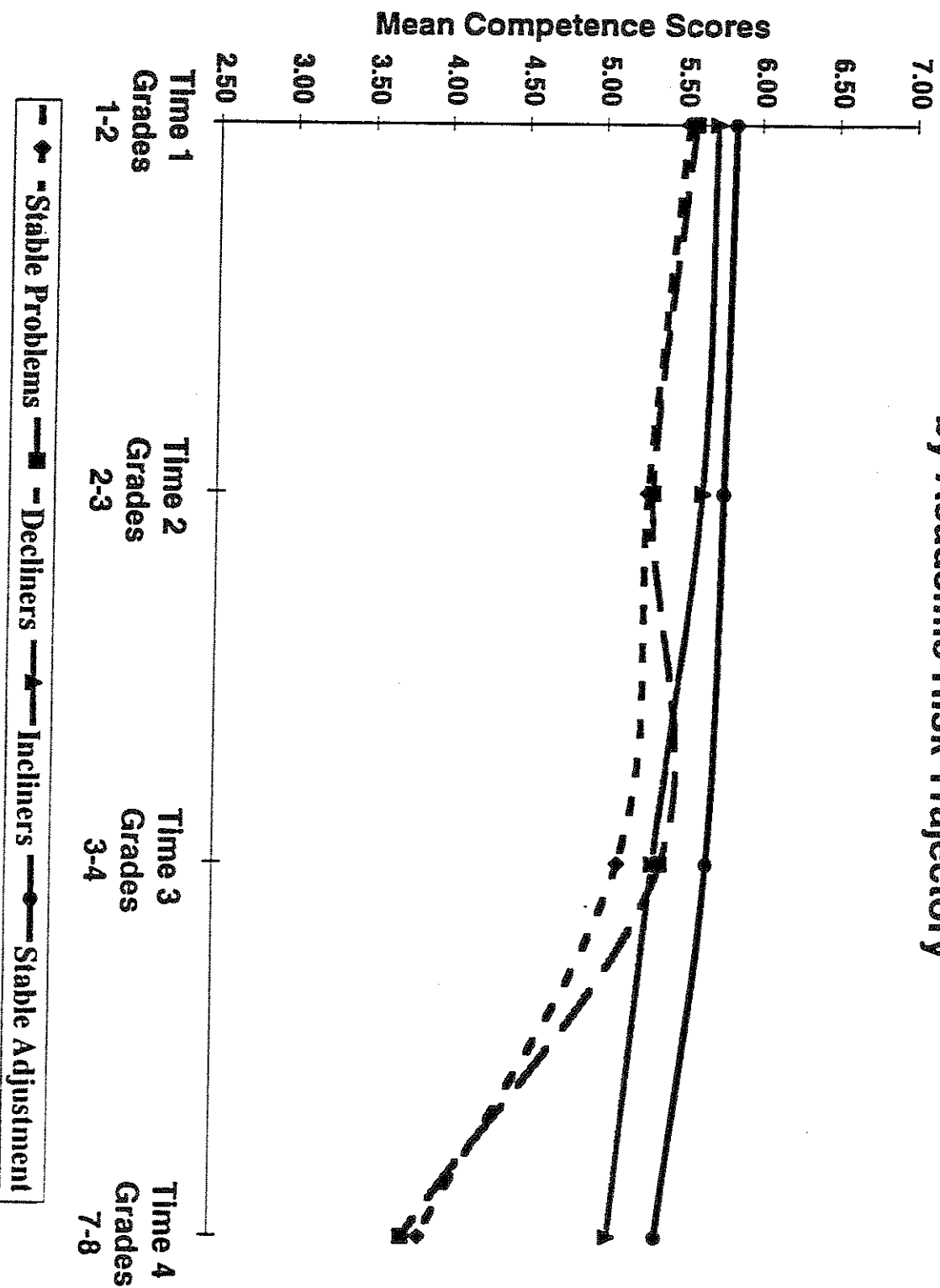


FIGURE 4.
