GRADE-RELATED CHANGES IN THE SCHOOL ENVIRONMENT:
EFFECTS ON ACHIEVEMENT MOTIVATION

Jacquelynne Eccles (Parsons), Carol Midgley and Terry F. Adler

The link between motivation and school achievement has generated consistent interest over the years among both developmental and educational psychologists. One major concern has been the determinants of variation in achievement motivation. This concern has been expressed in two types of research: (a) the impact of classroom processes on student motivation, and (b) age-related changes in motivational orientations and understanding of achievement experiences. In this chapter we explore the link between these two bodies of research. We address three basic questions: (a) Are there systematic changes in children's academic achievement motivation as they grow older? (b) Are there systematic changes in the experiences children have at school as they move through the grades? (c) Are

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these changes in school experience causally related to changes in children's academic motivation?

In answering these questions we have had to straddle the domains of developmental and educational psychology. The organization of our chapter reflects this schism. Initially we review the developmental changes in children's academic achievement motivation and conclude that children's achievement orientation declines with age and that the decline is especially marked when children first enter school and again when they enter middle or junior high school. In the second section we outline our theoretical orientation to understanding the ontogeny of age-related changes in these achievement beliefs and attitudes. We argue that systematic changes in the social experience of children can influence the cognitive processes children use in interpreting their experiences. Consequently, we suggest that systematic changes in the school environment might underlie the age-related decline in children's achievement-related attitudes. In the third section we review the literature on grade-related changes in the school environment and conclude that there are systematic changes coinciding with the decline in children's achievement attitudes. In the final section we review the general impact of school structures and environments on children's academic achievement motivation and conclude that educational environments do affect both students' attitudes toward achievement and their achievement motivation. We argue that two school environmental variables are especially important for our understanding of the decline in achievement attitudes: (a) practices which focus students' attention on ability assessment and social comparison rather than task involvement, and (b) practices which lead to teacher rather than student control of the learning environment. We propose that the grade-related changes in these school environment variables are responsible, in part, for the decline in children's academic achievement motivation, and discuss the importance of a thorough understanding of changes in children's cultural/social environments for the understanding of children's development across the school years.

DEVELOPMENTAL SHIFTS IN SELF-EVALUATIVE BELIEFS AND ACHIEVEMENT-MOTIVATION CONSTRUCTS

Many psychologists are interested in the development of children's achievement-related motivations, beliefs, attitudes, and behaviors. Most of their research has focused on two basic issues. The first issue—characterized, for example, by the work of Boggiano and Ruble (1979); Kun, Parsons, and Ruble (1974); Nicholls (1978, 1980a); Parsons (1982); Parsons and Ruble (1977); Ruble, Parsons, and Ross (1976); and Shaklee and Tucker (1979)—concerns developmental changes in the cognitive processes assumed to mediate achievement behavior; that is, changes in the structure of children's processing of achievement-related cues.

Generally, studies in this tradition find that as children get older, they process and integrate achievement-related information in a more "logical" fashion.[1] For example, older children process ability and effort information in a qualitatively different manner than younger children when asked to predict the number of puzzles a student could complete (Kun et al., 1974). Although these studies occasionally allude to the importance of social influences and of individual differences, they focus primarily on age-related changes in information processing strategies. Since several chapters in this book reflect this tradition, we will not review this literature.

The second body of research—characterized, for example, by the work of Ames (in press), Covington and Omelich (1979), Crandall (1969), Diener and Dweck (1978), Dweck (1975), Entwistle and Hayduk (1978), Harter (1981), Hill (1980), Maehr and Nicholls (1980), Nicholls (1979, 1980b), Stipek and Hoffman (1980) and the recent work of Parsons and her colleagues (Parsons, Adler, & Meece, 1982; Parsons, Kaczala, & Meece, 1982; Parsons, Meece, Adler, & Kaczala, 1982; Eccles, Adler, Futterman, Goff, Kaczala, Meece, & Midgley, 1983)—concerns the contextual, social, and psychological factors that influence the link of achievement experiences to both self-evaluation and subsequent achievement behaviors. Though some of this work has assessed age-related changes in self-evaluation, motivational constructs, and response to achievement-related feedback, it does not focus on the cognitive processes underlying age-related changes. Instead, the bulk of the work focuses on the determinants and consequences of individual differences in achievement motivational constructs. Some of the work has also assessed social/environmental influences on children's reactions to achievement experiences. The work we review in this chapter fits into this tradition.

Psychologists whose work falls into this second category have looked at many variables conceptually linked to both self-evaluation and achievement motivation. These include global self-esteem, specific self-esteem, confidence in one's specific academic abilities, confidence in one's general intellectual abilities, expectations for success on both novel and familiar tasks, learned helplessness, mastery orientation, intrinsic motivation, task choice, preference for challenging tasks, test anxiety, self-efficacy, continuing motivation, locus of control, attributional patterns, future goal orientation, subjective attainment value, and focus of attention on ability appraisal, task analysis, or social approval. Only a few of these variables have been studied developmentally. A representative sample of these developmental studies is summarized in Table 1. Three developmental patterns characterize the results of these studies. First, students' orientation to achievement gets more negative with increasing age. Second, the decline is especially marked between kindergarten and grade one, and again at about grades six, seven, and eight. Third, the magnitude of the decline varies across domains and subject areas. Each of these patterns is discussed later.

Table 1. Summary of Results of Representative Studies

Authors	*Measure*	*Subjects*	*Developmental Pattern*
Brush (1980)	Attitudes toward math and English (including confidence in one's ability and subjective value of subject matter)	(cross-sectional; longitudinal) 6–12: grades	Drop in attitudes toward math but not English.
Crandall, Katkovsky & Crandall (1965)	Intellectual achievement responsibility (locus of control)	3–12: grades (cross–sectional)	Increase in internality for failure (girls only).
deCharms (1980)	Origin versus pawn orientation	5–11: grades (longitudinal)	Decline; drop begins between grades 6 and 7.
Dusek & Flaherty (1981)	Global self–concept scales (semantic differential format)	11–18: years 5–12: grades (cross–sectional; longitudinal)	No consistent pattern.
Eccles, Adler, Futterman, Goff, Kaczala, Meece & Midgley (1983)	Ability self–concepts for math and English, perceptions of task difficulty for math and English, and perceived value of math and English	5–12: grades (cross–sectional)	Decline in attitudes toward math; marked drop from grade 6–7. No drop for English.
Entwistle & Hayduk (1978)	Predicted grade in math and English	1–2: grades (longitudinal)	No consistent pattern.
Epstein & McPartland (1976)	Attitudes toward school in general, commitment to schoolwork, and attitudes toward teachers.	6–12: grades (cross–sectional)	Decline in commitment to schoolwork.
Gottfried (1981)	Academic intrinsic motivation for reading, math, social studies, and science	4–7: grades (cross–sectional)	Decline in intrinsic motivation at 7th grade for all subjects, but especially for reading and science.
Haladyna & Thomas (1979)	Attitudes toward school in general and toward seven primary subject areas	1–8: grades (cross–sectional)	Decline in attitudes toward school and toward math, physical education, art, music, and science. Drop most marked from grades 6–7 for subjects and from grades 4–5 for school in general.

Connell (1978)	Perceptions of control	3–9: grades (cross–sectional)	Increase in known vs. unknown source of control until grade 6; dramatic decrease at grade 7; subsequent increase.
Harter (1980)	Classroom motivational orientation (intrinsic–extrinsic)	3–9; grades (cross–sectional)	Decline; two of three measures show marked drop from grades 6–7.
Harter (1982)	Perceived Competence Scale (Four scales: cognitive, social, physical, and general), achievement test scores	3–9: grades (cross–sectional)	No shift in absolute levels. Decline in relation between perceived cognitive competence and achievement test scores at grade 7.
Hill (1980)	Test anxiety and test performance	4–11: grades (cross–sectional)	Increase in both test anxiety and negative relation of test anxiety to test performance. Shift is especially marked in minority populations.
Neale & Proshek (1967)	Evaluative attitudes toward people, self, aspects of school, and behavioral standards. (semantic differential format)	4–6: grades (cross–sectional)	Decline in evaluation of teacher, classroom, self, schoolbooks, following rules, doing math, talking in front of class, and having to keep quiet.
Nicholls (1978)	Self–concept of attainment in reading	5–13: years (cross–sectional)	General decline; most extreme between ages 6 and 7 and between ages 8 and 9.
O'Connor (1978)	Perceptions of self, ideal self, and teachers' feelings	4–6: grades (6th grade in middle school) (cross–sectional)	6th graders had largest self–ideal discrepancy and perceived teachers as being most negative about them.
Parsons (1982) Parsons & Ruble (1977)	Expectancies for success following failure on lab task	3–12: years (cross–sectional)	Marked drop between ages 6 and 7 followed by gradual decline.
Piers & Harris (1964)	General self–concept	3, 6, 10: grades (cross–sectional)	Children in grade 6 have lower self–concept than children in grades 3 and 10.
Prawat, Grissom & Parish (1979)	Locus of control, achievement motivation, global self–esteem	3–12: grades (cross–sectional)	Drop in achievement motivation only during middle school years.

(*continued*)

Table 1. (Continued)

Authors	*Measure*	*Subjects*	*Developmental Pattern*
Rholes, Blackwell, Jordan & Walters (1980)	Behavioral measure of learned helplessness; assessments of one's ability and effort	K, 1, 3, 5: grades (cross–sectional)	Decline in ability and effort ratings in failure condition; learned helplessness response seen only at grade 5.
Simmons, Blyth & Carlton-Ford (1982)	Specific and global self–esteem, perceptions of opinions of others, and self-consciousness.	6–10: grades (longitudinal)	Decline in self–esteem at 7th grade among females in junior high school as compared to K–8 grouping.
Simmons, Rosenberg & Rosenberg (1973)	Specific and global self–esteem scales, perceptions of opinions of others, and self–consciousness	8–18: years (cross–sectional)	Decline; marked drop between grades 6 and 7.
Yamamoto, Thomas & Karns (1969)	Evaluative attitudes toward teacher, self, parents, and peers; attitudes toward social studies, language, science, and math (semantic differential format)	6–9: grades (cross–sectional)	Decline in attitudes toward teacher and parent and in confidence for science and math. Boys also decline for language. Most marked declines occur either in grades 6–7 or grades 7–8.
Yarborough & Johnson (1978)	I.Q. and achievement tests; attitudes toward school, subject matter, home, self, others (semantic differential format); measure of self–reliance, adjustment, locus of control, and several components of the self–concept	7 (fall and spring); grades (experimental group—nongraded elementary; control group—graded elementary) (cross–sectional; longitudinal)	Cognitive measures equal for both groups: lower I.Q. children in experimental and higher I.Q. children in control groups experienced higher affective benefits. In grade 7, general decline in attitudes and affect measures in both groups.

Increasing Pessimism and Negativism

In most of the studies surveyed, children's attitudes toward school and toward their own academic competence decline with age, until the late high school years. For example, Neale and Proshek (1967), in a study of 350 fourth to sixth graders found that students' evaluation of both themselves and their school decreases with increasing grade level. Yamamoto, Thomas, and Karns (1969) assessed 800 students' attitudes toward four school subjects (social studies, language, science, and mathematics) and toward four sets of people (classmates, parents, teachers, and themselves). There was a decline from grade six to nine in the students' attitudes toward each of these except on the rating of their teacher. Teachers received a consistently low rating across all of the grades. Finally, Haladyna and Thomas (1979) found a sharp decline in students' attitudes toward school in general and toward specific subjects between grades six and seven.

