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Changes in Achievement Goal Orientations, Perceived Academic Competence, and Grades across the Transition to Middle-Level Schools

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Goal orientation theory was used to examine changes in student motivation during the transition from elementary to middle school. Surveys were given to 341 students in the fifth grade in elementary and again in sixth grade in middle school. Students were more oriented to task goals (wanting to improve their competency), perceived a greater emphasis on task goals during instruction, and felt more academically competent in fifth grade in elementary school than in sixth grade in middle school. They perceived a greater emphasis on performance goals (an emphasis on relative ability and right answers) in middle school than in elementary school. Several interactions emerged between year (fifth grade, sixth grade), and both student level of ability (higher, lower, based on standardized achievement tests) and subject domain (math, English). © 1997 Academic Press

Studies suggest that the transition to middle level schools is associated with a decline in motivation and performance for a number of children (see Eccles & Midgley, 1989, for a review). The assumption is sometimes made that these declines are related to physiological and psychological changes associated with puberty and are inevitable. Eccles and Midgley (1989) challenged that assumption, demonstrating that differences in the classroom environment before and after the transition were related to declines in students' expectancies and values in mathematics (e.g., Midgley, Feldlaufer, & Eccles,

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1989a, 1989b). They called for additional longitudinal studies following representative groups of children from elementary to middle level schools and including perceptions of the learning environment (Eccles & Midgley, 1989, p. 177). Although a number of transition studies have been conducted since that time, few have measured the learning environment. In this study students' perceptions of the learning environment in both mathematics and English are included. In addition, the relations of gender and ability level to changes in motivational orientation and perceptions of the learning environment are examined in a sample of students from a working class community.

GOAL ORIENTATION THEORY

The transition study conducted by Eccles and her colleagues was based on an expectancy/value model of motivation. Expectancy/value theorists propose that an individual's expectancies for success and the incentive value of the task determine achievement behavior. Achievement behavior is defined in terms of effort, persistence, choice, and performance. Expectancy/value theorists measure motivation both in terms of specific tasks, and in terms of more general academic domains. In this study goal orientation theory is used as a motivational framework. A primary focus of goal orientation theory is on how students think—how they think about themselves, their tasks, and their performance. Recently, a number of motivational researchers have adopted a goal orientation framework (e.g., Ames & Archer, 1988; Anderman & Maehr, 1994; Dweck, 1986; 1992; Dweck & Leggett, 1988; Maehr & Midgley, 1991; Maehr & Pintrich, 1991; Meece, 1991; Nicholls, 1989; Nolen, 1988). These researchers have identified two types of goals that are particularly salient in an achievement setting. Referred to by various names in the literature, in the present study these two goal orientations will be referred to as a *task goal orientation* and a *performance goal orientation.* When students are oriented to task goals, they engage in academic work in order to improve their competency, or for the intrinsic satisfaction that comes with learning. In contrast, when students are oriented to performance goals, they engage in academic work to demonstrate or prove their competency, or to avoid the appearance of lack of ability relative to others. Considerable research has documented that being oriented to task goals is associated with more adaptive patterns of behavior, cognition, and affect than is an orientation to performance goals (e.g., Ames, 1990; Ames & Archer, 1988; Dweck & Leggett, 1988). In the only study to date examining differences in elementary and middle school students' goal orientations, middle school students were more oriented to performance goals, and less oriented to task goals than were upper elementary school students (Midgley, Anderman, & Hicks, 1995). That study was cross-sectional and did not examine differences across subject domains.

CLASSROOM GOAL STRUCTURES

Recently researchers have been considering the relation between students' perceptions of the goal structures in their classrooms, their personal goal orientations, their self-evaluation, and their approaches to learning (e.g., Ames, 1990; Ames & Archer, 1988; Miller & Meece, 1994). In some classrooms, policies and practices are perceived as emphasizing competition and the demonstration of ability relative to others (performance goal structure), whereas in others, the perceived emphasis is on task mastery, improvement, and intellectual development (task goal structure). For example, Ames and Archer (1988) found that students who perceived an emphasis on task goals in the classroom exhibited more positive attitudes toward learning and used more effective learning strategies than did students who perceived an emphasis on performance goals in the classroom.

An examination of the policies and practices in elementary and middle level classrooms suggests that middle school classrooms emphasize performance goals more, and task goals less than do elementary classrooms (see Midgley, 1993 for a review). In the cross-sectional study described above, middle school teachers and students perceived a stronger schoolwide emphasis on performance goals and a weaker emphasis on task goals than did elementary teachers and students (Midgley *et al.,* 1995).

EXPECTANCY BELIEFS

Expectancy beliefs have played a particularly important role in motivational theory. Expectancy beliefs have been conceptualized in different ways, including expectancies for success, self-efficacy, and self-perceptions of competence (see Pintrich & Schunk, 1996, for an overview of these perspectives). Recently an effort has been made to distinguish among these constructs, and to tailor assessment to the specific construct being measured (Pajares, 1996; Pajares & Miller, 1994; Pintrich & Schunk, 1996).

Studies emanating from goal theory also have used a variety of expectancy constructs. Laboratory studies of achievement goals typically have assessed students' perceptions of their ability to complete a given task successfully. For example, in a study by Elliott and Dweck (1988), children's beliefs about their current level of skill on an experimental task were manipulated via feedback. In field studies involving goal orientation, perceived ability is usually assessed within a subject domain, but not for a specific task. For example, Ames and Archer (1988) asked students: ''How would you rate your ability in this subject relative to other students in your class?'' Nicholls and his colleagues (e.g., Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990) assessed perceived ability by asking students to indicate their standing in mathematics relative to their peers by circling one of 18 schematic faces. These faces were in a vertical line with ''Does best in math'' beside the top one, and ''Does

worst in math'' beside the bottom one. Similar to Ames and Nicholls, a domain-specific, but not task-specific, expectancy construct is included in the present study. However, the construct does not assess self-concept of ability, but rather, students' perceptions of their competence to do their work in math and in English, even if it is difficult. We call this construct *perceived academic competence.*

Eccles and Midgley (1989) and Harter (1982) have suggested that students reevaluate their scholastic competence after a transition to a new grade or new school, in light of new social comparison groups and an increasing emphasis on relative ability at higher grade levels. In their study of the transition from elementary to junior high school, Eccles, Wigfield, and their colleagues assessed domain-specific, but not task-specific, perceived ability (Wigfield *et al.,* 1991). They asked students, ''How good at math (English) are you?'' and ''If you were to rank all the students in your class from the worst to the best in math (English), where would you put yourself?'' They found a significant decline after the transition in students' English self-concept of ability, but only a trend for math self-concept of ability. Boys' and girls' self-concepts of ability differed across the two subject domains, but the magnitude of the difference did not change after the transition.

Harter and her colleagues (Harter, Whitesell, & Kowalski, 1992) examined the effects of transitions on students' perceptions of their scholastic competence. They assessed students' perceptions of academic competence by using a forced-choice scale (Harter, 1982). The scale is specific to the academic domain, but not to a subject matter domain. An example item is, ''Some kids are pretty slow in finishing their school work, but other kids can do their school work quickly.'' Students first decide which of the two statements is like them, and then whether it is really true or sort of true for them. In a study of fifth and sixth graders that combined students who moved from one grade to another *within the same school,* and those who moved to *a new school,* they did not find a significant mean decline in perceived scholastic competence. They also found that perceived competence was only moderately stable across these changes, indicating that many students altered their perceptions of scholastic competence, with some showing increases and some showing decreases in their perceptions of competence.

YEAR-END GRADES

The relation between grades and motivation is widely recognized (Carnegie Council on Adolescent Development, 1989). However, few studies specifically have examined the relations between students' grades and motivational orientation. In one study, Wolters, Yu, and Pintrich (1996) found that during early adolescence, grades were very moderately related to performance goals ($r = .15$) at the beginning of the school year; at the end of the year, grades were very moderately related to task goals ($r = .14$) and performance goals

(r = .13). It is important to continue to examine changes in grades across the transition, especially as those changes differ based on subject domain, gender, or ability level.

