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Promoting Positive Achievement in the Middle School: A Look at Teachers' Motivational Knowledge, Beliefs, and Teaching Practices

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Abstract

This study was prompted by previous research showing a decline in motivation as students transition from elementary to middle school. The decline in motivation may be associated with changes in the achievement goal structures of their classrooms and schools. This study describes a survey of 69 elementary and 28 middle school teachers that explored their knowledge of approaches to motivation, specific achievement goal beliefs, behaviors, perceptions of school goal structures, and perceptions of specific student beliefs. These teachers were most familiar with behavioral and cognitive approaches to motivation. They generally reported mastery-oriented beliefs, behaviors, and school goal structures, although elementary teachers rated school goal structures as more mastery-oriented and less performance-oriented than did middle school teachers. Counter to student-reported goal orientations found in previous studies, teachers at both levels believed their students held performance goal orientations. Teachers can promote mastery-oriented classrooms and school goal structures at elementary and middle school levels.

Background

Most, if not all, educators believe that motivation has a significant influence on student learning. Motivation is a concern for many middle school teachers because student motivation declines in the transition from elementary to middle school (Eccles & Midgley, 1989). Some teachers believe that the decline in motivation is due to inevitable physiological and psychological changes associated with puberty as well as students' increased interest in socialization. Other teachers and researchers, however, provide evidence that changes in motivation are related to contextual factors in the students' immediate and general educational environment (Midgley & Urdan, 1992). Moreover, researchers (e.g., Eccles et al., 1993) have argued that the decline in motivation in middle school is not inevitable or uncontrollable and that the problem lies in the nature of the new learning environment. Eccles and colleagues described this problem as "a stage-environment mismatch" (p. 91).

It is no wonder that promoting a positive school environment is included in the essential elements of effective middle schools identified in *This We Believe: Successful Schools for Young Adolescents,* the position statement of the National Middle School Association (National Middle School Association [NSMA], 2003). A positive school environment was defined by NMSA as a setting that is warm and supportive, sensitive to the child's burgeoning sense of self and identity, and responsive to his or her needs for competence. A number of researchers (e.g., Callahan, Clark, & Kellough, 2002; Purkey, 1970) reported the many advantages a positive school climate has for students, including its influence on their motivation to learn and their academic achievement. Specifically, teachers' beliefs and classroom practices, including how they evaluate, reward, recognize, group, control, select and design learning tasks affect students' beliefs and achievement goals (Anderman, Maehr, & Midgley, 1999; Hunt, Wiseman, & Bowden, 2003). Students' achievement goal orientations may provide a link between classroom climate and student motivation.

Student Beliefs and Achievement Goals

The social-cognitive theory of achievement goal orientation is prominent in the motivation literature and has direct relevance to middle school students and their teachers (Anderman & Midgley, 1998). According to this theory, students have different reasons for engaging in academic activities, and their reasons fall within two main orientations: mastery learning or task goal orientation, and performance or ability goal orientation. A student with a mastery goal orientation engages in a task to develop competence and believes that personal improvement and progress in mastering skills, knowledge, and understanding are the primary purpose of engaging in the task. In contrast, a student with a performance or ability goal orientation engages in a task in order to demonstrate competence or avoid appearing incompetent (Barber & Olsen, 2004; Dweck, 1986).

Students' goal orientations affect their behaviors and are associated with either adaptive or maladaptive learning patterns. For example, a mastery-oriented student might achieve a high score on a test, yet seek feedback on how he or she can improve. A performance-oriented student who achieves a high test score has demonstrated his or her competence and is not interested in feedback for improvement. In addition, the two goal orientations influence students' beliefs about the role of mistakes, effort, and ability in learning. Students with mastery goals consider errors to be a natural part of learning. They believe that errors are an important step in developing personal competence (Maehr & Midgley, 1996; Meyer, Turner, & Spencer, 1997). For example, a student who makes a mistake on a math assignment might perceive his or her error as an opportunity to improve and seek information about the reason for the mistake. A mastery orientation allows students to make mistakes without equating error with failure. Students with performance goals view errors as a sign of incompetence or failure (Maehr & Midgley). They perceive the classroom as a competitive environment in which students must be the best to be successful (Ames, 1992) and mistakes must be avoided. A performance-oriented student who obtains a lower score than her peers on a math assignment believes that her mistakes are an indicator of incompetence. The belief that error is an indication of failure may lead to decreased motivation (Kaplan, Gheen, & Midgley, 2002).

Student beliefs about the relationships among effort, ability, and learning affect their learning goals (Ames, 1992; Ames & Archer, 1988). Students with mastery goals believe that ability is malleable and can be increased with effort (Dweck & Leggett, 1988). Students who adopt mastery goals believe that the more conscious and strategic effort they invest in a task, the greater their improvement in ability. Thus, a mastery-oriented student is likely to invest more effort in academic tasks. Students with performance goals, on the other hand, believe that ability is fixed and relatively constant (Dweck & Leggett). Students who adopt performance goals associate achievement outcomes with ability. Thus, a performance-oriented student is unlikely to put forth more effort to complete a difficult academic task, believing that the task outcome is dependent on his or her ability, and ability cannot be changed.