Evidence suggests that the decline in students' self-evaluation begins as early as 6 years of age. (See Stipek, this volume, for a complete review of the early developmental changes in children's expectations for future achievement success.) For example, Parsons and Ruble (1972, 1977) have clearly demonstrated the decline in children's achievement expectancies on experimental tasks beginning at age 6. A similar decline in expectations beginning at age 6 was found by Stipek and Hoffman (1980) and by Parsons (1982). In each of these experimental studies, the age effects were most marked among children experiencing failure, suggesting that the decline in expectations results from an age-related increase in children's tendency to incorporate the implications of failure, when it occurs, into their self-image.

The data regarding age-related changes during the early elementary school years are less consistent than the data for either the 5-to-7-year-olds or the older elementary school and junior high school students. Although some studies suggest that children's self-evaluations remain fairly stable over the early years of elementary school, other studies suggest that students' self-evaluations continue to decline during this period. For example, Entwistle and Hayduk (1978) did not find any evidence of a consistent decline in children's achievement expectancies over the first two years of elementary school. In contrast, both Nicholls (1978) and Parsons and Ruble (1977) found a steady decline in students' self-evaluations and expectancies across the early and middle elementary school years. All of the studies, however, find that children's achievement expectations get more accurate over these early school years. Thus, whereas the extent of the decline in self-evaluations in grades one to three is not clear, it is clear that children fine tune their self-evaluative systems during the early elementary school years. As a consequence, by the time children are 9, they make fairly logical use of success and failure feedback in adjusting their future expectations. In addition, by third grade the children's assessments of their levels of ability are fairly consistent with their teachers' estimates.

Behavioral responses to feedback reflect a similar developmental pattern. Both Parsons (1982) and Ruble and Frey (1982) found that preschoolers and kindergarten children do not modify their performance strategies in response to achievement feedback. It is as if they lack the metacognitive skills necessary to either change their behaviors or to seek help in solving intellectual problems. In contrast, first and second graders exhibit a quite different response; they both modify their performance strategy and seek help if they are having difficulty.

Even though early elementary school age children adjust their behavior in the face of negative feedback, they still maintain a positive attitude toward school and do not appear to over-react to failure experiences. It is not until the fourth or fifth grade that we begin to see consistent evidence of debilitating reactions to negative feedback (such as learned helplessness) in some children (Rholes, Blackwell, Jordan, & Walters, 1980). It is also in these late elementary school grades that we begin to see evidence of a second period of decline in both children's self-evaluations and their attitudes toward school and an increase in their level of anxiety regarding their school performance (Blumenfeld & Pintrich, 1982; Harter, 1980; Hill, 1977, 1980). For example, in a series of studies using a variety of self-concept/self-esteem measures, Simmons and her colleagues have found consistent evidence of a decline in academic self-esteem (Rosenberg, 1979; Simmons, Blyth, Van Cleave, & Bush, 1979; Simmons, Rosenberg, & Rosenberg, 1973). This decline was especially marked among seventh graders, particularly for females. Furthermore, for some of the measures the decline was remarkably strong; e.g., among students who valued being smart, the percent rating themselves favorably dropped from 26% among 8-11 year olds to 9% among the 12-14 year olds and to 5% among the 15-18-year-olds. Similarly, in studies of children ranging from fifth to twelfth grades, both Brush (1980) and Eccles et al. (1983) found a marked decline in students' estimates of their math ability in the early secondary school years. The decline found by Eccles et al. (1983) was especially marked between grades six and seven (see Figure 1). Finally, Piers and Harris (1964) found that sixth graders have lower general self-concepts than either third or tenth graders.

O'Connor (1978) studied the relationship between children's self-concept and ideal self-concept in grades four, five, and six. Fourth and fifth grade children had very similar discrepancy score means. Sixth graders, who had just moved to the middle school environment, had the highest discrepancy scores and also perceived their teachers as having more negative feelings toward them.

Children's increasing negativism is also apparent on their responses to questions regarding what motivates them. Harter (1980) developed three scales to tap children's intrinsic versus extrinsic orientation toward school work. She found a shift on all three scales toward an increasingly external orientation from grades three to nine. Once again the shifts were most marked between grades six and seven. Similarly, Gottfried (1981) found a sharp drop in intrinsic motivation toward several academic subjects from grade six to seven. deCharms (1980)

reported a similar shift toward an external (pawn) orientation toward achievement as children move into junior high school.

Looking at indices of negative motivation, a similar pattern emerges for children in grades three to twelve. Both the levels of test anxiety and the debilitating effects of test anxiety on performance increase with age (Hill, 1980). Perception of the difficulty of academic subjects increases with age (Eccles et al., 1983). Learned helpless responses to failure increase with age (Rholes et al., 1980). Finally dropout rates, absenteeism, and general school alienation increase with age, especially as students move into junior high school (Rosenbaum, 1976).

All of these changes are well illustrated by the results of a study we have been conducting over the last several years involving over 1,200 students in grades 5 to 12, their parents, and their teachers (see Eccles et al., 1983). In order to investigate changes in children's attitudes toward math and English, we developed measures to assess (a) students' self-concept of their math and English abilities, (b) perceptions of the effort necessary to do well in each subject, (c) perceptions of the importance or value of math and English, and (d) a variety of other attitudes toward math including perceptions of their parents' and teachers' beliefs, and how much they liked their math teacher.

The developmental results were rather striking. (See Figure 1 for the results associated with measures a, b, and c). Grade effects were both more numerous and, in general, stronger than sex effects. Children became more pessimistic and negative about math from fifth to tenth grade with the low point occurring during the junior high school years. Some positive recovery, however, was evident in the last two years of high school. The older children had lower expectancies for both their current and future math performance, rated both their math ability and math performance lower, saw both their present and future math courses as more difficult, thought their parents shared these pessimistic views of their ability and performance potential, were less interested in math activities in general, liked their math teachers less, and rated the utility of advanced math courses lower than did the younger children. For most of these variables, there was a consistent downward trend as a function of grade with the girls preceding the boys.

These results are especially interesting given the nature of our sample. Since poorer math students do not take as much high school math as the better math students, our older sample included an over-representation of better students enrolled in advanced level, elective math courses. Thus, the general increase in negativism toward academic achievement summarized thus far is even characteristic of the better students in junior and senior high school.

Magnitude of the Decline

It is clear from the studies reviewed thus far that children's achievement and school-related attitudes decline with age at least until the last two years of high school. In addition, several studies suggest that the magnitude of this decline

varies across grade level. The decline appears to be most marked when children first enter school and again as they move into junior high school. In a series of large scale population studies, Simmons, Rosenberg, and their colleagues have focused on this second transition (Rosenberg, 1979; Simmons et al., 1973, 1979; Simmons & Rosenberg, 1975). By comparing the effects of different school organizations on children of equivalent age, they have investigated the relative contribution of age and maturation versus transition into junior high school to the grade-related decline in the children's self-evaluations. The results of their studies, involving more than 1,000 children, suggest that the transition to junior high school is the primary cause of the decline in self-concept among early adolescents. They argue that major transitions, such as the movement into junior high school, can precipitate a reappraisal of oneself. When this transition coincides with another major transition, such as puberty, then the likelihood of reappraisal is increased. While they do discuss briefly the fact that the junior high school environment is different than the elementary school environment, they are not specific about these differences and they do not suggest that the nature of the junior high school environment is a critical variable. Instead, they attribute the decline in students' attitudes at age 12 to the fact that society forces the average 12-year-old to make two major transitions simultaneously. While in basic agreement with their suggestion that the timing of the transition is important, we also think that there are specific classroom processes characteristic of the typical junior high school environment that exacerbate the problem. We explore this possibility more fully below.

Domain Specificity

Figure 1 illustrates the third general pattern apparent in the results of the studies summarized in Table 1; namely, that the decline varies across domains. The few researchers who have actually measured attitudes across domains have found the decline in attitudes more characteristic of the academic achievement domain than other domains. For example, Epstein and McPartland (1976) constructed a self-report measure (the Quality of School Life Scale) to assess three aspects of student reactions to school. The Satisfaction subscale measures general reactions to school as a social environment; the Commitment subscale measures level of interest in assignments and academic work, and long range achievement-related life plans; and the Reactions to Teachers subscale measures students' reactions to their teachers. Based on a longitudinal study of over 4,000 students in grades 4, 5, 6, 8, and 11 (year 1) and 5, 6, 7, 9, and 12 (year 2) they concluded that the decline in attitudes was most marked on the Commitment subscale. Furthermore, their longitudinal analyses showed a consistent pattern of decreasing satisfaction with school work over time. In contrast, the students' reactions to school as a social environment remained fairly stable across these grades.

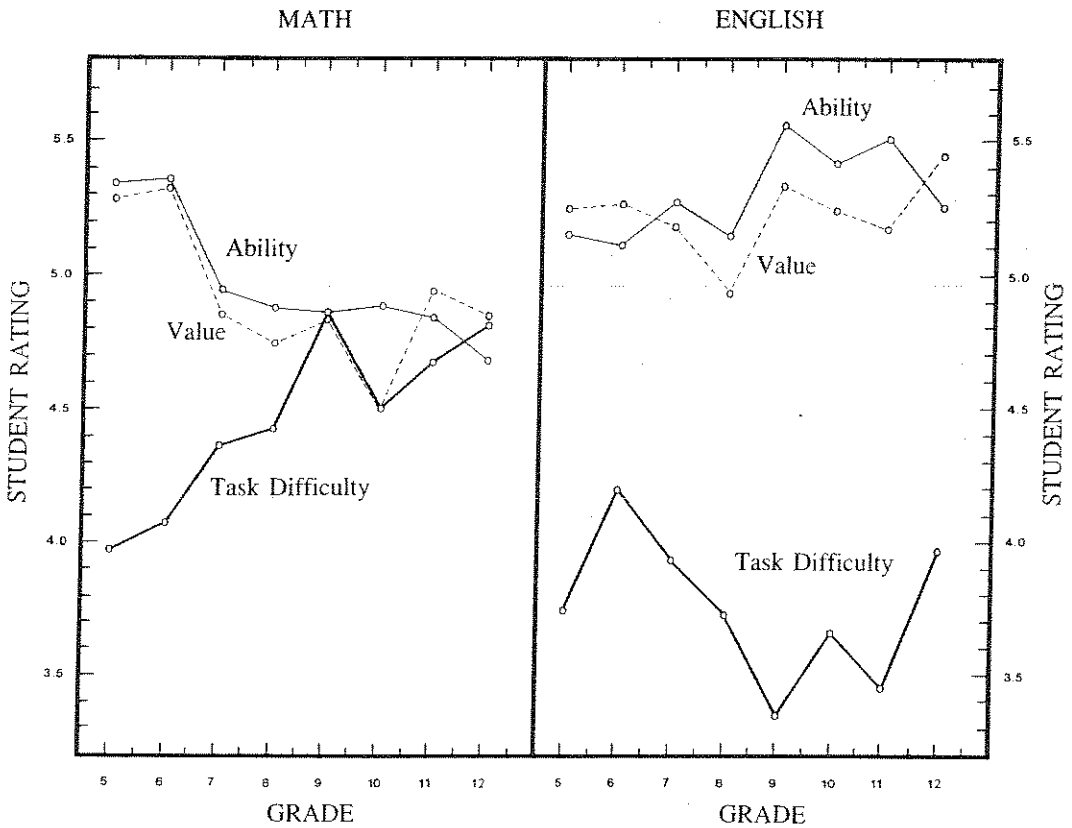

Figure 1. Grade level differences in student achievement attitudes.