There is mounting evidence that students receive lower grades after the transition to middle-level schools than before (Felner, Primavera, & Cauce, 1981; Kavrell & Petersen, 1984; Seidman, Allen, Aber, Mitchell, & Feinman, 1994; Simmons, Black, & Zhou, 1991; Yoon, 1996). Petersen and her colleagues (Kavrell & Petersen, 1984; Schulenberg, Asp, & Petersen, 1984) found that final course grades in five subject matter areas declined significantly for both boys and girls after the transition, despite the fact that there was no evidence of a parallel decrement in IQ, achievement test, or cognitive scores. Felner and his colleagues (1981) found that moving to a new elementary school in grades 1 through 8 did not have a significant impact on school performance; in contrast, the transition from elementary to high school was associated with a significant drop in grades in all the core subject areas.

DOMAIN DIFFERENCES

Studies suggest that students' self-beliefs and motivation vary by subject domain (e.g., Brush, 1980; Eccles, Midgley, & Adler, 1984; Stodolsky, Salk, & Glaessner, 1991). However, few transition studies have attended to differences in self-beliefs and motivation across subject matter areas. In a cross-sectional study, Eccles and her colleagues (Eccles *et al.*, 1984) found that self-concept of ability and interest in math were lower after the transition than before, but this was not true for English. In a longitudinal study conducted by Eccles and her colleagues (Wigfield *et al.*, 1991), self-concept of ability in English but not in math declined significantly after the transition. It should be pointed out that neither of these studies included perceptions of the learning environment in both math and English. There is still much to be learned not only about changes in students' motivational orientation in math and English, but also about changes in the perceived goal structures during math and English instruction after the transition.

SUBGROUP DIFFERENCES

It is also important to determine whether there are subgroups of children who change in differing ways across the transition. It cannot be assumed that the transition will affect all children similarly. Thus the present research examines the effects of gender and ability level on changes in motivational orientation and perceived classroom goal structures across the transition.

Gender

A number of studies suggest that males and females differ in their levels of motivation for various academic subjects (e.g., Boggiano & Barrett, 1991;

Eccles, 1984; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Licht & Dweck, 1984). Some research has indicated that boys have more positive attitudes and self-perceptions in math than do girls, whereas girls have more positive attitudes and self-perceptions in English than do boys (Eccles, Adler, & Meece, 1984; Marsh, 1989). Studies of achievement goal orientation provide some evidence that boys are more oriented to performance goals and less oriented to task goals than are girls (Roeser, Midgley, & Urdan, 1996; Ryan, Hicks, & Midgley, in press). When gender has been considered in studies of the transition, relatively few differences have emerged. In Simmons' longitudinal study (Simmons, Blyth, Van Cleave, & Bush, 1979), girls who moved from sixth grade in elementary school to seventh grade in junior high school suffered a decline in self-esteem, whereas boys did not. However, in a transition study conducted by Seidman and his colleagues (Seidman *et al.*, 1994), declines in self-esteem, class preparation, and grade-point average after the transition were similar for boys and girls. Harter and her colleagues (Harter *et al.*, 1992), looking at the effects on students of moving from grades 5 to 6 and 6 to 7 both within a school and across schools, found no gender effects. Wigfield and his colleagues (Wigfield *et al.*, 1991) found few gender differences in self-concept of ability and liking of math and English across the transition.

Ability Level

Previous research has shown that students' perceived and actual ability level are related to their motivation and engagement in academic activities (e.g., Eccles & Wigfield, 1985). Studies of achievement goals have found that an orientation to task goals is related to positive patterns of learning, regardless of how able students perceive themselves to be (Elliott & Dweck, 1988; M. Bandura & Dweck, 1985; Nicholls, 1984). However, an orientation to performance goals may be particularly detrimental to students with lower actual or perceived ability. Dweck (1986) points out that performance goals focus children on their ability level, and if their ability level is not high, they may be particularly likely to exhibit maladaptive patterns of motivation. However, Dweck (1986) also suggests that high ability children sometimes adopt maladaptive patterns of motivation; therefore, high ability may not universally predict adaptive patterns of achievement motivation.

Ability level also has played a role in students' reactions to the transition from elementary to middle level schools. Wigfield, Eccles and their colleagues (Wigfield *et al.*, 1991) found that the direction of change in self-concept of math ability across the transition depended on the students' math ability level. Contrary to what might be expected, the mathematics self-concept of the high ability adolescents declined across the transition to junior high school, whereas the math self-concept of lower ability students increased somewhat. Midgley and her colleagues (1989a, 1989b) found that lower achieving students were

affected much more dramatically than higher achieving students by both positive and negative changes in the learning environment across the transition. Anderman (in press) found that the math and science achievement gaps between learning-disabled and nonlearning-disabled early adolescents varied according to school type. While there often is a large math/science achievement gap in traditional grade 6–8 and 7–9 middle schools, there achievement gap is greatly diminished when students do not make a major school transition during early adolescence.

PERCEIVED ACADEMIC COMPETENCE

The present study includes domain specific measures of students' perceived academic competence. A measure of students' perceived academic competence was included in this study because expectancy constructs are important educational outcomes that are related to motivational orientation and academic achievement (e.g., Allen, Leadbeater, & Aber, 1994; Bandura, 1982, 1993; Midgley *et al.,* 1995; Schunk, 1985; 1989). In addition, a number of studies indicate that expectancy constructs are related to students' goal orientations, and that expectancies change as students move from elementary to middle grades schools. For example, Wigfield, Eccles, and their colleagues (Wigfield *et al.,* 1991) found that students' self-concepts of ability for mathematics, English, and social activities declined immediately after the transition to middle school; however, later in the seventh grade year (after the initial transition), perceptions of self-concept of ability for social activities began to increase. Harter and her colleagues (Harter *et al.,* 1992) found that changes in perceived academic competence over the middle school transition were related to changes in motivation, affect, and anxiety. In a study comparing gifted and regular students in grades 5, 8, and 11, Zimmerman and Martinez-Pons (1990) reported an increase in self-efficacy with grade level. Midgley and her colleagues (Midgley *et al.,* 1995) found that being oriented to task goals was related to higher levels of academic efficacy in both upper elementary and middle school students. They also found that mean levels of efficacy were higher in middle school students than in elementary school students. This was a cross-sectional study and the measures were not specific to subject matter domains. It is possible that efficacy beliefs related differently to achievement goals before and after the transition, and may change in different ways in math and English across the transition. This will be the first longitudinal study to examine these questions.

To summarize, the present study builds on previous work in many important ways. First, it is based on longitudinal data collected from students in the last year of elementary school and the first year of middle school. Second, it considers the effects of subject domain. In contrast to most other studies examining changes across the transition, perceptions of the classroom learning environment (classroom goal structure) and indices of motivational orientation

(personal achievement goals) are assessed separately for math and English. Third, the effects of gender and ability level on changes in personal goal orientation, perceived academic competence, year end grades, and perceptions of the goal structure in math and English across the transition are assessed.

HYPOTHESES

The purpose of the present study is to examine changes in personal achievement goals, perceptions of the classroom goal structure, and perceived academic competence as students move from elementary to middle school. It is predicted that students will espouse task goals and perceive their classrooms as more task-focused before the transition than after, whereas students will espouse performance goals and perceive their classrooms as more performance-focused after the transition than before. In addition, it also is hypothesized that perceived academic competence, as well as year-end grades, will decline across the transition. It is predicted that these changes will be more severe for lower achieving students than for higher achieving students.