Youth Self-Report of Academic Values
by Academic Risk Trajectory

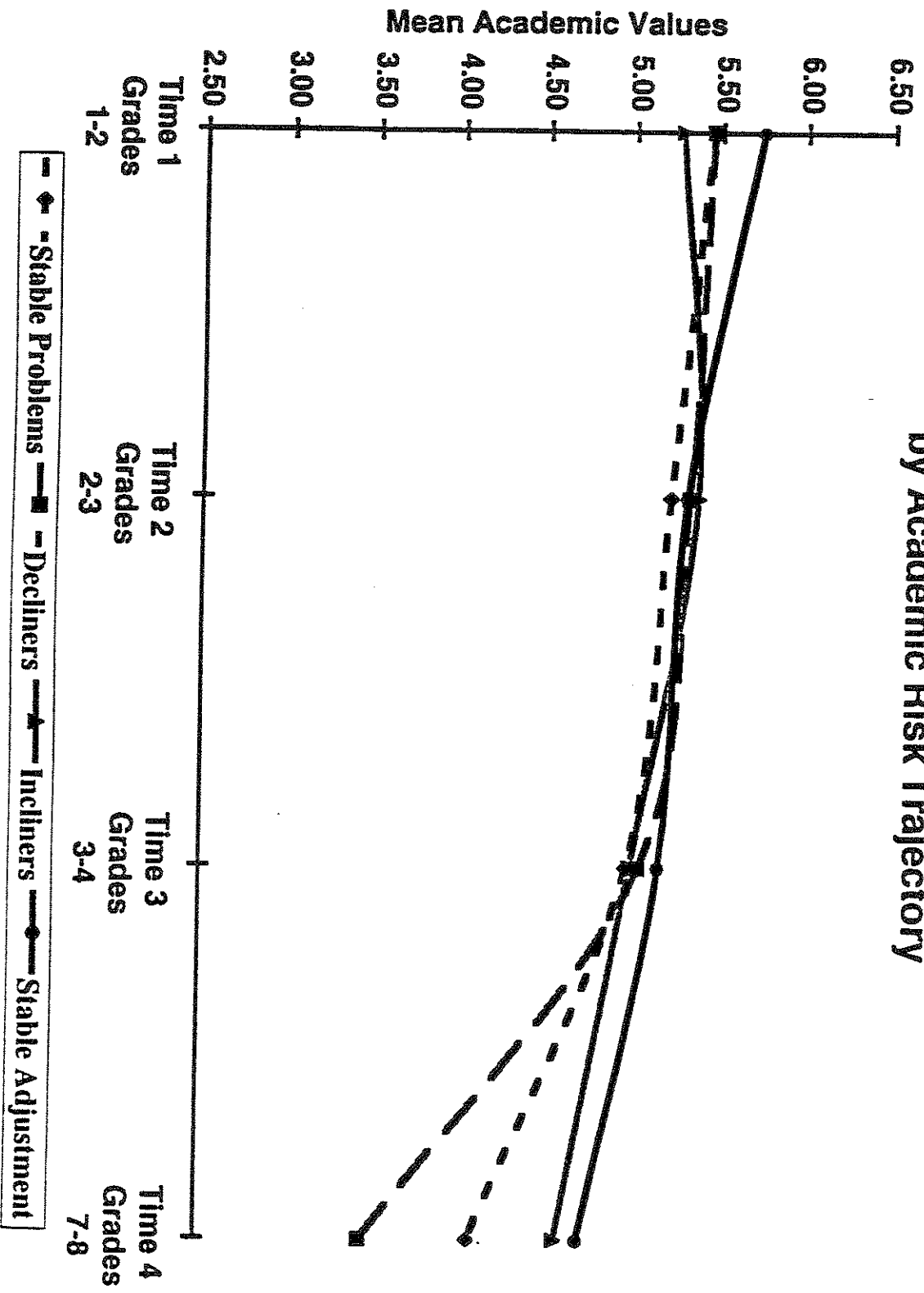


FIGURE 6.