Comparable results have been reported in other studies. For example, Prawat, Grissom, and Parish (1979) measured need achievement, locus of control, and global self-esteem. Only the need-achievement scores declined with age. Similarly, although Simmons et al. (1973) found the decline on most of their attitudinal measures, when they analyzed their results in more detail they found no major decline in children's estimates of their skill at either sports or making jokes and no decline in global esteem. The declines were the most extreme for academic achievement beliefs and socially prescribed behavior (such as being well-behaved and helpful). Finally, in a study of upper elementary school and early secondary school students' anxiety and concerns over performance, Buhrmester (1980) found the highest levels of anxiety associated with cognitive and school-related tasks. The children expressed much less anxiety over athletic and social competence. Thus, studies which have measured students' motivational orientations in different domains suggest that the decline in attitudes and beliefs is most marked for the academic domain.

Several studies, including our own, have found that even within the academic achievement domain the decline in beliefs and motivation varies across subject area. As is clear in Figure 1, we found the decline to be characteristic only of

students' beliefs regarding mathematics and not of their beliefs regarding English. Similarly, Brush (1980) found that students' confidence in their math abilities dropped significantly more than their confidence in their language arts abilities. Gottfried (1981) found that the decline in intrinsic motivation also varied across subject areas. However, she found the biggest declines in reading and science. Though attitudes toward math did decline, they declined less than did the attitudes toward reading and science. It is unclear, however, how she defined reading; therefore direct comparison of results across these three studies is difficult.

What is clear from these studies is that the decline in students' attitudes varies across subject areas and, in some studies, across the social and achievement domains. This fact, coupled with the grade level variations discussed earlier, suggests that the decline in students' achievement beliefs and attitudes does not reflect a general cognitive maturational process but rather is the result of changes in social experience (Higgins & Parsons, 1983). In support of this interpretation, Brush (1980) found students to be quite vocal about why they liked their current math classes less than their previous math classes. They indicated they did not like the use of public drill, frequent testing, grading on a curve, competition, and the emphasis on being right or wrong rather than on exploring the processes associated with math. Furthermore, they felt that these teaching practices were used more frequently in junior and senior high school math courses than in earlier grades.

In contrast, they reported that these practices had decreased in frequency in their English classes. Their English teachers emphasized group discussion and exploration of the meaning of the readings; the English teachers encouraged students to give their opinions and did not compare the students' opinions in terms of correctness. The essence of these teaching style differences has been linked to variation in student motivation. For example, Nicholls (1979) has argued that achievement environments which focus attention on the assessment of one's ability rather than on the task itself have a debilitating effect on most children's motivation. According to his hypothesis, practices such as competitive grading and drill with public evaluative feedback should undermine and change the quality of many students' motivation. This issue is discussed in more detail in later sections. Before leaving this discussion of age-related changes in achievement motivation, we would like to clarify our theoretical position. This issue is discussed in the next section.

ONTOGENY OF AGE-RELATED CHANGE IN MOTIVATION

Developmental psychologists have long debated the ontogeny of age-related changes. Typically, the debate pits maturational against experiential processes. We, like many others, find both of these extremes inadequate. While we stress

the impact of changes in experiences in this chapter, we do not believe that developmental changes in the nature of cognitive mediational processes are unimportant in the development of self-evaluation and other aspects of achievement motivation. In fact, as cognitive developmentalists, we believe that cognitive maturity sets the limits on what children can and cannot understand about the achievement domain. But we also believe that changes in the social environment influence the development of cognitive processes and, consequently, influence the nature of the cognitive processes that the child will use at any given age. As Piaget has argued repeatedly, whether a particular cognitive heuristic develops depends on the child's experiences. Furthermore, as Flavell (1974) has pointed out, even if the heuristic develops, its use also depends on experience. The fact that a child understands a particular cognitive heuristic does not necessarily mean the child will make use of that heuristic in everyday, real-life judgments. Whether a particular cognitive heuristic is used in making judgments will depend on the child's assessment of its relevance. The relevance of a particular heuristic may change with systematic changes in the child's social environment. It is this interface between systematic changes in the social environment and age-related changes in children's understanding of achievement experiences that is of primary interest to us in this chapter.

Let us illustrate our perspective with an example. Cognitive achievement theorists make certain assumptions regarding the cognitive constructs that are central to achievement beliefs and motivation. They also make certain assumptions regarding the relations among these constructs and the heuristics that people use in processing information relevant to these constructs. For example, it is generally assumed (implicitly, if not always explicitly) that (a) ability is a stable construct, (b) that individuals are motivated to assess their ability level, and (c) that individuals use social comparison information in evaluating their ability level. These assumptions have been tested in the laboratory; the evidence indicates that children understand the stable nature of ability or intellectual capacity by about sixth grade and can use social comparison information in inferring ability by about the second grade (see Nicholls & Miller, this volume). But, the extent to which children use these heuristics in assessing their own or other children's academic abilities in natural settings is not clear. As Blumenfeld, Pintrich, Meece, and Wessels (1982) have pointed out, the nature of achievement tasks, performance feedback, and other achievement-related information is quite different in laboratory and classroom settings. Outcome feedback is more ambiguous in the classroom and is often delayed. Children may work on different tasks making social comparisons of both the amount of effort and the actual level of achievement difficult. Also, tasks are often so complex that the basis of evaluation is not very clear. All of these variations should affect the degree to which children actually use a stable conception of ability in evaluating their competence.

But even more importantly, the social environment may also determine

whether the child even asks the ability question in the first place. Nicholls (1979) has argued that some classroom environments focus children's attention on the question "How smart am I?" Other environments focus children's attention instead on the question "How do I solve the problem?" Still other environments may focus children's attention on "What do I need to do to satisfy my teacher?" Each of these questions has different implications for children's motivation in the classroom. Since "How smart am I?" often elicits a social comparative judgement, classrooms that focus children's attention on "How smart am I?" may have a particularly negative impact on the motivation of all but the most able children, especially if the children assume that ability is stable. Environments that focus attention on the latter two questions or that lead children to feel competent if they work hard and improve should be more conducive to continued positive motivation.

Perhaps then the developmental decline in achievement attitudes that occurs at about grades six, seven, and eight reflects, in part, an increase in the degree to which schools focus children's attention on the first of these three motivational questions. Based on their review of a wide range of naturalistic studies of classroom motivation, Blumenfeld, Pintrich et al. (1982) concluded that children in the elementary school grades do not appear to be asking themselves the question "How smart am I?" very often. These same studies of classroom motivation in the elementary school years also suggest that there is not much evidence of task-involved, intrinsic motivation in the later elementary school grades either. For example, Blumenfeld and Pintrich (1982) asked second and sixth grade children why they worked hard in school. The children, especially the older children, gave extrinsic reasons most frequently.

In summarizing classroom studies, Brophy (1983) has argued that the elementary school classroom is best characterized as a work place rather than as a setting that fosters intrinsically motivated, creative learning. These descriptions suggest that elementary schools dispose children to ask the third question, namely, "What do I need to do to satisfy my teacher?" Doyle (1979) refers to this orientation as the grade performance exchange mode of student-teacher interaction. While it does not foster intrinsic motivation, it does provide the students with some control of their reinforcements. As long as they can exchange effort or incremental learning for an acceptable grade, then their attitudes toward achievement and their motivation to continue learning can remain high.

But what happens when children enter junior high school? The decline in achievement attitudes suggests that the students are focusing more on the ability question. Virtually no studies have tested this hypothesis directly. There are, however, a sprinkling of laboratory studies from quite different research traditions which lend support to the suggestion. For example, in the domain of person perception, Montemayor & Eisen (1977) asked children from 9 to 18 years of age to describe themselves. The 14-year-olds were more likely to describe themselves in terms of relative ability and interpersonal traits than were the 10 and 12-year-olds.

Using a very different format, Parsons (1974) asked students in grades kindergarten to 9 to evaluate a set of stimulus children who varied in both the amount of effort they exerted and their actual performance level on a series of achievement and non-achievement tasks. She found a developmental shift in the use of both of these cues at the seventh grade for the achievement tasks. In particular, the importance of outcome increased while the importance of effort decreased. Interestingly, Weiner and Peter (1973) found a similar shift at the seventh grade in the weighing of outcome and effort variations in children's evaluative judgements of others. Since outcome is a joint function of ability and effort and since the importance of effort in students' evaluative schema declines, these two sets of results suggest that ability variations in the achievement domain become more salient in the junior high school. (See also Nicholls & Miller, this volume.) In the domain of test anxiety, Hill and his colleagues (see Hill, 1977, 1980) have found that the relation between test anxiety and performance increases as children enter junior high school. In addition, Buhrmester (1980) reported an increase in anxiety over academic achievement at this age level. Finally, the evidence reported by Brush (1980) clearly indicates that students feel that they are being evaluated more publicly in junior high school than they were in elementary school.

In conclusion, then, there is some evidence to support the suggestion that junior high school students may be more focused on the motivational question of "How smart am I?" than elementary school students. Furthermore when younger and older children ask themselves this question, they appear to use different heuristics in reaching their answer. That is, they appear to have different schema or concepts of intellectual ability. We believe that the environments characterizing junior and senior high schools encourage, if not force, students to ask themselves "How smart am I?" This is especially unfortunate given the fact that the older children are more likely to judge their smartness as a capacity relative to the smartness of others rather than as an incremental capacity that is growing with increased education. These age-related shifts in orientation to the question "How smart am I?" we believe account, in part, for the decline in students' attitudes toward both their own academic competence and schooling in general. In the remainder of this chapter we will explore the grade-related changes in school environment that might be contributing to this shift in orientation. We will also explore the impact of grade-related changes on other variables, such as student control and self-focus, that might mediate the decline in students' attitudes.

CHANGES IN THE CLASSROOM ENVIRONMENT WITH GRADE LEVEL

All of us have spent many hours of our lives in classrooms. Most of us would agree that there are systematic changes in the nature of the classroom environment as students proceed through the grades from preschool or kindergarten to twelfth grade. However, few studies have attempted to catalogue systematically

the nature of these changes. Therefore we will begin this section with anecdotal and descriptive material based on sources such as Brim (1966); Campbell (1969); Clausen (1968); Gardner, (1963); Gronlund, (1974); Higgins and Parsons (1983); Minuchin and Shapiro, (1983); Rutter, Maughan, Mortimore, and Ouston (1979); and Parsons (1974), as well as on our own personal experiences as students and educational researchers. We will describe "typical" schools, and will highlight those changes which are likely to impact on (a) children's focus of attention on self versus the task, (b) children's perceptions of their academic abilities, (c) children's perceptions of the importance of academic performance, and (d) children's sense of autonomy and control. Our aim is to help you recall your school experiences and to stimulate your thinking about grade-related changes in the classroom environment. In the second half of this section we will present the rather limited research evidence of changes in the classroom environment with grade level.