METHOD

Sample

The sample consisted of 341 students from a largely working class community near a major midwestern city. Data were collected when these students were in the fifth grade in elementary school and again the following year when they were in the sixth grade in middle school. Students were required to have written permission from their parents in order to participate in the study; 83% received permission. The fifth graders were from six elementary schools in the same school district; this represented all the elementary schools in the district. The students then moved to two middle schools in the same district; again, this represented all the middle schools in the district. One of the middle schools was participating in a collaborative program with the researchers to improve the nature of the learning environment. At the time the data were collected, the collaboration had consisted mainly of dialogue between a team of teachers from the middle school and the researchers. Very few changes had been implemented. Another study has been conducted using 3 years of data to compare changes over time in students in the two middle schools (Anderman, Maehr, & Midgley, 1996). From the original sample of 412 students, 71 of the students moved out of the district between the first and second year. The 16% attrition rate is not surprising, given that this is a working class community that was affected by the closing of several automobile plants. The sample was 57% male and 43% female. Eighty-two percent of the sample was white, and 15% was African American. The remaining 3% of the students were Native American, Indian, Asian, and ''other.'' Twenty-one percent of the students qualified for free or reduced-fee lunches.[1]

During the elementary school year, the students were in fifth grade self-contained classrooms except for two classes which included students from grades three, four, and five. Only the fifth

[1] Schools did not have complete data for all students on free/reduced fee lunch. We ran all multivariate analyses using this SES measure as a covariate for students with complete data. Since no significant effects were evident, and since data were missing for some subjects, we did not use SES in the final analyses.

grade students in these two classrooms were included in the current study. At one of the middle schools, students were taught English and math by different teachers. At the other middle school, some of the teachers taught more than one subject to the same students.

Measures

Students were given surveys containing items from the Patterns of Adaptive Learning Survey (PALS) (Midgley *et al.*, 1996) during the spring of their fifth grade year and again 1 year later, during the spring of their sixth grade year, after the transition to middle school. Five constructs were assessed: personal task and performance goal orientation, perceptions of the task and performance goal structure in the classroom, and perceived academic competence. Each construct was assessed separately for English and for mathematics, so that a total of 10 scales were included. All items were scored on a 5-point Likert-type scale, anchored with 1 = not at all true of me, and 5 = very true of me.

On the basis of principal components analysis with VARIMAX rotation, scales were constructed, using the mean value of the items on the scale. Similar but separate factor analyses were run for the items in mathematics and English. Table 1 includes a list of the scales with items and alpha coefficients. Alphas range from .65 to .83. The table includes the items as they were written for math. Similar items were used for English, substituting the word ''English'' for the word ''math.'' The scales used to assess personal task and performance goals are somewhat different from scales used by other researchers. Frequently items assessing personal goals have been phrased in terms of feeling successful or feeling really pleased. Some examples from other studies include, ''I feel really pleased when I solve a problem by working hard,'' (Nicholls *et al.*, 1990), ''I feel most successful when I do the work better than other students'' (Nolen, 1988), and ''I feel most successful if I get a new idea about how things work'' (Nolen & Haladyna, 1990). We have talked to many early adolescents who tell us they rarely feel successful or pleased when they are engaged in academic work. Our scales assess a broader orientation to task and performance goals in a way that is somewhat similar to the work of Meece and her colleagues (Meece, Blumenfeld, & Hoyle, 1988). Their items include ''I wanted to find out something new,'' and ''I wanted others to think I was smart.'' In addition, several of these researchers combine items measuring the importance of doing better than others with items measuring the desire to gain social approval from others (''ego-social'' goals). In such cases, an item like ''It was important to me that the teacher thought I did a good job'' is in the same scale with ''I wanted others to think I was smart.'' In the present study, the items assessing performance goals ask specifically about wanting to appear more able than others.

Our scales measuring the perceived goal structure in the classroom have emanated in particular from the work of Ames (e.g., 1990, 1992). She states that a task (''mastery'' is her term) goal structure ''is not dependent on a singular set of strategies or a particular instructional method, instead it involves a constellation of strategies that are conceptually related to a common achievement goal'' (Ames, 1990, p. 17). She uses the acronym TARGET, first articulated by Epstein (1988), to represent the dimensions of the classroom that can be conceptualized as emphasizing task or performance goals. These dimensions are Task, Authority, Recognition, Grouping, Evaluation, and Time. The items in our scales reflect this broad orientation to task and performance goals in the classroom.

The measure of perceived academic competence used in the present study assessed whether students thought they could do the work in their math and English classrooms, even if it was hard. The items do not assess task-specific efficacy beliefs (e.g., Pajares & Miller, 1994). Although the items are not task-specific, they are domain specific and situated. That is, the items refer specifically to students' perceptions of their competence to do the work in their current math and English classrooms.

High and low ability groups were formed based on Cognitive Test of Basic Skills (CTBS) scores. Math ability groups were formed using the students' percentile rank on the mathematics

TABLE 1
SCALES, ITEMS, AND ALPHA COEFFICIENTS

Scale	Items	Math α	English α
Personal task goals	I like math work that I'll learn from, even if I make a lot of mistakes.[a]	.71, .75	.73, .80
	Understanding the work in math is more important to me than the grade I get.		
	The main reason I do my work in math is because I like to learn.		
	I like math work that is really challenging.		
Personal performance goals	I would feel successful in math if I did better than other students.	.65, .71	.77, .82
	I would feel really good if I were the only one who could answer the teacher's questions in math.		
	I'd like to show my teacher that I'm smarter than other kids in math.		
Classroom task goals	Our teacher tries to find out what students want to learn about in math.	.67, .75	.75, .79
	Our teacher helps us to see how what we learn in math relates to the real world.		
	Our teacher thinks mistakes are O.K. in math as long as we are learning.		
	Our teacher uses lots of other interesting materials to teach math, not just our textbook.		
	Our teacher makes sure that everyone gets to participate in math class.		
	Our teacher encourages students to find different ways to solve problems in math class.[b]		

portion of the CTBS, and English ability groups were formed using the percentile scores from the language arts section of the CTBS. The higher ability group consisted of students who scored in the top half of the distribution of CTBS scores, whereas the lower ability group consisted of the students who scored in the lower half of CTBS scores based on percentile ranks. CTBS scores rather than end of year grades were used to form these groups, since we wanted to use a somewhat objective measure of achievement as an independent variable. We were particularly interested in seeing how students who were higher and lower in ability fared across the transition. Ability was treated as a blocked independent variable in the analyses (rather than as a covariate) so that we could specifically examine the interactions of ability with other factors. We chose to block this variable into two groups (low and high ability) rather than into three groups due to the number of cells in the subsequent repeated-measures multivariate analysis of variance (MANOVA) analyses. We felt that this was the most appropriate blocking strategy, in order to simplify the interpretation of the complex interactions involved.

All of these scales have been developed and refined over time with different samples of students, and have demonstrated construct validity in a variety of studies by relating in

TABLE 1—*Continued*

Scale	Items	Math α	English α
Classroom performance goals	Our teacher makes it obvious which students are not doing well in math.	.67, .70	.73, .82
	Our teacher thinks it's more important to get the right answers in math than to know why they're right.[c]		
	Our teacher gets upset when we make mistakes in math.		
	Our teacher calls on smart students more than other students in math.		
	Our teacher goes on to new topics in math even if we don't understand what we are learning now.		
Perceived academic competence	Some of the work we do in math is too hard for me. (R)	.66, .65	.66, .83
	Even if the work in math is hard, I can learn it.		
	If I have enough time, I can do even the hardest problems in math.		
	No matter how hard I try, there is some math classwork I'll never understand. (R)		

Note. R = reversed item; the first alpha in each cell represents the reliability of the measure administered prior to the transition, and the second alpha represents the reliability after the transition.

[a] Items are worded for math; similar items were used for English, substituting the word ''English'' for ''math''

[b] For English, this item is worded, ''Our teacher encourages students to express their own ideas during English, even if the ideas are different from those of the teacher.''

[c] For English, this item is worded, ''In English, it's more important to get the right answers than to know why they're right.''

expected ways to other variables (e.g., Anderman & Young, 1994; Maehr & Midgley, 1996; Midgley *et al.*, 1995; Roeser, Midgley, & Urdan, 1996). In addition, these scales recently have been used to examine achievement goals regarding current events knowledge in a sample of over 5000 adolescents (Johnston, Brzezinski, & Anderman, 1994). Finally, the scales have demonstrated cross-cultural validity in studies done in the People's Republic of China (Maehr & Shi, 1995).