Academic Achievement
by Academic Risk Trajectory

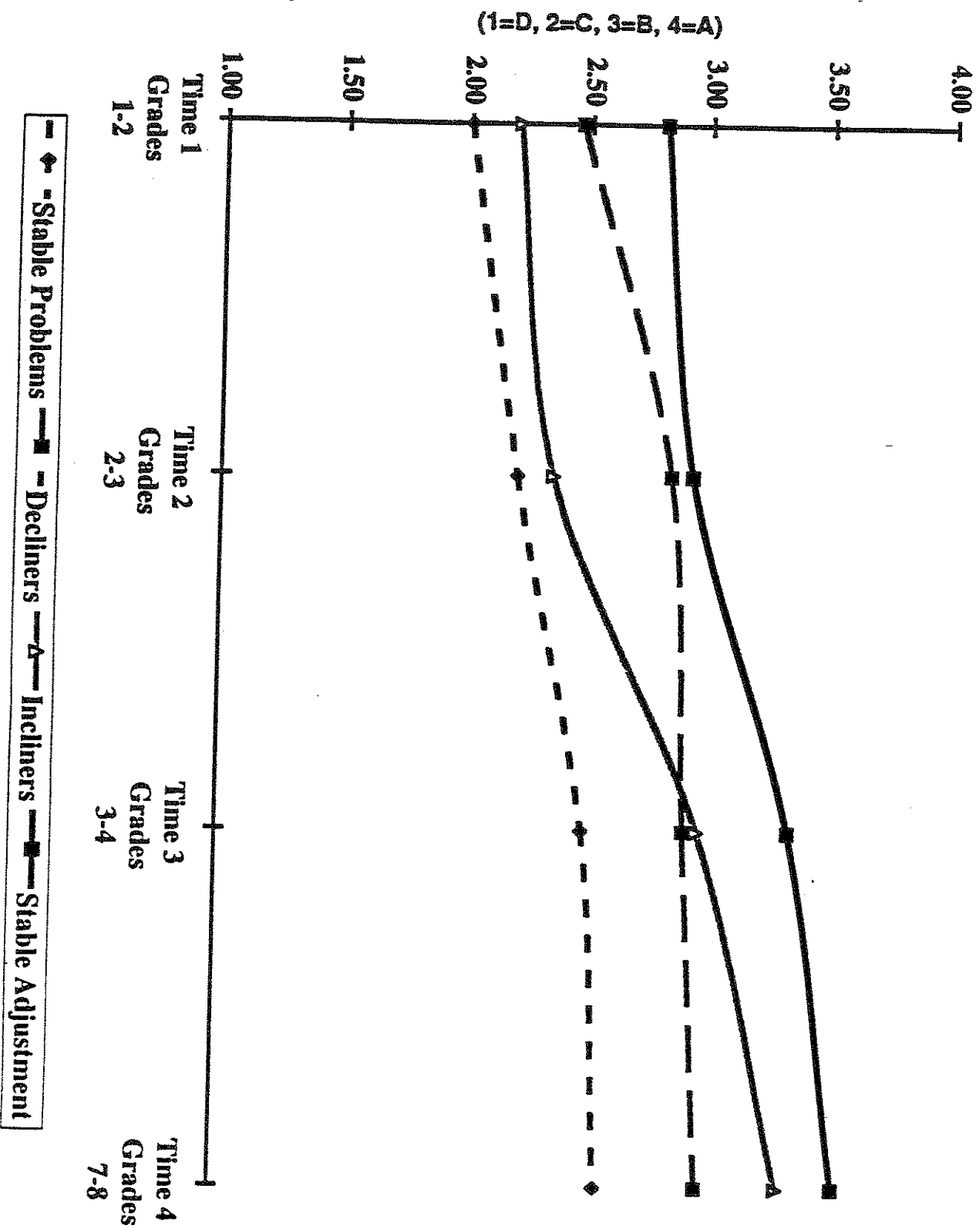
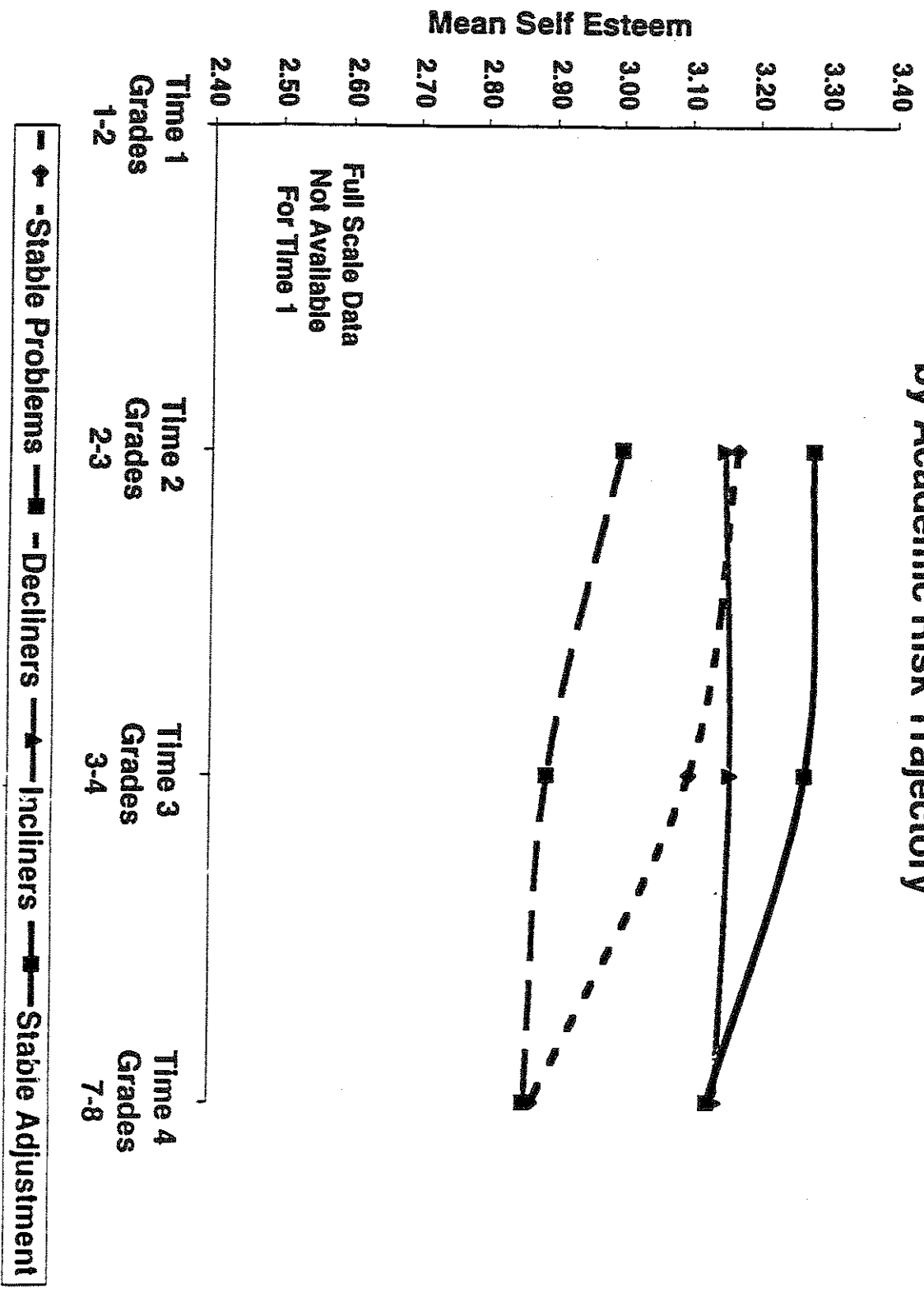


FIGURE 5.
of
**Youth Self-Report of Self Esteem
 by Academic Risk Trajectory**



Developmental Patterns for Interest