Anecdotal and Descriptive Material

The transition from the home to the "school" environment is occurring earlier than it did a decade ago and may take a variety of forms. The definitions of a day care center, a play group, a play school, or a preschool are not firm and it is becoming more difficult to make generalizations about environmental changes as children move from home to school. But movement into the elementary school does introduce some important changes in the child's social environment. During the preschool years, children acquire so many physical skills so rapidly that they have frequent experience with failure followed by subsequent and often dramatic improvement. Consequently, their own experiences provide them with little reason to conclude that past failures are predictive of future outcomes. Other aspects of the social environment of preschool children also support a belief in the instability of both outcomes and ability. First, because parents of preschoolers are well aware of the rapid changes in the physical capacity of their children, they encourage their children to continue to try despite failure. Second, since the home environment is not age stratified, children have the opportunity to compare their performance with both older and younger people and see that there are striking shifts in both performance and ability level as one gets older. These social environmental factors should predispose preschool children to perceive abilities as unstable and more like skills to be learned than as stable entities which are enduring characteristics of the individual.

Entrance into elementary school alters several aspects of the child's social experience. First, classes are age stratified. Consequently, 6-year-olds are exposed to a dramatic increase in information regarding individual differences and individual consistency across time in relative performance. Second, since the children's maturation rate slows considerably, the experience of dramatic changes in one's own performance level decreases in frequency. Third, it is very

probable that parents' attitudes regarding the stability of performance also undergo a shift at about this time. Parents may begin to look for evidence of their children's intellectual abilities and may convey this concern to their children, especially if their children are having difficulty with school work (see Higgins & Parsons, 1983, for discussion). Finally, entry into school confronts the child with all of the dynamics of student-teacher interaction, such as evaluative feedback of one's performance relative to other children.

Elementary schools tend to be neighborhood schools which encourage family involvement. Typically, elementary students are taught by a single teacher, usually female, with 20 to 30 same-aged peers in a self-contained classroom. Tasks frequently are assigned by the teacher to be completed within a specified time frame. Age segregation allows for regimentation of tasks and for comparison judgements of speed or level of mastery. Students sometimes receive descriptive evaluations or behavioral objective checklists indicating component mastery rather than letter grade report cards (Gronlund, 1974). Within class grouping by ability, particularly in reading, is common and teachers may communicate the ability differences between groups to children (Weinstein, 1976). Teachers not only instruct students in basic academic skills, but socialize children to the student role (Blumenfeld, Hamilton, Bossert, Wessels, & Meece, 1982; Brophy & Evertson, 1978).

In the upper elementary grades there are fewer "open" or "informal" classrooms than in the preschool or early elementary grades (Arlin, 1976). Within classroom ability grouping is frequently extended to include mathematics as well as reading. Social comparison in the achievement domain as well as in social and athletic domains intensifies as teachers increase the use of letter grades (Gronlund, 1974). In the last year of elementary school, most frequently the sixth grade, teachers often emphasize the importance of getting ready for junior high school and "learning how to work." In some cases this means more homework, testing, and competition among students.

A dramatic change in the school environment occurs at the transition from elementary school to junior high school. Before the advent of the junior high school, the most common grade arrangement consisted of an eight year elementary school and a four year high school. The junior high school was created to meet what were perceived to be the unique needs and characteristics of the early adolescent. In practice, however, this goal was never implemented widely. "From its inception, at the beginning of the twentieth century, the reason for the junior high school has been to intervene in the educative process between childhood and adolescence and serve the special intellectual, social, physical and emotional needs of pre-adolescent and early adolescent pupils. In recent years, however, controversy has arisen germane to the alleged failure of junior high schools to achieve aims and functions proposed for them" (Gatewood, 1971, p.264). As a result, the middle school has replaced the junior high school in many school districts. The middle school is essentially a phenomenon of the

1960s. "The middle school is a philosophy and belief about children, their unique needs, who they are, and how they grow and learn" (DeVita, Pumerantz, & Wilklow, 1970, p.25). Unfortunately the data indicate that middle schools and junior high schools are more alike than different. In many cases middle schools have produced a reorganization of grade levels and little more. While most middle schools are composed of grades five through eight, rather than grades seven through nine, they are often much like traditional junior high schools. Unfortunately, "virtually anyone who has visited a cross section of middle schools is forced to conclude that innovation is largely confined to organizational change and rhetoric; there has been little *substantive* reform" (Arnold, 1982, p.453).

Junior high schools (and middle schools) are typically larger than elementary schools, going beyond the neighborhood, and serving a more diverse student body. Unless there is a small house program, anchor teacher concept, or some similar grouping of students, classroom composition changes across the school day and students are no longer a part of a stable peer group. Students generally have a different teacher for each subject matter area which may mean as many as six or seven different teachers over the course of a school day. Additionally, the increased size of the school and the increase in the number of school personnel who interact with the students tends to reduce the amount and quality of school-home interaction (Thompson, 1982). This decrease in the close contact with significant adults in the school environment comes at a stage when parents are also becoming less dominant in the life of the early adolescent and extraparental adults are assuming new importance. Adolescent psychiatrist Derek Miller (1970, 1974) feels that the availability of extraparental relationships is crucial to the healthy development of the early adolescent and suggests that teachers may be the only non-parental adults available in modern society. He urges the development of junior high school systems which allow adolescents to remain with the same adults for a significant portion of the day, over a period of several years.

The beginning of junior high school frequently marks the student's first introduction to a counselor. But since the student/counselor ratio is generally very high, students meet with their counselors primarily for advice about course selection and for discipline. Seventh graders usually have some choice regarding course selection but often choices are quite limited until ninth grade. For example, a school district may have "required electives" at the seventh grade level to insure that all students are exposed to basic courses in art, music, etc.

Grading practices often change at the beginning of junior high school (Gronlund, 1974). In contrast to the elementary school, grades usually reflect more an assessment of ability and less an assessment of effort. Students are graded by a variety of teachers, usually receive letter grades, and may be graded on a curve. Consequently the salience of social comparison information is increased. While individualized assignments are fairly common during the elementary school years, instruction in junior high school is more often characterized by

a whole class format. As a result of this teaching style, students tend to be graded in terms of their relative performance on class tests and class assignments rather than on their individual progress (Rosenholtz & Rosenholtz, 1981). The amount of homework typically increases, with many teachers expecting students to finish assignments outside of class.

At the beginning of junior high school, students may be assigned to classes on the basis of ability for the first time. Ability level may be determined by test scores, teacher recommendations, or both. Ability grouping in mathematics in the seventh grade appears to be the rule rather than the exception. In a survey of forty school districts in southeastern Michigan, we found only three districts which did not practice homogeneous ability grouping in mathematics at the seventh grade level. In classes grouped by ability the range of ability within the class is narrowed, and the available social comparison information changes. In addition, the quality of teaching may vary across groups. Teachers in the lower tracks, especially in math and science, may act as though their students have low ability and little learning potential. Consequently, the quality of teaching in these classes may be quite poor with teachers acting more as custodians than as educators (Oakes, 1981; Prawat, Lanier, & Byers, undated; Stallings, 1979). The students, aware of their teacher's attitude, may appear to give up and "turn off" to school, awaiting the time when they can escape the situation (Rosenbaum, 1976). Evidence supporting this hypothesis will be presented in the next section.

Ability grouping in one subject area may have an indirect effect on course availability in other subject areas and on extracurricular options. Special courses and extracurricular activities tend to be available only during a select number of periods. For example, if French and low track math are given during the same period, then ability grouping can interfere with a student's choice to study French.

The ninth grade, which is either the last grade in the junior high school or the first grade in the senior high school, usually marks the beginning of specific requirements for graduation and the formal tallying of grades for assessing cumulative grade point averages and class standing. Students may be made aware that grades and relative class standing are very important for admission either into college or into the adult world of employment. College placement tests such as the PSAT and SAT emphasize the link between high school and post high school education.

The senior high school is typically even larger than the junior high school, drawing students from more diverse neighborhoods and offering a wider range of curriculum choices and extracurricular activities. Students interact with a greater variety of teachers and peers. School may become more formal and impersonal. The contact between school and home may become even less frequent with parent/teacher conferences virtually disappearing. Mathematics, English, Science, and other subject matter classes are typically grouped according to ability

either formally or informally. Accelerated courses and advanced placement courses may be offered. Curriculum tracking is more common in the senior high school with students being counseled formally or informally into college preparatory, vocational, business, or general curriculum areas. Once assigned to these curriculum tracks, it is usually difficult for students to alter their course selection (Rosenbaum, 1976).

A wide variety of extracurricular activities are usually offered at the senior high level and may involve a substantial amount of student time. Participation in student government and other opportunities to engage in decision-making and to define rights and privileges may increase in the senior high school. For some, the extracurricular opportunities provide a welcomed release from the academic environment, making their overall school experience more positive. For others, who have been relatively successful in their academic courses, the extracurricular opportunities may distract them from academic pursuits, reducing their academic motivation and increasing their social, athletic, or affiliative motivation. During the senior high school years, students reach the age when they can legally drop out of school. Thus for the first time students can decide to leave the social system.

This descriptive account of environmental changes indicates that in most classrooms, the environment becomes more impersonal, formal, competitive, and evaluative or ability-centered as students pass through the grades. These changes in environment, in concert with the developmental changes the maturing students are experiencing, undoubtedly have an impact on achievement motivation. The nature of that impact will be discussed in the last section of this chapter. But first, we turn to more formal research evidence of changes in the classroom environment with grade level.

Research Evidence

Most attempts to assess the school environment have included only one grade level and have related differences in the environment to student outcomes, particularly scores on achievement tests. Little research has focused on the systematic changes which occur in the classroom environment from kindergarten to twelfth grade. In fact, in some cases researchers have been interested in contrasting classrooms on some other dimension (such as urban versus rural location) and have added a grade variable almost as an afterthought. Most of the studies that have looked at more than one grade level have focused on the elementary school or the junior high school or the senior high school and not on the transition from one school environment to another.

A variety of classroom measures have been used, making comparisons of the data at different grade levels difficult. The most common ways of assessing the school environment are observational systems and self-report questionnaires. Observational systems may involve detailed counting, categorizing, and rating of teacher verbalizations, student-teacher interactions, and other classroom ac-

tivities or may entail checklists of more global classroom characteristics. Self-report questionnaires have been used with teachers, students, parents, and observers. Both low inference and high inference observational measures have been used. Low inference measures are those which depend on directly observable phenomena such as the number of times a teacher interacts with males and females or whether letter grades are used on report cards. High inference measures elicit subjective appraisals of the environment made after some specified period of observation or participation. Students may be asked, for example, if their teacher enjoys teaching math or an observer may be asked whether a classroom is autocratic or democratic.

Researchers sometimes combine low and high inference measures in studies of classroom environments. Some researchers believe that observing and categorizing teacher/student behavior is a more reliable measure of the classroom environment than eliciting participant perceptions. In contrast, Moos and others make a case for the importance of the perceptions of people in the classroom.

> Rather than relying on the ratings of outside observers, we defined the classroom environment in terms of the shared perceptions of the people in that environment. This has the dual advantage of characterizing the class through the eyes of the actual participants, and of soliciting information about its long standing attributes in a manner more parsimonious than observational methods. A phenomenological approach provides important data that the 'objective' observer who counts cues or behaviors may miss (Walberg, 1976). For example, students often ignore frequently occurring stimuli and modify their actions in light of how they expect the teacher to behave. Teachers may be inconsistent in their day-to-day behavior, but they usually still project a consistent image and develop a coherent classroom environment. Furthermore, the 'same' behaviors or stimuli used in different settings may lead students to different perceptions, attitudes, or behaviors (Moos, 1980, p.240).