Surveys were read out loud to students in their classrooms. Students were given instructions and sample items to be sure that they understood how to use the scales. Students were assured that their answers would be confidential and that their names would be replaced by ID numbers. Research assistants were available to answer students' questions; however, students did not seem to have a problem with the items or the scaling, and few questions were raised. Information also was collected from school records at the end of each school year including students' grades and scores on the CTBS.

RESULTS

Relationships among Variables

Separate zero-order correlations for the fifth and sixth grade scales are presented in Table 2. Personal achievement goals in the two domains (math and English) were highly correlated before and after the transition. That is, a personal task goal orientation in math was highly correlated with a personal task goal orientation in English ($r = .70$ pre-transition; $r = .69$ post-transition), and a personal performance goal orientation in math was highly correlated with a personal performance goal orientation in English ($r = .76$ pre-transition; $r = .79$ post-transition). Personal task and performance goals were essentially uncorrelated within each subject domain—for example, $r = .02$ for English task and performance goals before the transition. Unlike the personal goals, the perceived classroom task and performance goal structures were negatively related both before and after the transition and in both math and English. For example, $r = -.34$ for the perceived classroom task and performance goal structures in math before the transition.

Cross-Year Correlations

In addition, the pre- and post-transition correlations between scores on the same measures were examined to assess stability over time (see Table 3). A significant pre–post correlation is an indicator of stability, whereas the lack of a significant relationship between pre- and post-transition measures is an indicator of lack of stability. On most of the constructs there was moderate stability over time, as one would expect. However, there was a striking lack of stability in perceived academic competence before and after the transition for all groups. In addition, there was a lack of stability in year-end grades for girls. This is in contrast to considerable stability in CTBS scores for girls. For girls, the cross-year correlations in math were $r = .14$ for year-end grades, and $r = .77$ for CTBS scores.

Multivariate Analyses

To examine change over time, repeated-measures MANOVA was used. Dependent variables included personal task goal orientation, personal performance goal orientation, perceived classroom task goal structure, perceived classroom performance goal structure, perceived academic competence, and year-end grades. Between-subject factors included gender, ability level, as well as their interactions. Within subject factors for the repeated-measures MANOVA included domain (math, English) and year (fifth grade elementary school, sixth grade middle school) and their interactions. Means and standard deviations for the sample as a whole are included in Table 4.

Table 5 contains the MANOVA results examining the effects of gender, ability level, year in school, and subject domain on personal and perceived

TABLE 2
ZERO-ORDER CORRELATIONS FOR FIFTH AND SIXTH GRADE CONSTRUCTS

Variable	Mean, *SD* − 5	Mean, *SD* − 6	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. English task	3.40 (1.01)	3.21 (1.05)	—	.69*	−.12	−.07	.57*	.41*	−.42*	−.24*	.19*	.21*	.09	.06
2. Math task	3.51 (0.98)	3.27 (0.99)	.70*	—	−.14*	−.05	.41*	.40*	−.30*	−.25*	.18*	.15*	.05	.14*
3. English performance	2.41 (1.09)	2.50 (1.18)	.02	−.00	—	.79*	−.11	−.09	.36*	.33*	.21*	.13	−.14	−.08
4. Math performance	2.69 (1.12)	2.66 (1.08)	−.06	−.05	.76*	—	−.04	−.04	.24*	.28*	.25*	.19*	−.09	−.07
5. English class task	3.48 (0.87)	3.43 (0.92)	.51*	.41*	−.01	−.03	—	.46*	−.63*	−.29*	.20*	.16*	.11	.07
6. Math class task	3.59 (0.80)	3.20 (0.91)	.53*	.48*	.02	−.00	.71*	—	−.28*	−.40*	.23*	.16*	−.13	−.01
7. English class performance	2.01 (0.90)	2.20 (1.02)	−.22*	−.24*	.32*	.25*	−.36*	−.34*	—	.54*	.08	.02	−.24*	−.23*
8. Math class performance	2.05 (0.87)	2.22 (0.89)	−.24*	−.30*	.31*	.27*	−.31*	−.34*	.78*	—	.10	.05	−.18*	−.24*
9. Perceived English competence	3.81 (0.87)	3.14 (0.61)	.41*	.32*	−.07	−.08	.19*	.28*	−.38*	−.36*	—	.42*	−.14	−.13
10. Perceived math competence	3.69 (0.90)	3.18 (0.60)	.28*	.43*	−.06	−.12	.15*	.23*	−.37*	−.43*	.62*	—	−.05	−.22*
11. English grades	8.42 (3.21)	8.89 (2.89)	−.07	−.01	−.02	.03	.01	.00	−.16*	−.13	.10	.08	—	.62*
12. Math grades	7.98 (3.27)	8.00 (2.83)	−.00	.10	−.08	−.01	.04	.09	−.25*	−.26*	.12	.19*	.80*	—

Note. Correlations for fifth grade are below the diagonal, and correlations for sixth grade are above diagonal.
* $p < .01$.

TABLE 3
STABILITY COEFFICIENTS BY ABILITY AND GENDER

Variable	Lo ability	Hi ability	Female	Male
English task goals	.35**	.47**	.42**	.40**
Math task goals	.36**	.46**	.44**	.40**
English performance goals	.28**	.39**	.40**	.29**
Math performance goals	.36**	.32**	.35**	.30**
English classroom task goals	.21*	.31**	.25*	.28*
Math classroom task goals	.21**	.24**	.27**	.19**
English classroom performance goals	.18**	.31**	.25*	.28**
Math classroom performance goals	.23*	.28**	.36**	.20**
English perceived academic competence	.15	−.01	.07	.08
Math perceived academic competence	.03	−.14	.03	−.13
English end of year grades	.24**	.33**	.19	.45**
Math end of year grades	.29**	.21*	.14	.44**
English CTBS scores	.58**	.55**	.78**	.80**
Math CTBS scores	.51**	.64**	.77**	.81**

** $p < .001$, *$p < .01$.

classroom goal orientations, perceived academic competence, and year-end grades. Main effects and interactions are presented separately for each variable. F statistics are presented for all main effects, but only for significant interactions. Because of the relatively large N, the p value was set at $p < .01$. Figures are presented for all significant three-way interactions. Results of appropriate paired and independent sample t tests are analyzed for each of the significant interactions.

Personal task goals. There was a significant effect of year (fifth vs sixth grade): Students reported espousing personal task goals more before the transition than after the transition, $F(1,309) = 19.39$, $p < .001$. There also was a significant gender × domain interaction, $F(1,309) = 10.83$, $p < .01$—females reported being more task-focused than males in English [$t(323) = -2.87$, $p < .01$], but not in math.

Personal performance goals. There were significant main effects for gender [$F(1,309) = 10.84$, $p < .001$] and domain [$F(1,309) = 41.31$, $p < .001$] for personal performance goals. Males reported higher mean levels of personal performance goals than did females, and overall students reported higher performance goals in math than in English.