Brophy and Evertson and their colleagues in Texas have conducted several large scale investigations of classrooms using both low and high inference classroom observation measures. Based on these studies Brophy and Evertson (1978) concluded that there are major differences in the classroom environment across grade levels. They identified four general stages (Brophy & Evertson, 1978, p.312-313):

> 1. (roughly grades one through three). Students typically have a single teacher who concentrates both on teaching the three R's and on socializing to the role of the pupil. The latter task involves frequent behavior–related interactions, many more per unit time than occur later. However, the students are young and generally oriented toward adult authority, so that these interactions are mostly reminders to egocentric youngsters, rather than clashes with defiant students. In many ways, the teacher is a parent substitute in the early grades, and teacher-student interaction reflects this.
>
> 2. (grades four through six). Students still typically have only one teacher (at least in self-contained classrooms), but teacher–student relationships are much less personalized and more focused on teaching and learning. The students now have been socialized to the pupil role, and for the most part, they play this role industriously and conscientiously. Teachers have less

need to correct misbehavior, and students who formerly initiated interactions about personal matters begin to confine interactions to those caused by difficulties in work. They seldom come to the teacher to tattle, to show completed work, to try to get teacher approval or to request permission.

3. (grades seven through nine). In these grades, students undergo adolescence and shift identification to the peer group. Also, even though the need for supervision increases because of this, the adequacy of it is reduced because students typically have a different teacher each period. The result, notable generally but exaggerated at large junior high schools, is a severe reduction in teaching time and a parallel increase in time devoted to maintaining order. In many ways, junior high teachers are authority figures or classroom managers first, and teachers second.

4. (from tenth grade on). As students become more serious about schooling, teacher-student interaction once again focuses on teaching and learning, as in grades four through six. Students have a different teacher for each class, but otherwise, the similarities between the second and fourth stages are high: teacher-student interaction is relatively impersonal and focused on curriculum content; instruction is seldom interrupted for disciplinary activity; most instruction is conducted with the entire class; and students manage much of their own learning by reading and by working on individualized projects or other assignments intended to promote generalization or application. Classroom management concerns recede in favor of instructional concerns.

In addition, they noted that use of group discussion increases and use of overt praise and criticism decrease over the school years. Other researchers have also noted a decline in frequency of overt praise and criticism of students with increasing grade level (Blumenfeld & Hamilton, 1981, Blumenfeld, Hamilton, et al., 1982; Parsons, Kaczala et al., 1982.).

The findings by Brophy and Evertson that junior high school classrooms are often characterized by an increase in teacher control and authority are supported by other studies. For example, Hoy (1969), Willower (1975), and their colleagues have conducted a number of studies of educators' pupil control views using the Pupil Control Ideology Form for teacher responses and the Pupil Control Behavior Form for student responses. Elementary school educators consistently emerged as less control oriented than secondary school educators. Similar results emerged in a study by Nielsen and Gerber (1979). They interviewed 33 truants in grades 6 through 8. They found a strong association between entry into junior high school and the onset and intensification of truancy. The majority of the truants said their most negative experiences at school were difficulties they encountered with school adults. They reported arguments with teachers which often centered on the students' challenge to the teacher's authority and to school rules which were viewed as unreasonable.

The work of Moos and his colleagues also documents the prevalence of a control orientation in the secondary schools, especially in junior high schools. For many years they have used the Classroom Environment Scale (Trickett & Moos, 1973) to assess large national samples of junior and senior high school classrooms. They have identified six types of classrooms: control oriented, inno-

vation oriented, structured relationship oriented, supportive task oriented, supportive competition oriented, and unstructured competition oriented. In general, junior high school classes are more likely than senior high school classrooms to be either control or structured relationship oriented. In contrast, senior high school classes are more likely than junior high school classes to be either innovation or supportive task oriented. Despite this apparent improvement in class structure at the senior high school level, as many as 23% of the junior and senior high school classrooms studied were almost exclusively oriented toward teacher control of student behavior.

> Strict rules for student behavior and teacher determination of those rules are the most salient characteristics of these classes. . . . Students complained of a lack of teacher-student and student-student interaction, and perceived little emphasis on task orientation or classroom organization (Moos, 1979, p.86).

Using a modified version of the Learning Environment Inventory (LEI) Welch (1979) studied over 1,000 classrooms selected at random from secondary schools in fifteen states. The LEI, developed by Anderson and Walberg (Anderson, 1973), measures student perceptions of both the interpersonal relationships and the structural characteristics of classrooms. Welch was interested in investigating whether changes in student perceptions of the learning environment occurred over time (1972 to 1976), whether students perceived a different learning environment in science versus mathematics, and whether the learning environment of the junior high school was perceived differently from that of the senior high school. The grade level differences were greater than either the time or subject matter differences. Senior high school students perceived their classes as more democratic, satisfying, and difficult. Junior high school students characterized their classrooms as more disorganized, diverse, and formal with higher levels of friction, cliquishness, and favoritism.

In a study contrasting rural and urban learning environments Randhawa and Michayluk (1975) collected data from students in 96 eighth and eleventh grade classrooms using the LEI. Grade level again yielded more significant effects than did locale. Contrary to the findings reported by Welch (1979), the scores on the LEI were generally lower at the eleventh grade level than at the eighth grade level. However, like Welch, Randhawa and Michayluk found that grade eight classrooms were rated as more formal, with more friction, favoritism, and cliquishness than grade eleven classrooms.

Lee (1979) interviewed 154 elementary school children and 47 teachers in grades two, four, and six regarding perceived constraints and prerogatives in school and those they thought students *ought* to have. Children saw much less congruence between the actual school environment and their assessment of what should be than did the teachers; the children saw themselves as much more *constrained* than teachers thought they were. Children's perceptions of their

status changed significantly over grade level but teacher perceptions showed little variation with grade. The older children expressed a desire for more prerogatives. Lee suggests that as children move through the grades they do not have exposure to teachers who adjust to their emerging sense of competence.

Walberg, House, and Steele (1973) conducted a cross-sectional study of 121 sixth through twelfth grade classrooms using the Class Activity Questionnaire (CAQ). Students were asked to assess whether certain activities characterized their class. These activities were based on either Bloom's six levels of cognitive educational objectives or on affective conditions stressed in the class. By identifying general categories of activities emphasized in a particular class, inferences were drawn regarding the level of the cognitive processes stressed in that class. Higher level processes included application, comprehension, finding consequences, and discovering solutions. Lower level cognitive processes included memorizing and knowing the best answer. Significant grade level effects emerged. The data suggest a pattern of *decreasing* emphasis on higher level cognitive processes, involvement, and independence and an *increasing* emphasis on lower level cognitive processes from grades six through nine. Walberg et al. (1973) suggest that these results provide evidence of a mismatch between educational practices and student needs and abilities in secondary school.

Rounds and Osaki (1982) compared activity structures in 13 sixth grade classrooms and 11 seventh grade (junior high school) classrooms. They found that students experienced more complex and diverse activity structures and had more opportunities to make choices and take responsibility in the sixth grade. In the seventh grade whole group instruction was the norm, and although students still exercised some control over pacing, teachers gave few responsibilities to students.

> Junior high school teachers created an educational environment that placed repetitious structural demands on students, required a limited number of social responses, and restricted the required repertoire of cognitive skills to those of least complexity: memorization, recall, and recognition. Compared with the requirements of the sixth-grade activity structures, these students went backward when they entered junior high school (Rounds & Osaki, p.22).

Summary

Both the anecdotal material and the objective evidence support the conclusion that classroom environments change significantly across grade levels. Some schools appear to allow more student initiative in the most senior grades. However, the general trend, through at least grade 10, toward a less personal, more formal, more controlled, competitive, ability-centered environment speaks to the issue of declining achievement motivation with age. Although virtually no researchers have assessed the causal link between these coincidental shifts, the nature of the changes suggests that they are related. The changes in the school environment over time should produce an increased focus on ability assessments,

increased salience of a stable conceptualization of ability, increased anxiety over one's relative ability and performance levels, and a decreased sense of control and intellectual challenge. Each of these consequences, in turn, should produce a decline in academic motivation especially in students who are not highly able or who do not perceive themselves as highly able. In order to provide support for these hypotheses, in the next section we will present evidence of a link between the environmental variables and the achievement motivation indices which discriminate among grade levels. Specifically, we will look at the effects on achievement motivation of student versus teacher control of the learning environment; grading practices; competitive, cooperative, and individualistic goal structures; and between class grouping by ability.

CLASSROOM ENVIRONMENTS AND ACHIEVEMENT ATTITUDES AND MOTIVATION

Several authors have argued that school experiences may be responsible for the decline in students' achievement attitudes, especially the drop that coincides with entry into junior high school (e.g., Harter, 1980; Higgins & Parsons, 1983; Parsons, 1974; Simmons et al., 1973). A review of the literature on classroom environments suggests that there are important grade-related changes in the school social environment that might precipitate the decline in children's attitudes. Two characteristics of the school environment seem especially important (a) teacher control versus student self-management and (b) salience of social comparison and competition in the evaluation of ability. Research in the domain of worker and student satisfaction clearly indicates that people express greater satisfaction and exhibit greater intrinsic motivation in situations which provide them with greater control over their behaviors (Arlin & Whitley, 1978; Lawler & Hackman, 1969; Stipek & Weisz, 1981; Thomas, 1980). Work within the achievement domain also suggests that environmental settings which focus individuals' attention on themselves rather than on the task at hand have debilitating effects on both motivation and achievement for all but the most competent and confident individuals (Brophy, 1983; Doyle, 1979). In general, environmental settings which emphasize evaluation, social comparison, and competition appear to increase self-focus or an ego-involved orientation (see Ames, in press; Nicholls, 1980b).

Each of these bodies of research suggest that most students will prefer and will have the most positive attitudes in an environment in which the students themselves have some choice over their academic activities and in which social comparison processes are less salient. Unfortunately, the above review of the classroom environment literature suggests that the passage through school is marked by a decrease in student choice and control in the academic area and an increase in the salience of social comparison information. As we noted, in early elementary school children spend most of the school day with the same teacher

and the same group of children. Thus the students and the teachers get to know each other well and the teacher can respond to individual children's needs more easily. There is a wide range of ability within the classroom. Evaluation is relatively relaxed; many schools do not give letter grades in the early elementary grades. Open or informal classrooms are more common in the early elementary grades.

Several of these characteristics are less common in the upper elementary school grades. Furthermore, in junior high school many of these processes change abruptly. Children have a different teacher for each subject, and spend only an hour a day with each teacher, which means the student-teacher relationship is more formal, and based more on student academic performance. Evaluation becomes more rigorous as use of letter grades and competitive grading increases. In many junior high schools, between class ability grouping or "tracking" is introduced so that the ability range in classes is restricted and the value of having high ability is made salient. These kinds of changes should, as we have argued, increase the social comparative and competitive aspects of learning, and the emphasis on demonstrating ability.

Evidence relevant to this prediction is discussed in this section. In particular we will discuss those processes which show evidence of change across grade levels and which relate to social comparison such as ability grouping and competition, and to student autonomy and control over the learning environment. If variations in these classroom processes coincide with variations in student attitudes and motivation, our case for the importance of these processes is strengthened.

Student Autonomy and Control

In some classrooms the teacher makes the major decisions regarding use and organization of time. The teacher tells students what to do, when to do it, and how long to take. In addition, the teacher serves as evaluator and dispenser of rewards and punishments. In other classrooms, students work independently, select tasks and determine when to complete them, consult with teachers in evaluating their own performance, and are relatively free from external rewards and punishments. Most classrooms are somewhere on a continuum between these two extremes.

Kurt Lewin and his associates have conducted a number of studies dating back to 1939 which assess the impact of control and choice on children's motivation (e.g., Lewin, Lippitt, & White, 1939). In their classic study, ten-year-old boys were equally productive under autocratic and democratic leaders and less productive with a laissez faire leader. But the children in the democratic group developed more self-control and motivation to continue working in the leader's absence. In this study, the autocratic leaders made the major decisions regarding group activities and also used praise and criticism to control group members.

Democratic group members participated in decision-making and were not subjected to praise and criticism. Thus these groups differed along two dimensions: evaluation procedures and decision-making procedures.

Classrooms also vary along both of these dimensions. In this section we review the effect of decision-making opportunities. Three lines of research are discussed: studies of naturally occurring variations in classroom style, studies using field-based experimental designs, and studies evaluating the effectiveness of open versus traditional classrooms. In addition, we evaluate the possible interaction of autonomy with developmental level of the student in shaping motivation.

Naturally Occurring Variations in Teaching Style

Pascarella, Walberg, Junker, and Haertel (1981) studied the relationship between continuing motivation in science and four measures of classroom environment: class morale, utility of science content and science classes, teacher encouragement, and teacher control. Using a national sample of early and late adolescents, they found that extent of teacher control over, and structuring of, classroom activities was negatively associated with continuing motivation.

Epstein (1981) surveyed students in middle schools and high schools that varied in the extent of student participation in classroom decisions. Students given more opportunities for participation in classroom decisions reported more favorable reactions to school life and, especially, more positive reactions to their teachers. Longitudinal data indicated that the positive effects of participation on attitudes, when evident, were continuous and cumulative. Control over one's environment was also a stronger predictor of satisfaction with school than report card grades, self-esteem, or self-reliance. If satisfaction with school is related to continued motivation, then student perceptions of control could be an important determinant of achievement motivation.

Deci, Schwartz, Sheinman, and Ryan (1981) developed an instrument to assess adults' orientations toward control versus autonomy in their interactions with children. They found that children of autonomy-oriented teachers were more intrinsically motivated and had higher self-esteem than children of control-oriented teachers.

Arlin and Whitley (1978) used cross-lagged panel correlations to assess the causal relations between opportunities for self-management and perceptions of locus of control over the school year for students in grades five, six, and seven. Students came either from a school that encouraged individualized instruction and self-management or a school that placed more emphasis on teacher management of instruction. Their results suggested that opportunities for self-management produce increases in students' internal academic locus of control.

In conclusion, several studies relying on naturally occurring variations in classroom climate have demonstrated the predicted relationship between oppor-

tunities for student control and positive, intrinsically based, academic motivation. Experimental studies have yielded comparable results.

Experimental Studies of Teacher versus Student Control

The importance of the perception of personal responsibility in educational settings has been investigated extensively by Richard deCharms (1968, 1972, 1976). deCharms worked with teachers and students in an inner city school to change "pawn" perceptions to "origin" perceptions. The goal was to help teachers experience the feelings of being both a pawn and an origin, show them the effects of their own behavior, and then help them design ways to enable their students to be more like origins. An emphasis was placed on participation, choice, and freedom in the classroom. Measures of student motivation and achievement were taken at the end of each school year for three years from fifth to seventh grade. In the classrooms with teachers who had participated in the origin training, there was an increase on the student measures of goal setting, internal determination of instrumental activity, personal responsibility, self-confidence, and internal control. In addition, significantly more boys from classrooms in which the teacher had participated in the training program went on to graduate from high school five years later (deCharms, 1980).

Work by Wang and Stiles (1976) also indicates that feelings of student self-responsibility can be developed through the use of a learning-management program in the classroom. Experimental subjects were second grade students in a class using the Self-Schedule System, a program designed specifically to develop student abilities to manage and to plan for their learning in school. Under this system, students choose their learning tasks and decide when to work on them. The control classes consisted of second grade students participating in an individualized instructional program. The Self-Responsibility Interview Schedule (SRIS) was constructed to assess children's knowledge about what they do in school, and whether they perceive that they, rather than the teacher, are responsible for managing their own learning. The Self-Schedule group had significantly greater perceptions of self-responsibility and higher rates of task completion after participation in the program than did the control groups, suggesting that the Self-Schedule system was effective in developing students' abilities to take increasing responsibility for school learning, and developing their perceptions of having this self-responsibility for learning.

Frank (1980) and Richter and Tjosvold (1980) both investigated the effect of encouraging student participation in decision-making. Frank (1980) found that junior and senior high school classes which incorporated activities such as student-generated quiz questions, student involvement in the establishment of classroom rules, student self-evaluation of quizzes, student maintained personal progress sheets, and contracted work assignments displayed a greater change toward internality (as measured by the Nowicki-Strickland Locus of Control Scale) over a period of nine weeks than did control classes which employed traditional

techniques. Richter and Tjosvold (1980) also found positive results associated with third through sixth grade classrooms which encouraged students to participate in selecting and planning learning activities. Students in participation classrooms developed more favorable attitudes toward school, worked more consistently without supervision, and learned more than students in classrooms where the teachers were responsible for all decisions.

In conclusion, experimental studies consistently demonstrate the positive effect of student control on student motivation and attitudes. We now turn to an examination of types of classrooms which tend to encourage student participation and choice: open versus traditional classrooms.

Open versus Traditional Classroom Research

Over the past ten years there have been many studies that purport to compare open and traditional classrooms. This research suffers from several deficiencies. Certainly a major problem is the definition of terms. What seems "open" to one person may seem "traditional" to another person. In one open classroom, evaluation may consist of letter grades on assignments, tests, and periodic report cards; in another open classroom students may contract for academic work and receive no formal evaluation. In addition, there may be discrepancies between the classification of the classroom and actual implementation of goals. Recently it has been suggested (Marshall, 1981) that current methods of assessing the implementation of openness are inadequate and that researchers should, instead, investigate the relationships between the component dimensions of classroom structure and particular outcome variables.

As a result of these problems, the research on open versus traditional classrooms is inconsistent, inconclusive, and often difficult to interpret. In spite of these shortcomings, however, evaluations of open education offer some support for the predicted relationship between students' responsibility and choice and positive motivational outcomes. For example, Horowitz (1979) using a "box score" method to evaluate the results of nearly 200 such studies, found that students in open classrooms tended to have positive attitudes toward themselves and school and were more internal on measures of locus of control. However, the percent of studies which showed no significant difference between open and traditional classrooms was greater than those which showed a significant difference.

Certainly one of the features associated with many open classrooms is greater student choice and self-management as well as a de-emphasis on external evaluation. Perhaps a review focusing only on those studies which assess level of student control and self-management would yield a more consistent picture. Such studies are reviewed below.

Epstein and McPartland (1979) collected test and questionnaire data from students in grades 5, 6, 7, and 12, representing both open and traditional settings. They distinguished between the formal organizational and informal aspects

of school authority structures. They were interested in documenting the components of the school authority structure that were actually implemented in open schools and assessing which student outcomes were affected most by changes in the school authority system. Open and traditional schools differed greatly on formal organizational aspects of the authority structure but not nearly so much on the informal aspects of student-teacher authority relations. The features on which schools differed greatly were individualization of instruction, control of student conversation and movement, control of student assignments, and frequency of supervision of student assignments. However, there were *not* large between-school differences in students' perceptions of teachers' expectations and teachers' classroom decision-making styles (whether teachers reserved most of the decision-making prerogatives for themselves or extended decision-making opportunities informally to students).

> It appears that, in implementing open education, it was possible to implement successfully formal changes in the individualization of the instructional program that altered the amount of time students would be under the strict control and close supervision of their teachers, but it was not easy to change teachers' attitudes about their dominant role as the authority in informal encounters (Epstein & McPartland, 1979, p.298).

Using a variety of student outcome measures, including achievement test scores, educational aspirations, personality indexes, attitudes toward school, and school coping skills, the formal aspects of openness had a significant but small impact on certain nonacademic and attitudinal student outcomes, but not on measures of academic development. In contrast, positive effects on students from differences in informal authority relations were found for all student outcomes, especially for nonacademic outcomes.

Arlin (1976) tested the relationships between pupils' attitudes and the combinations of grade, sex, and open education. Teachers from first to eighth grade were chosen to represent excellent open and traditional teachers. Their students completed four questionnaires assessing attitudes toward learning processes, teachers, arithmetic, and language. For attitudes toward teachers, learning processes, and language, the pupils in open classrooms started the lower grades with attitudes that were less positive than those of pupils in traditional classrooms. By the upper grades the attitudes of pupils in the open classrooms caught up to or surpassed attitudes in traditional classrooms. "It would appear from this study that in the upper grades of the elementary school more attention might be given to providing an open learning situation" (Arlin, 1976, p.224).

Arlin points out that the differences between traditional and open classrooms in the lower grades may be minimal. "It is chiefly at the upper grades that the open and the traditional treatments become distinguishable on a scale sufficiently large to affect pupils' attitudes" (Arlin, 1976, p.225). Arlin also points out that most open classrooms are at the lower elementary level and suggests that educa-

tional policy might better be directed at providing open opportunities for pupils at the upper levels of the elementary school.

Autonomy and Grade Level

Arlin's conclusion suggests that the impact of classroom environments on student attitudes may vary across grade level. More specifically, his results suggest that student autonomy and control may be even more critical at the upper elementary grades and in secondary school.

Brophy and Evertson (1976) have also concluded that the nature of the learner and the nature of the teaching-learning situation are very different across grade levels. They suggest that teachers working with preoperational children and instructing students in mastery of the basic skills in reading, writing, and arithmetic should provide a different learning environment than teachers of older children who have more highly developed cognitive skills and are working with highly conceptual material. They believe that indirect teaching, opportunities for student-student and small group interaction, independent work, and faster paced instructional sequences are more appropriate at the upper grade levels. Similarly, Lee (1979) questions the prevailing belief that open education is more appropriate in the preschool and kindergarten than in the upper elementary grades.

> At the upper grades, . . . some version of openness may be the best context for children's experimenting with the interface between social factors and social norms, and coming to terms with the complex interactions among social constraint, individual prerogative, and participatory decision making (Lee, 1979. P.120).

Lee suggested that open teachers are in closer communication with older children's need to affect their social environment, their "competence push", their need to participate in decision-making.

Support for the suggestions of Brophy and Evertson (1976) and Lee (1979) is provided by a recent study by Blumenfeld, Hamilton et al. (1982). They studied the effects on students' academic attitudes of open classroom structure and teacher management in grades one and five. First graders' attitudes were unaffected by the openness of their class structure. In contrast, the students with the most positive attitudes toward school work were the fifth graders in well-managed, open classrooms.

Studying the impact of student, teacher, and learning environment variables on students' attitudes toward math, Shaughnessy, Haladyna, and Shaughnessy (1981) collected data from 2,000 students and their math teachers at grades four, seven, and nine. Their results provide additional support for the suggestion that the characteristics of educational environments which are most beneficial will vary across grade levels. In both fourth and seventh grade classrooms, they found that teacher and learning environment variables rather than student characteristics were the strongest predictors of positive student attitudes. By the ninth

grade, student characteristics, primarily fatalism and self-confidence, emerged as the strong predictors of student attitudes. Fatalism, in fact, accounted for 67% of the variance in students' attitudes. Parental involvement also emerged for the first time as a significant predictor of students' attitudes. The authors report similar patterns in their studies of class attitudes toward science (Haladyna, Olsen, & Shaughnessy, 1980) and social studies (Haladyna, Shaughnessy, & Redsun, 1980).