Classroom task goal perceptions. A main effect was found for year [$F(1,309) = 22.51$, $p < .001$]. Students perceived that their sixth grade classrooms emphasized task goals less than did their classrooms the year before. There were significant interactions for domain × year [$F(1,309) = 21.78$, $p < .001$] and domain × year × ability [$F(1,309) = 8.75$, $p < .01$]. Students

TABLE 4
MEANS AND STANDARD DEVIATIONS BY GENDER AND ABILITY

	Gender		Ability	
Variable	Male	Female	Lo ability	Hi ability
5th English task goals	3.32	3.56	3.48	3.37
	(1.02)	(.95)	(0.98)	(1.01)
6th English task goals	3.06	3.38	3.15	3.23
	(1.05)	(1.04)	(1.09)	(1.06)
5th math task goals	3.48	3.60	3.49	3.59
	(1.00)	(.96)	(0.98)	(0.99)
6th math task goals	3.23	3.30	3.24	3.30
	(1.00)	(.98)	(1.00)	(0.99)
5th English performance	2.49	2.30	2.33	2.46
	(1.03)	(1.07)	(1.10)	(1.02)
6th English performance	2.71	2.30	2.56	2.49
	(1.13)	(1.07)	(1.18)	(1.18)
5th math performance	2.76	2.53	2.56	2.75
	(1.11)	(1.08)	(1.15)	(1.05)
6th math performance	2.85	2.46	2.70	2.64
	(1.06)	(1.05)	(1.10)	(1.05)
5th English class task	3.43	3.56	3.55	3.43
	(.87)	(.81)	(0.86)	(0.85)
6th English class task	3.35	3.52	3.42	3.42
	(.98)	(.88)	(0.96)	(0.91)
5th math class task	3.55	3.64	3.57	3.60
	(.82)	(.71)	(0.84)	(0.72)
6th math class task	3.21	3.16	3.34	3.06
	(.92)	(.89)	(0.90)	(0.89)
5th English class performance	2.11	1.89	2.17	1.85
	(.89)	(.87)	(0.97)	(0.80)
6th English class performance	2.39	1.98	2.35	2.08
	(1.06)	(.95)	(1.09)	(0.93)
5th math class performance	2.16	1.89	2.19	1.88
	(.86)	(.84)	(0.98)	(0.69)
6th math class performance	2.30	2.14	2.39	2.10
	(.88)	(.94)	(0.97)	(0.84)

perceived their math classes as more task focused than their English classes during grade 5 [$t(324) = -2.75$, $p < .01$], but then reported their English classes as being more task focused than their math classes in grade 6 [$t(322) = -4.36$, $p < .001$]. There was a significant decline in perceptions of mathematics classrooms being task focused between grades 5 and 6, $t(323) = -6.75$, $p < .001$ (there was no significant mean change in perceiving English classes as being task focused across the transition). However, this decline was not consistent across ability levels and domains. Perceptions of classrooms as

TABLE 4—*Continued*

Variable	Gender		Ability	
	Male	Female	Lo ability	Hi ability
5th English perceived competence	3.79	3.90	3.56	4.12
	(.85)	(.80)	(0.86)	(0.74)
6th English perceived competence	3.14	3.13	3.16	3.12
	(.65)	(.55)	(0.66)	(0.55)
5th math perceived competence	3.80	3.66	3.42	4.03
	(.93)	(.88)	(0.92)	(0.79)
6th math perceived competence	3.18	3.19	3.21	3.16
	(.57)	(.60)	(0.60)	(0.57)
5th English grades	8.52	9.02	7.77	9.62
	(2.82)	(3.38)	(2.82)	(3.03)
6th English grades	8.17	9.77	7.55	10.20
	(3.12)	(2.40)	(2.89)	(2.24)
5th math grades	8.21	8.35	7.34	9.11
	(2.94)	(3.44)	(2.78)	(3.16)
6th math Grades	7.63	8.59	6.83	9.13
	(2.83)	(2.71)	(2.71)	(2.39)
English CTBS grade equivalent	6.05	6.93	4.44	8.22
	(2.65)	(2.43)	(1.48)	(2.01)
Math CTBS grade equivalent	6.22	6.15	4.82	7.40
	(2.09)	(1.62)	(0.94)	(1.69)

Note. CTBS scores represent the mean percentile score; grades are scored on a scale of 1 thru 13, where 13 represents the highest possible grade in English or math. Standard deviations are in parentheses.

being task focused declined for high ability students in math [$t(166) = 7.03$, $p < .001$] as well as for low ability students in math [$t(146) = 2.62$, $p < .01$]. There were no significant declines in perceptions of classrooms as being task focused for either high or low ability students in English. Low ability students reported perceiving their mathematics classrooms as more task focused in grade 6 than did high ability students [$t(312) = 2.71$, $p < .01$]. In addition, while there was a decline in perceptions of math classes as being task focused for both high and low ability students, the decline was greater for the hi ability students than for the low ability students [$F(1,312) = 6.75$, $p < .01$]. The domain $\times$ year $\times$ ability interaction is displayed in Fig. 1.

Classroom performance goal perceptions. There were main effects for gender, ability, and year. Males reported their classrooms as being more performance oriented than did females [$F(1,309) = 9.72$, $p < .01$]. Low ability students reported their classrooms as being more performance oriented than did high ability students [$F(1,309) = 14.74$, $p < .001$]. Students reported their sixth grade (middle school) classrooms as being more performance-focused than their elementary school classrooms [$F(1,309) = 15.29$, $p < .001$].

TABLE 5
EFFECTS OF GENDER, ABILITY LEVEL, YEAR IN SCHOOL, AND DOMAIN (MATH OR ENGLISH) ON MOTIVATIONAL VARIABLES AND END OF YEAR GRADES

	Personal task goals	Personal performance goals	Classroom task goals	Classroom performance goals	Perceived academic competence	End of year grades
Degrees of freedom	1,309	1,309	1,309	1,309	1,309	1,309
Between subjects						
Gender	3.71	10.84**	1.66	9.72*	0.65	7.10*
Ability	0.04	0.54	1.52	14.74**	28.04**	58.22**
Within subjects: Domain						
Domain	5.50	41.31**	4.80	1.22	2.35	50.09**
Domain × Gender	10.83*	—	—	—	—	6.99*
Domain × Gender × Ability	—	—	—	—	—	8.99**
Within subjects: Year						
Year	19.39**	0.80	22.51**	15.29**	145.36**	0.07
Year × Ability	—	—	—	—	41.52**	8.49*
Year × Gender	—	—	—	—	—	—
Year × Ability × Gender	—	—	—	—	—	7.25**
Within subjects: Domain and year						
Domain × Year	—	—	21.78**	—	10.21*	7.22*
Domain × Year × Gender	—	—	—	—	6.89*	—
Domain × Year × Ability	—	—	8.75*	—	—	—

** $p < .001$, * $p < .01$.

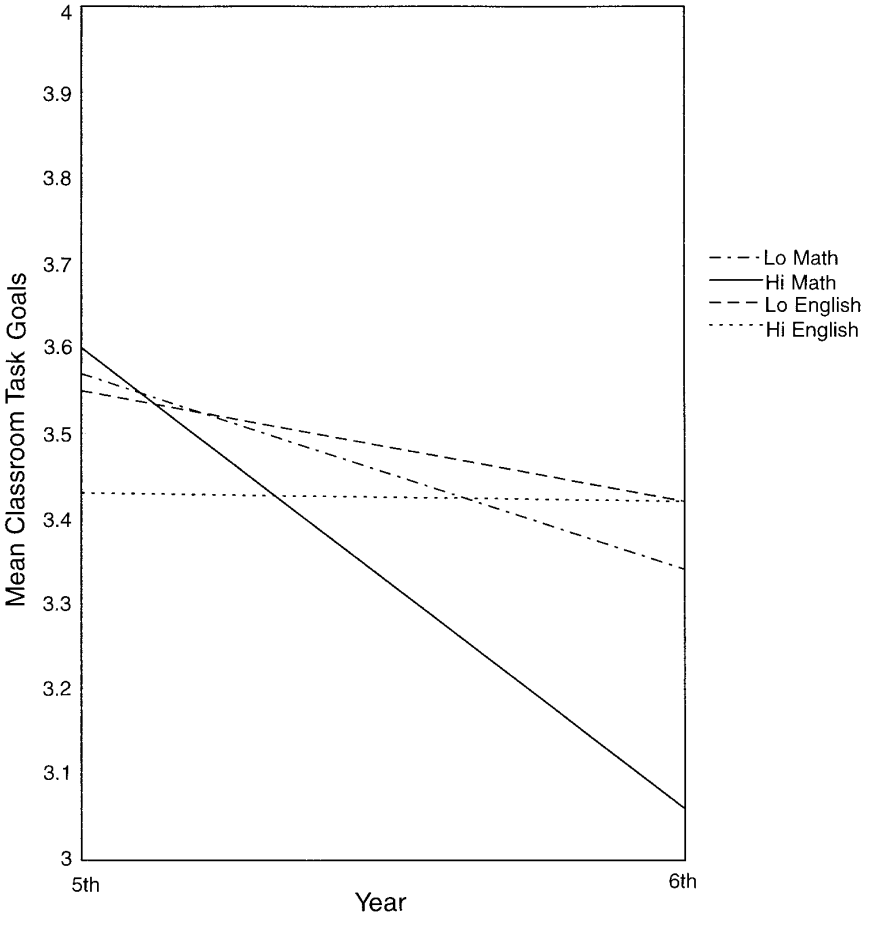

FIG. 1. Interaction of domain × year × ability for classroom task goal perceptions.

Perceived academic competence. For perceived academic competence, main effects emerged for ability [$F(1,309) = 28.04$, $p < .001$] and for year [$F(1,309) = 145.36$, $p < .001$]. High ability students reported feeling more competent than did low ability students. There was a general decline in perceived academic competence between grades 5 and 6. The interaction between year and ability [$F(1,309) = 41.52$, $p < .001$] indicated that high ability students reported feeling more academically competent than did low ability students before the transition [$t(313 = -7.101$, $p < .001$]; there was no difference between high and low ability students after the transition [$t(312) = 0.81$]. This interaction is displayed in Fig. 2.

There also were significant interactions of domain × year [$F(1,309) = 10.21$,

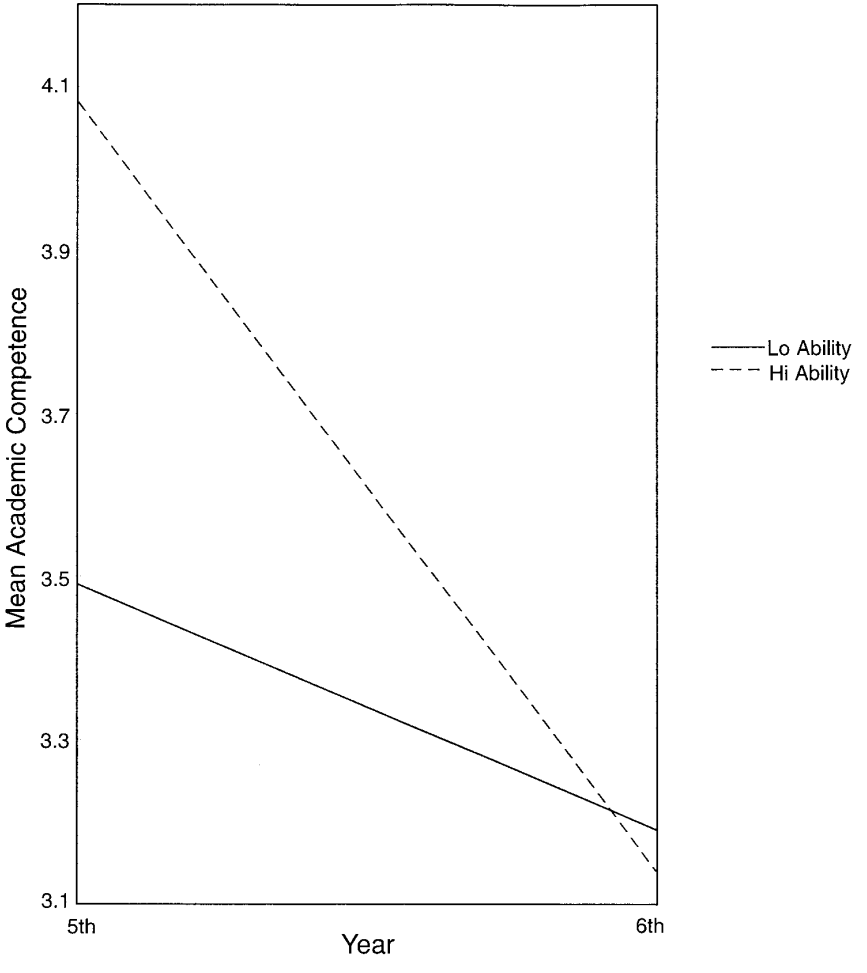

FIG. 2. Interaction of year × ability for perceived academic competence.

$p < .01$] and domain × year × gender [$F(1,309) = 6.89$, $p < .01$]. The interaction of domain × year × gender is displayed in Fig. 3. Students reported feeling more competent in English than in math before the transition [$t(324) = -2.37$, $p < .05$]; however, there was no significant domain difference after the transition. Students reported feeling more academically competent in English [$t(322) = 12.58$, $p < .001$] and in math [$t(323) = 8.95$, $p < .001$] during fifth grade in elementary school than in middle school. Female students reported feeling more academically competent in English than in math prior to the transition, while males showed no such difference [$t(139) = -4.29$, $p < .001$].

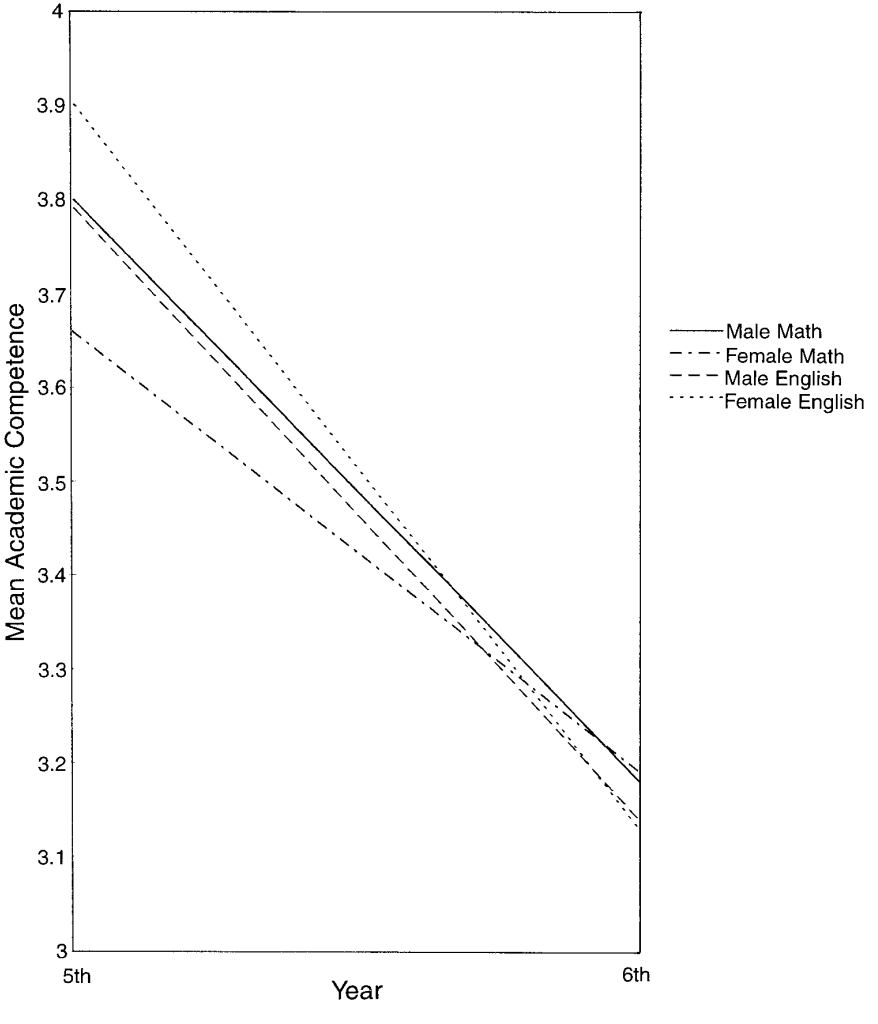

FIG. 3. Interaction of domain × year × gender for perceived academic competence.