Thus it seems quite likely that various educational structures have a differential impact on children of different ages. What is more striking, from our perspective, is the strong association between opportunities for both autonomy and decision-making and student attitudes in the junior high school. If, as our review indicates, such opportunities actually decrease as students enter junior high school, then we would expect their attitudes to decline concurrently.

Let us now turn to the second major category of classroom variables that we predicted would relate to student attitudes and motivation. Grading practices; competitive, cooperative, and individualistic goal structures; and ability grouping practices are classroom structures that may dramatically alter the type of self-information available to students. These structures affect the amount of social comparison information available to the student. Consequently, variations in these structural variables should be related to students' perceptions of their ability as well as to related affective outcomes. We will explore this hypothesis in this section. Grading practices will be discussed first since they are related to both student autonomy and self-evaluation.

Grading Practices

Maehr and others have hypothesized that evaluation practices in the classroom are closely tied to perceptions of student autonomy. Maehr and his colleagues have conducted a series of experiments which focus on the effect of student control over, or participation in, the evaluation process on indices of continuing motivation. For example, Maehr and Stallings (1972) engaged eighth grade students in "easy" and "hard" tasks under either an "external" or "internal" evaluation condition. In the internal condition, emphasis was put on performing the task for its own sake. Although students were able to determine if they had successfully completed the task, they were not told how their performance compared to others nor were they led to believe that the teacher or other students would see the results. In the external condition the task was presented like a standard classroom test which would be evaluated by others. Continuing motivation was measured by asking subjects if they would be willing to work on a similar task in the future and to indicate a time when they would be available. Subjects in the external condition preferred easy tasks to difficult tasks. Students, especially high need-achievement boys, exhibited higher continuing motivation for difficult tasks if they had worked on them under internal conditions.

Similar results have been reported by Salili, Maehr, Sorensen, and Fyans (1976) in a study of fifth grade Iranian students. They found that continuing motivation to work on the tasks was significantly and negatively affected by teacher evaluation. Subjects who perceived their results on the task to be internally caused tended to exhibit higher continuing motivation. This suggests that "it is the subject's perception of who is responsible for and in control of the situation that may be critical" (Salili et al., 1976, p.99). Comparable results have recently been reported by Pittman, Emery, and Boggiano (1982).

Based on these and comparable results, Maehr (undated) concluded that evaluation practices affect one's perceptions about the causes of one's behavior in a situation and that this sense of personal responsibility is related to continuing motivation. Studies examining the effects of extrinsic rewards upon intrinsic interest (Deci, 1975; Enzle & Ross, 1978; Lepper & Greene, 1975; Lepper, Greene, & Nisbett, 1973) lend further support to Maehr's conclusion that evaluation practices can influence children's sense of control and autonomy.

Grading practices can also affect children's motivation by focusing their attention on different aspects of learning and school work. Traditional grading systems typically reflect differential rates of mastery of a standardized core of material. Therefore low grades are indicative of either comparatively low effort or low ability, both of which are negatively valued personal characteristics. In contrast, since students in contract-graded classrooms are typically working on different assignments at different rates, their grades are not based as much on social comparative criteria. Instead their grades reflect the degree to which the student has accomplished what s/he has agreed to accomplish. This type of grading should make comparison with one's own goals and standards more salient than comparison with other people's ability or performance (Maehr & Stallings, 1972). Consequently, contractual grading systems should produce less self-focus, more task-focus, and more positive student attitudes. Unfortunately so little field research has actually been done on this issue that no conclusions can be reached at present.

The work of Hill and his colleagues has provided evidence that external ability based evaluative practices have a negative effect on motivation. Much of this work has centered on test taking situations. It is clear from their studies that practices which make external ability based evaluation salient have a major detrimental effect on the performance and affect of high test anxious children (see Hill, 1980).

There is evidence that evaluation procedures have an important effect on student motivation. Compared to traditional, externally based ability evaluation practices, alternative evaluation practices seem to produce more positive effects on students' performance, continuing motivation, and affect. This seems to be especially true for specific types of students, such as highly test anxious children. It thus seems as if this aspect of the classroom could be an important key in improving students' motivation.

Competitive, Cooperative, and Individualistic Goal Structures

Johnson and Johnson (1979) have studied the relationship between cooperative, competitive, and individualistic goal structures in the classroom and student cognitive and affective outcomes. Within a cooperative structure, students achieve their goals only if the other students with whom they are grouped also achieve their goals. Within a competitive goal structure students believe that they can achieve their goals only if students with whom they are grouped fail to achieve their goal. An individualistic goal structure exists when one student's achievement is unrelated to the achievements of other students.

Johnson and Ahlgren (1976) used the Minnesota School Affect Assessment with students in grades 2 to 12 to assess the relationship between student attitudes toward cooperation and competition and attitudes toward school personnel, motivation to learn, involvement in learning, self-worth as a student, other students, and restraints on student behavior. Cooperativeness of students was consistently related to a broad range of positive attitudes, including being intrinsically motivated to learn, at all grade levels. It was only in high school that competitiveness became positively related to intrinsic motivation and getting good grades. However, there was also no evidence that competition produced negative attitudes.

Given the positive relation between student attitudes toward cooperation and intrinsic motivation, it makes sense that a large number of studies comparing cooperative, competitive, and individualistic goal structures find that the most positive results are associated with cooperative goal structures. Studies indicate that cooperative structures foster motivation to learn (Slavin, 1978); and positive attitudes toward self (Aronson & Bridgeman, 1979; Johnson & Johnson, 1974, 1975), toward school and school personnel (Blaney, Stephan, Rosenfield, Aronson, & Sikes, 1977; Johnson & Johnson, 1974, 1975), and toward peers (Aronson & Bridgeman, 1979; Devries & Edwards, 1973; Slavin, 1978). Ames (1981) found that low performers benefit especially by working in cooperative groups. Low performance children judged their ability higher, felt more deserving of reward, and were more satisfied in cooperative versus competitive settings. The importance of cooperative interactions in building better intergroup relations has also been recognized (Serow & Solomon, 1979). Cooperative task structures in desegregated classes have been related to a number of positive outcomes including enhanced academic achievement in minority and lower ability students (Aronson, Bridgeman, & Geffner, 1978).

Although the use of cooperative goal structures in the classroom is not widespread, we have reviewed this literature because it enables us to evaluate the impact of increasing competition as students enter the junior high school environment. This evidence indicates that the higher levels of competition found in upper grades may be related to the decline in student attitudes.

Ability Grouping

Ability grouping is the practice of separating children into groups either within or between classrooms according to some indicator of their ability level. Ability grouping between classrooms is commonly referred to as ability-level tracking. Ability grouping is typically justified with the following rationale: students learn best when the material is adjusted to their level of understanding; the most efficient way to teach to a student's level of understanding is to group the students by ability and plan the entire group's curriculum at that level. Use of this teaching strategy is presumed to help the students' progress by avoiding a mismatch between the cognitive level of the lesson and the cognitive level of the student. In addition, the argument is made that lower ability students' attitudes will suffer in a heterogeneous classroom where they feel inferior to the brighter students.

Unfortunately, grouping, whether it is based on ability or future educational or occupational goals has two basic characteristics: (a) it functions to stratify the population it is grouping and (b) it ranks the strata it creates. It is generally accepted, for example, that college prep tracks are "better" than vocational tracks and that high ability tracks are "better" than low ability tracks. While evidence concerning the effect of placing students in a higher track is somewhat contradictory (Esposito, 1973), most studies agree that compared to heterogeneous grouping, placement in the lower tracks is related to lower levels of aspiration (Metz, 1978; Oakes, 1981), greater feelings of worthlessness and rejection (Byers, 1961), lower self-esteem (Oakes, 1981; Prawat, Lanier, & Byers, undated), lower self-concept of ability (Mann, 1960), less involvement in class activity (Metz, 1978) and greater test anxiety (Cox, 1962; Levy, Gooch, & Kellmer-Pringle, 1969). Data from Oakes' (1981) study support the view that low track students internalize their failure. Oakes found that while low track students were as satisfied as others with the classes they were in, they had the most negative attitudes about themselves, disagreeing less than others that "there were a lot of things about themselves they would change, that they were not as well liked as most people, and that at times they thought they were no good at all" (Oakes, 1981, p.194). Apparently students in the lower tracks accept the notion that they are to blame for their placement. These findings make sense. If students are told that track selection is based on ability, then those students who are in the lower tracks have good grounds for assuming that they are not very able.

This situation is even more unfortunate given the somewhat arbitrary nature of student placement in tracks. In a comprehensive study on tracking, Rosenbaum (1976) found no relation between objective data (i.e., test scores and grades) and track placement. It appeared that students were arbitrarily placed in tracks by their school counselors. Furthermore, in an experiment in which low track students were randomly displaced upward, Tuckman and Bierman (1971) found that

teacher expectations for these students and the students' performance on standardized tests improved significantly. In addition, teachers recommended that most students remain in the higher track the following year. These results suggest that tracking is related to the differences in student attitudes between tracks and that placement in a track may not be based on true ability differences.

Our own data provide additional evidence of the effects of tracking on students' academic beliefs and attitudes. As part of our study of the determinants of students' attitudes toward math, we gathered data on students in both average and accelerated math classes. The students in the highest tracks had a higher self-concept of ability than students in the average tracks. Students in the average tracks also rated math as more difficult and expected to do less well in their math courses despite the fact that the course was supposedly geared to their level of understanding. Students in the accelerated tracks valued math more and had more interest in math.

A second set of our analyses is even more relevant to this discussion. One of the school districts involved in this study allowed each junior high school to decide whether to track its students in math in seventh grade. This resulted in a situation in which two junior high schools grouped their seventh grade math classes by ability and two schools grouped students heterogeneously in math. It was thus possible to make comparisons between the two methods of grouping students within a single school district. These comparisons are especially interesting because the ability grouped students in the study were from accelerated and average tracks (low track students were not included in the sample because of the original goals of the larger study) while the nontracked students represented an entire range of abilities. Given the fact that low ability students were not included in the tracked sample, one would expect most of the comparisons between the two samples to favor the tracked group. We found just the opposite. In comparison to heterogeneous grouping, grouping by ability had negative effects on both accelerated and average students. Students in nontracked classrooms had higher self-concepts of ability and expectancies for success. Students in tracked classrooms thought math was harder and thought they had to work harder to do well in math. Thus, while accelerated students fared better than their average peers, both groups suffered affectively when compared to nontracked students.

Why should a group of students which includes supposedly less able students have more positive attitudes than a group of more able peers? While many explanations exist, one possibility is to look at the dynamics taking place within each grouping practice. It is possible that tracked classrooms put more emphasis on the importance of ability and the use of social comparison information. Tracked classrooms may emphasize badges of ability even more than regular classrooms normally do. If individualism is hard to achieve in situations where there is a normal distribution of abilities, it should be even harder to achieve when one's comparison group consists of students having a very small range of abilities. It should be even harder to feel smart in such classrooms. A study by

Rosenholtz and Rosenholtz (1981) supports this view. They found that in classrooms which had students with a small range of ability, ranking of ability by students, teachers, and self were more frequently dispersed into high and low rankings while in classrooms which had students with a wide range of ability, the rankings tended to be more similar and tended to be average or above average.