End of year grades. There were main effects of gender, ability, and domain for end of year grades. Year-end grades were higher for females than for males [$F(1,309) = 7.10$, $p < .01$], and higher for students with high CTBS scores than for students with low CTBS scores [$F(1,309) = 58.22$, $p < .001$]. End of year grades were higher in English than in math [$F(1,309) = 50.09$, $p < .001$]. There were significant interactions of gender × domain [$F(1,309) = 6.99$, $p < .01$] and gender × domain × ability [$F(1,309) = 8.99$, $p < .001$] (see Fig. 4). To examine the three-way interaction of gender × domain

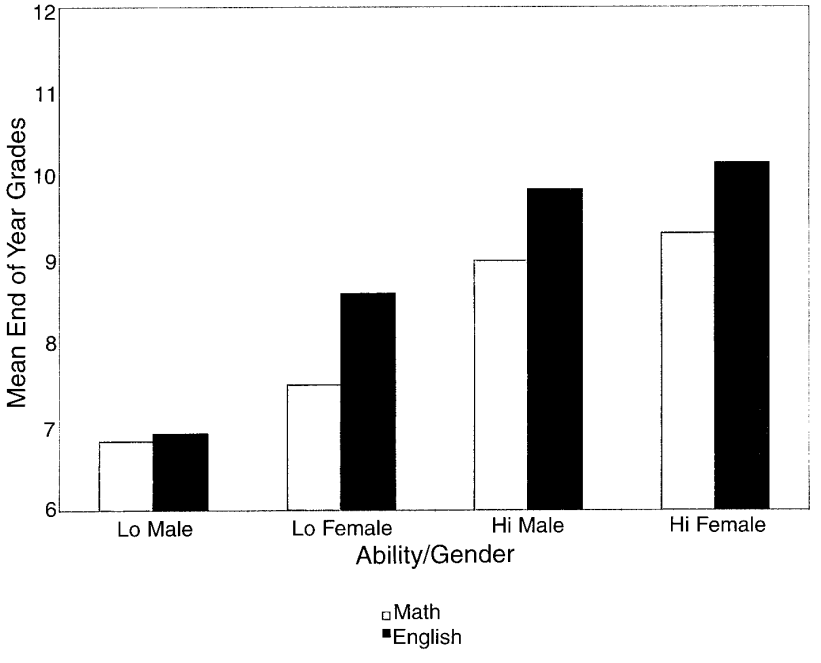

FIG. 4. Interaction of domain × gender × ability for year end grades.

× ability, separate independent sample *t* tests were run for low and high ability students' year-end grades in English and math. Results indicated that for high ability students, there were no significant gender differences in either English, $t(164) = -0.92$, or math, $t(165) = -0.99$. For low ability students, there was no gender differences in math, $t(145) = -1.81$. However, low ability females received higher grades than did low ability males in English, $t(145) = -4.39$, $p < .001$. In addition, results of paired-sample *t* tests indicated that year-end grades were higher in English than in math for low ability females, $t(77) = -5.44$, $p < .001$; high ability females, $t(86) = -5.31$, $p < .001$; and high ability males, $t(94) = -4.67$, $p < .001$. There was no difference between year-end English and math grades for low ability males.

There also were significant interactions of year × ability [$F(1,309) = 8.49$, $p < .01$] and year × ability × gender [$F(1,309) = 7.25$, $p < .01$] (see Fig. 5). An examination of the year × ability × gender interaction indicated that there was no significant gender difference between high ability males and females prior to the transition [$t(162) = 1.25$], although females received higher grades than did males after the transition [$t(165) = -3.88$, $p < .001$]. For the low ability students, females received higher year-end grades than did males both before the transition [$t(144) = -3.14$, $p < .01$] and after the transition [$t(143) = -2.44$, $p < .05$].

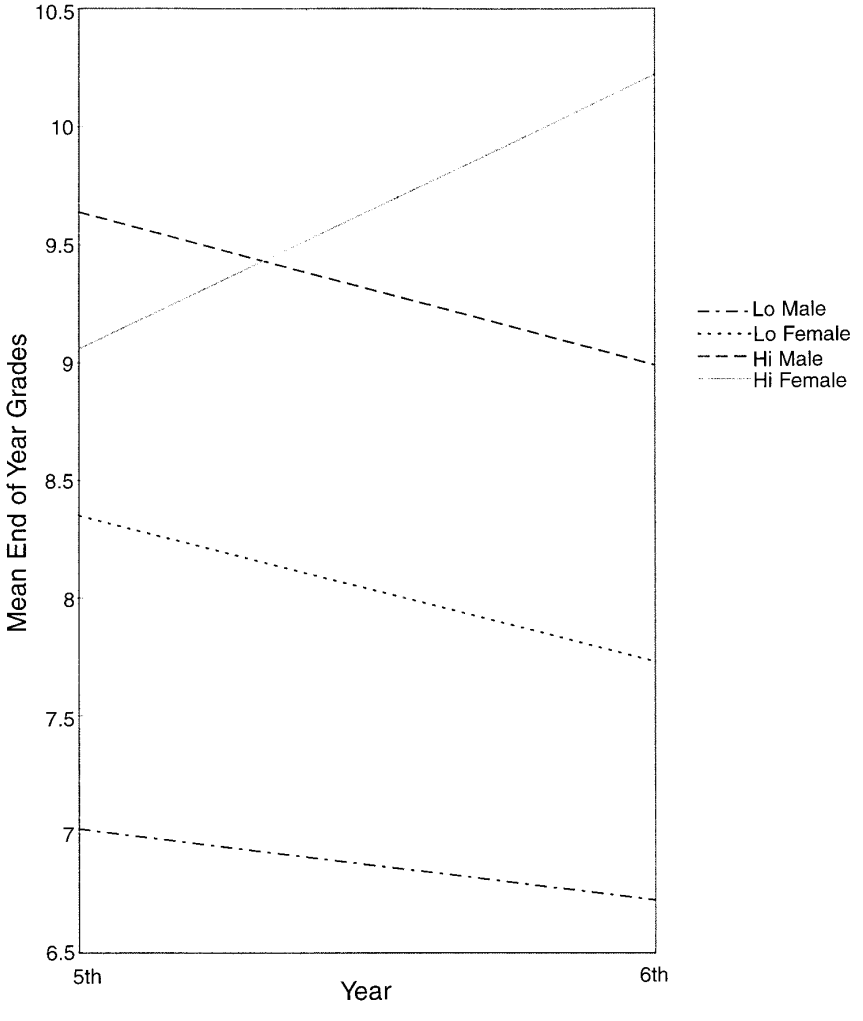

FIG. 5. Interaction of year × ability × gender for year end grades.

There was a significant increase in year-end grades over the transition for high ability females [$t(76) = -2.17$, $p < .05$], and there were significant declines in year end grades for low ability females [$t(58) = 2.20$, $p < .05$] and for high ability males [$t(86) = 2.62$, $p < .01$].

There also was a significant year × domain interaction, [$F(1,309) = 7.22$, $p < .01$]. English year-end grades were higher than math grades both before [$t(317) = -4.19$, $p < .001$] and after the transition [$t(276) = -5.53$, $p < .001$], although the difference was greater in the sixth grade than in the fifth grade.

DISCUSSION

The present study utilized goal orientation theory to add to the understanding of the effect of the transition to middle school on early adolescent development. This study adds to the small but growing body of research that indicates that for many children, the nature of the learning environment changes in a negative way during early adolescence (e.g., Eccles *et al.,* 1993; Harter *et al.,* 1992; Seidman *et al.,* 1994). The sample of working class early adolescents in this study perceived that their classrooms stressed relative ability more and mastery and improvement less, after they moved to middle school. In addition, these students reported endorsing personal task goals less after the transition than they did before the transition. At the same time, there was a dramatic decline in perceived academic competence after students moved to the middle school environment. It is important that researchers and school practitioners concerned with adolescent development attend to the contexts in which these young people learn and grow. In particular, we must be aware that these contexts may change just as young adolescents also are changing.

The decline in perceived academic competence in English and math after students move to middle school is a concern. Results of the present study suggest that high ability students appear to be particularly vulnerable to declines in perceptions of academic competence across the transition. The strong decline in perceptions of competence for high ability students may be due to a number of changes that occur after entry into middle school, including new types of academic tasks, changes in evaluation and grouping procedures, and changes in peer group relations (see Eccles & Midgley, 1989, and Eccles *et al.,* 1993, for reviews). Research suggests that positive self-perceptions of competence are important for all students, but during early adolescence, these perceptions may be particularly important for high ability students. In a large-scale study of seventh graders, Ehrlich, Kurtz-Costes, and Loridant (1993) found that for poor readers, the best predictor of reading comprehension was word recognition, whereas for high ability students, the best predictor of reading comprehension was perceived competence in reading.