Alternatively it is possible that the mere practice of ability grouping focuses children's attention on ability level rather than improvement across time. In other words, ability grouping may sensitize children to ask "How smart am I?" rather than "What do I need to do to master this task?" As Nicholls has pointed out, many children will find themselves deficient if they must evaluate their ability level on a social comparative standard. For these children, focusing their attention on the issue of how good they are may undercut their motivation, especially when they are placed in a system that leads them to believe that relative ability level is a stable capacity and that low levels of the ability in question are undesirable.

It is interesting to note, in light of this discussion, the results of a study by Schwarzer, Jerusalem, and Lange (undated) which examined the self-concepts of students in tracked schools in Germany (where different schools represent different tracks and an entire school is the same track). They found that entering a low track school after having been mainstreamed for four years resulted in an increase in self-esteem for poor students. Perhaps being in an environment in which everyone is in the same track reduces the salience of the information provided by knowing what track one is in. It may be that the way tracking is implemented is more important than whether or not it is implemented.

But whatever the mechanism of influence, it is clear that ability grouping can have a detrimental effect on children's achievement attitudes and motivation. Since the frequency of ability grouping increases as children move into secondary school, we have identified another viable social mediator of the decline in students' attitudes toward school.

Summary

It seems clear that classroom processes can have important effects on a student's motivation to learn. The degree of student autonomy and decision-making, the types of grading practices employed, the goal structure of the classroom, and the range of ability levels represented in the classroom have all been related to student outcome measures. It appears that the less common classroom structures are those that are most consistently associated with increased continuing motivation, greater positive affect, and more positive attitudes toward school. Teacher control, comparative grading practices, competitive or individualistic goal structures, and homogeneous grouping practices are the norm in today's classroom and become increasingly prevalent as students progress to higher grades. Given this grade-related trend and the relation between these classroom

practices and student outcome measures, it seems highly possible that classroom process variables are important mediators of the decline in student motivation across the school years.

CONCLUSIONS

Our goal has been to explore the link between grade-related changes in school experiences and the age-related drop in achievement motivation. There is an age-related decline in children's response to measures of achievement beliefs and motivational orientation. Furthermore, there are two points in development when this decline is especially marked: one at about age 6 and a second at about 12 or 13. We have argued that each of these shifts, as well as the more general decline, could result from, or be amplified by, changes in the children's social experiences brought about by systematic changes in their school environment. The environment not only structures the information that is available to children, but also affects the salience of different types of information. Both of these influences can impact on children's achievement judgements. To the extent that there are systematic changes in the environment, the types of achievement judgements children make and the criteria they use in making these judgments will change. Consequently, their achievement beliefs, attitudes, and motivational orientations will also change. In this concluding section, we will outline what we think are the causal connections between changes in the school environment and changes in children's beliefs and attitudes. While we will focus our summary comments on the changes that occur across the elementary and secondary school years, we will also make a few comments about the transition into elementary school. However, before proceeding we will comment on three important methodological issues.

First, it should be noted that none of the studies we reviewed actually tested the causal relationship between transitions in school environments and changes in students' attitudes. One study (Simmons et al., 1979) has compared students of similar ages enrolled in different types of seventh grades. This study has yielded the strongest support for the hypothesized impact of school environment on students' attitudes. However, since this study did not measure the school environment directly, the results do not provide the necessary tests of our hypotheses. Thus, at present, our conclusions are based almost entirely on informed speculation based on converging lines of evidence rather than on ideal field studies.

Second, very few studies have covered the full range of school grade levels using comparable methodology. More importantly, even fewer studies have included grades on both sides of the major transition points. Typically, investigators have focused on either the preschool or elementary school grades or on junior and senior high school classes. Consequently, we often found ourselves comparing apples and oranges in order to piece together a picture of the changes in school environments across the major transition points.

Finally, because the scope of school variations reported is rather narrow, the generality of our knowledge of the effects of environment on motivation is limited. Except for occasional innovative programs, the research literature is based on school environments which are remarkably similar across the country (McPartland & Karweit, 1979). The classes which represent more extreme variation also typically represent experiments in innovative education and the students in these classes are often self-selected. Consequently, results gained in these samples may not generalize to the population at large. Increasing the normally occurring range of school variations both within and across grades would expand our knowledge base and could suggest school factors that might have sizeable effects especially if they persisted for an extended period of time or if they reached a critical level of intensity.

In summary, although there are changes in both school environment and student beliefs across grade levels, typically the changes are confounded with age level. Consequently causality cannot be assumed and the effects of increasing age and changing school environment cannot be disentangled. In order to have a better understanding of the relationship between changes in environment and changes in belief systems, we need longitudinal studies of large groups of children that extend through the children's school careers. These studies need to be executed in contrasting school environments that are carefully chosen so as not to introduce subject population confounds. Until we have such studies, we will not be able to assess the causal impact of educational environments on students' motivation and achievement attitudes. Instead, we have adopted a strategy of looking for converging evidence to bolster our hypotheses. In view of the consistency of the evidence we have reviewed, we believe a causal link between grade-related changes in educational environments and age-related student attitudes exists. We hope this chapter will stimulate the longitudinal research necessary to test our hypotheses more fully. We conclude with a summary and a discussion of these hypotheses.

The Shift from Home to School

Several investigators have found evidence of a shift in expectations and in children's use of failure feedback as children enter school. It has been suggested (Parsons & Ruble, 1977) that this developmental change is due to a shift in the children's cognitive capacity; namely, to an increase in the child's capacity to integrate a series of past outcomes in the formation of a stable concept of one's abilities. Basing one's predictions for future performance on past performance, however, also requires that one consider the past performance as a relevant and heuristically valuable piece of information. Consequently, the developmental shift in the use of failure feedback could reflect a shift in the perceived relevance of one's past outcomes rather than a shift in the children's cognitive capacity.

Preschoolers, because they are acquiring so many physical skills so rapidly, have frequent experience with failure followed by subsequent, and often dramat-

ic, improvement. Consequently, their own experiences provide them with little reason to conclude that past failures are predictive of future outcomes. Other aspects of the social environment of preschool children also support a belief in the instability of both outcomes and ability. Entrance into elementary school, however, alters several aspects of the child's social experience. First, classes are age stratified. Second, the children's maturation rate slows. Finally, entry into school confronts the child with all of the dynamics of student-teacher interaction, such as evaluative feedback of one's performance relative to other children. We know very little about the impact of any of these social experiences on young children's achievement attitudes. However, since each of these shifts should increase the perceived relevance of past performance (especially failure for predictions of future performance), we believe they contribute to the early decline in children's expectations.

Shifts During Elementary and Secondary School

Students' orientation toward school achievement and their confidence in their own abilities continue to decline over the elementary and early secondary school years. Furthermore, there is some evidence of a marked dip as students enter and experience the junior high school environment. Some would argue that physiological and psychological changes which mark the entry into puberty are primarily responsible for these increasingly negative attitudes. One cannot deny that these are important influences. However, we propose that there is an interaction between physical and psychological development and environmental changes during early adolescence. We suggest that the school environment is contributing to this decline through the increase in practices which focus attention on relative ability assessments and the decrease in practices which provide the student with some sense of control and autonomy. These changes are particularly serious given the increasing ability of students to take responsibility for their own behavior and the growing refinement of their intellectual skills. There is then, a mismatch between children's increasing competency and social maturity and the characteristics of the school environment.

As children mature they become more skillful, knowledgeable, and competent; they become better able to take responsibility, make decisions, control their lives. They also feel more able to take responsibility and to make academic decisions (Harter & Connell, this volume). We have presented evidence of the link between student self-management and achievement motivation. One would hope that with increasing grade level, students would assume greater autonomy and control over their lives and learning. In addition, one would hope that schools would provide an environment that would facilitate task involvement rather than ego involvement, particularly as children enter early adolescence.

Unfortunately there is evidence that just the opposite is true. As students proceed through the grades, the classroom is characterized by a decrease in

student autonomy and an increase in processes which enhance ego involvement at the expense of task involvement. For example, in practice open classrooms are more common at the preschool, kindergarten, and early elementary school levels. Most school systems tend to become more closed or formal across grade levels. Yet there is evidence that open classrooms are more appropriate as students grow older (Arlin, 1976; Brophy, 1983; Lee, 1979).

What is the impact of these environmental changes on achievement motivation? With age, students feel that they are less able academically and their attitudes toward learning and school become increasingly negative. We suggest that the changing nature of the school environment has a significant effect on these developing beliefs—a *negative* effect. We do not find the age-related decline in achievement motivation puzzling; it is quite predictable.

We are particularly concerned about the mismatch between the developmental needs and capacities of the early adolescent and the typical junior high school classroom environment. Does it make sense to introduce the early adolescent to departmentalized courses taught by different teachers, a changing peer group, letter grade report cards reflecting academic ability in various subject matter areas, between-class grouping by ability, and a more controlled, teacher-dominated environment? Educators and psychologists have long recognized the need for a more personal, student-managed, task focused environment for early adolescents. That recognition led to the establishment of the junior high school and later the middle school.

Unfortunately a majority of these "intermediate" schools reflect a change in grade organization and little more. In fact, taking fifth, sixth, seventh, and eighth graders out of the elementary school may often have resulted in a less facilitative environment than that which existed in the original eight year elementary, four year high school organization. Now there is renewed interest in the 8-4 grade arrangement. Recent research suggests that the transition into junior high school associated with the 6-3-3 grade arrangement may have a long range negative and disruptive effect on students (Simmons, Blyth, & Carleton, 1982). These authors have suggested that early adolescence is not a good time for a major transition. We suggest that it is the nature of the transition more than the timing of the transition that is associated with the negative effects. We believe that a different major transition at that stage, to an environment that is less formal, less competitive, less teacher-controlled, and less ability focused makes sense developmentally and would have a facilitative effect on achievement motivation during early adolescence.

In conclusion, we would like to make it clear that we are not proposing a deemphasis on the acquisition of basic skills. It is important to point out, however, that the "back-to-basics" movement of the last decade has affected both the content of the curriculum and the method of instruction. We are concerned that there is a conflict between some of the *methods* that have accompanied the concern for basic skills and some important determinants of achievement moti-

vation. Thomas (1980), in a review of self-management, academic motivation, and basic skills achievement, cites evidence of a decline in curiosity, creativity, enthusiasm, and persistence as students proceed through school. He proposes that some of the methods associated with the back-to-basics movement (strict teacher control of on-task behavior, teacher-imposed structure and pacing, external reward systems) are in conflict with important determinants of achievement motivation. Thomas suggests that the issue is not the amount of control or structure that characterizes the classroom but rather the origin of that control.

> There is no incompatibility between control, structure, and effective reward system on the one hand and student achievement on the other. The conflict arises when the locus of responsibility for these factors is vested in individuals external to the student. Furthermore, . . . not only are a sense of personal effectiveness and competence of equal importance to achievement as instructional outcomes, but . . . instructional strategies designed to enhance a sense of agency tend also to enhance academically engaged time, achievement, and achievement-related behaviors (Thomas, 1980, p.216).

If the "back-to-basics" movement is to be more than another swing of the educational pendulum, it must be open to scientific scrutiny and responsive to the outcomes of such scrutiny. We do not believe fostering the acquisition of basic skills is incompatible with a developmentally appropriate classroom environment. We are calling for environmental changes based on a reasoned, systematic investigation of the causal relationship between age-related changes in achievement motivation and grade-related changes in the classroom environment.

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NOTE

1. By logical we mean in accord with the predictions the experimenter assumes to reflect rational, mature information processing strategies.

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