Positive perceptions of competence have been associated with positive outcomes in a range of studies in various settings (e.g., Harter, 1982; Schunk, 1989; Wigfield *et al.,* 1991). The related construct of efficacy beliefs has been found to be an important mediator of developmental outcomes in adolescents (Allen *et al.,* 1994). It is tempting to say that the academic work is harder in middle school than in elementary school, and this drop in perceptions of competence is predictable. However, there is little evidence to support that, and indeed some evidence that the academic work given to students in middle school is less challenging and demanding than work given in elementary school (see Eccles & Midgley, 1989, for a review). In addition, for all groups of students, there was a striking lack of stability in both math and

English perceived competence across the transition. These findings indicate that many students reorganize their perceptions of competence after the transition, with some showing increases and some showing decreases. These data were collected in the spring of the year, so this is not just a temporary reaction to a new environment. The name of the game, at least in terms of perceived competence, has changed in middle school. In contrast, Harter and her colleagues (Harter *et al.*, 1992) found that Time 1–Time 2 correlations for perceived scholastic competence were moderately stable for groups of students who moved from fifth to sixth grade and sixth to seventh grade, regardless of whether they moved up a grade within a school or to a new school.

Several transition studies (Kavrell & Petersen, 1984; Seidman *et al.*, 1994; Simmons & Blyth, 1987) have documented declines in end of year grades for students across the middle school transition. In the present study, there was no significant main effect for grades over time. However, the significant interaction of year by ability by gender indicated that grades decreased somewhat for low ability females and for high ability males. The only students whose grades increased over the transition were the high achieving female students. These complex relations among year, ability, and gender suggest that changes in academic performance over the transition vary according to several factors. The interplay among changes in academic tasks over the transition, concurrent psychological and pubertal development, and changes in peer relations during early adolescence may be somewhat detrimental to the academic performance of low ability females and high ability males, while high ability females do not experience negative changes in year-end grades. Thus results of the present study suggest that grades do not uniformly decrease over the transition for all students. Future studies need to examine changes in year end grades for other subgroups of students. Indeed, Roderick (1992) found that students whose grades decreased the most as they made the transition to high school tended to be those who later dropped out of school. It is possible that negative experiences during the transition from elementary to middle school are precursors to further decrements in academic performance at the high school level for certain groups of students.

The lack of stability in grades for females in both math and English also must be taken seriously and should be examined in other transition studies. That there was considerable stability in CTBS scores, but not in grades, leads one to wonder what is going on in the classroom or in the lives of female students. However, this lack of stability is clarified by the significant year $\times$ ability $\times$ gender interaction for year-end grades that was presented in Fig. 5—while year end grades decreased for most students, they increased for high achieving female students. Perhaps developmental changes associated with puberty, which would be quite common for girls during this period, are playing a role. In sixth grade girls may be grappling with issues of body image, friendship patterns, and relationships with adults, all of which may

positively or negatively relate to the work they do and grades they receive. It may be that higher achieving female students are better able to cope with the interplay between pubertal and academic changes than are lower achieving female students. Most boys would not be undergoing those changes until somewhat later.

Looking at the domain effects, it becomes apparent that there were not many differences between math and English in this study. Students were oriented to demonstrating their ability more in math than in English, and they received higher grades in English than in math. The notable decline in academic competence after the transition was somewhat stronger in English than in math. Female students in the present study reported feeling more academically competent in English than in math prior to the transition; however, after the transition, there was no domain difference in perceptions of competence for females. Why would there be a particularly strong decline in feelings of competence in English after the transition? Why do females feel more competent in English than in math prior to the transition, but not after the transition? Perhaps teachers can be more creative and flexible in elementary school, where they do not have the time constraints and the large numbers of students that characterize middle school classrooms. In addition, there were declines in perceptions of a task-focus in math classrooms over the transition. This change seems to be particularly strong for high ability students in mathematics. Why would student perceive their math classrooms as being less task focused after the transition than before?

Classroom observations might shed some light on why these changes occur. Feldlaufer, Midgley, and Eccles (1988) observed math classrooms in sixth grade in elementary school and a year later in seventh grade in junior high school. After the transition, students had fewer choices during math, and there was more whole class and less small group work. Being given choices and working in small groups have been described by Ames (1990) as components of a task-focused goal structure. Perhaps these changes are even more dramatic in English. As researchers continue to examine this period, they may want to include more domain specific classroom observations.

This study has a number of limitations. In some cases the size of the effects was small. In sixth grade in particular, these middle schools were less traditional than typical junior high schools. Many schools that call themselves ‘‘middle schools’’ do that based on the grade levels they include and do not engage in practices recommended for young adolescents (e.g., Epstein & Mac Iver, 1990). However these schools were trying to implement some practices at the sixth grade level that were more in line with the middle school philosophy. This study would be stronger if classroom observations also had been conducted. Do observers also perceive a greater emphasis on relative ability and competition among students after the transition, and a reduced emphasis on task mastery, improvement, and intellectual development? The present study assessed students

once per year; if the resources had been available, it certainly would have been more informative to assess both within year and between year changes, particularly since research suggests that motivational orientations may stabilize soon after the beginning of a new school year (Deci, Schwartz, Sheinman, & Ryan, 1981). It is also possible that the changes observed between grades 5 and 6 represented grade-related changes, as opposed to transition-related changes. In addition, this study was conducted in only one school district, and only 15% of the students were African American. We did not feel that this was a sufficient number of African American students to consider the role of ethnicity. We are just now beginning a transition study involving large samples of both African-American and white students in four economically diverse school districts. We will be very interested to see if these changes associated with the transition are similar for African-American and white students. Finally, the present study only examined changes in achievement-related constructs. A growing body of research in human motivation is concerned with the interplay between academic goals and social goals (Hicks, 1997; Urdan & Maehr, 1995; Wentzel, 1991). Future studies of the middle school transition which attend to social as well as academic goals may lead to new insights on the causal dynamics involved in changes in motivation over the transition.

Although it has been theorized that middle schools stress relative ability and competition among students more, and effort and improvement less than do elementary schools (e.g., Midgley, 1993), this is the first empirical evidence based on longitudinal data. Researchers now need to learn more about how those changes influence a variety of student outcomes. Researchers also need to follow these children over an extended period of time, not just across the transition to middle school. Meece, Miller, and Ferron (1995) stress the need to assess children's goal orientations across the elementary school years. In a study across grades 3, 4, and 5 in elementary school, they reported moderate stability in students' goal orientations across time. The stability coefficients for students' personal goals before and after the transition in our study were somewhat lower than in their study. They also found that as students progressed through school, they became less task-oriented (their term is *mastery-oriented*) and less performance-oriented (their term is *ego-involved*). In the present study students became less task-focused, but there was no mean change over time in their personal performance goals. There also is a need for studies examining changes in perceived goal structures and personal achievement goals as children move through middle school into the high school learning environment. Studies of the high school transition rarely have included perceptions of the learning environment, and we know of no longitudinal studies that have examined students' goal orientations during this important developmental period.

There is still much to be learned about the effects of the middle school transition on early adolescent development. An attempt has been made in the present study

to fill some of the gaps in this knowledge by examining both math and English, by attending to gender and ability level differences, and by using goal theory as the theoretical framework within which to interpret these changes. Goal orientation theory is a particularly promising framework to use in looking at changes in both the learning environment and in students' motivational orientations. This theoretical framework has been used as a basis for collaborating with middle school educators to bring about reform (Maehr & Midgley, 1996). The broad range of policies and practices at the middle school level can be examined, using goal orientation theory as a framework, and suggestions for change emerge quite naturally. Teachers are very adept at determining which policies and practices emphasize mastery and improvement and which emphasize relative ability and social comparison (Anderman & Maehr, 1994).

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