In summary, students' achievement goal orientations affect their academic task behaviors. Compared to students with performance goal orientation, those with a mastery orientation are likely to be more persistent even on difficult tasks, use more effective learning strategies, and have higher academic self-efficacy. They have a greater tendency to engage in challenging tasks and to exhibit more positive feelings about school and themselves as learners.

Achievement Goal Orientation and the Transition to Middle School

Research has demonstrated that student motivation declines for many children as they make the transition from elementary school into middle school (Anderman, Maehr, & Midgley, 1999; Midgley & Urdan, 1992). The decline in motivation is observed at the same time that middle school students' achievement goal orientations appear to change. Students' mastery orientations decline and their performance orientations increase at the same time as they transition from elementary to middle school (Anderman & Midgley, 1996).

Differences between elementary and middle school teachers' goal orientations and associated practices correspond to those of their students. Elementary teachers are more likely than middle school teachers to stress a mastery orientation and to use mastery-oriented instructional practices, and middle school teachers are more likely than elementary teachers to stress a performance goal orientation to their students (Midgley, Anderman, & Hicks, 1995). Middle school teachers perceive their schools to be more performance oriented and less mastery oriented than do elementary teachers. Midgley et al. (1995) noted in their study of elementary and middle schools that many of the practices of middle schools are performance oriented rather than mastery oriented. Middle school coursework appears to be less challenging than elementary coursework, middle school classrooms emphasize more teacher control and less student autonomy, good performance is rewarded through the honor roll and other forms of public recognition, and evaluation as reflected by grades becomes more important. Middle school students may find a greater emphasis on ability and less emphasis on effort in the grading system than they experienced in elementary school. Anderman and Midgley (1996) found that students' perceptions of classroom task orientations declined and their perceptions of classroom performance orientations increased during the transition from elementary to middle school.

Changes in classroom environment between elementary and junior high can lead to changes in student achievement motivation. Midgley, Feldlaufer, and Eccles (1989) found that perceived teacher support affected students' feelings about the value and usefulness of math. Students who moved from high support to low support showed a drop in perceived value and usefulness. Effects of perceived low support were especially deleterious for low-achieving students. According to research, differences between middle school climates, including variables directly related to achievement goal structure, may result in differences in the success of student transitions from elementary to middle school (Eccles & Midgley, 1989; Harter, Whitsell, & Kawalski, 1992).

As stated above, school policies and teacher classroom practices can influence students' goal orientations. Specific suggestions for engendering a mastery or task focus in middle schools include emphasizing effort, mastery, and improvement rather than relative ability, social comparison, and competition and reducing social comparison by moving away from pull-out and retention programs to cross-age or peer tutoring. Learning for its own sake should be of primary importance, and enjoyment of learning can be enhanced by moving from a departmentalized curriculum to a thematic or interdisciplinary focus with presentation of tasks that are challenging and engaging. This means reducing rote learning and overuse of worksheets and providing engaging tasks that encourage problem solving and comprehension. In addition, teachers should move away from considering students' mistakes as negative and begin to consider mistakes as an integral and healthy part of learning. Finally, including students in decision-making recognizes the middle school students' increasing need for autonomy (Anderman & Midgley, 1998).

Apparent in the suggestions given above is the vital role of the teacher. Teachers' knowledge and beliefs about achievement goals as well as their classroom practices affect their students' learning goal orientations. Teacher beliefs and classroom practices contribute to the classroom goal structure (Patrick, Anderman, Ryan, Edelin, & Midgley, 2001).

Teacher Beliefs and Classroom Achievement Goal Structure

Teachers' beliefs about motivation have a significant effect on the classroom learning environment (Pajares, 1992). Teacher beliefs may influence instruction, classroom practices, and student outcomes (Isenberg, 1990; Midgley et al., 1989). Teachers, as well as students, hold personal achievement goal orientations, and these goal orientations impact instruction and classroom environment. Classrooms and schools have achievement goal structures that are part of school culture. Goal structures are embodied in school and classroom policies

and practices and in the goal-related messages given by teachers and administrators. Anderman, Maehr, and Midgley (1999) described teacher and school practices in environmental goal structure areas that make mastery goals more salient, organizing these modifiable elements according to the TARGET acronym coined by Epstein (1989): Task, Authority, Reward, Grouping, Evaluation, and Time. Mastery-oriented practices include providing meaningful and challenging tasks, opportunity for student autonomy, recognition of effort and improvement, lack of ability grouping for instruction, student evaluation based on progress, and flexible scheduling with time for team planning.

Patrick et al. (2001) demonstrated that teachers' classroom practices are related to students' perceptions of mastery or performance goal structure in the classroom. Teachers in classrooms with a perceived mastery structure encouraged involvement of all students, told students that understanding information was more important than memorization, and recognized student effort and improvement. Teachers in classrooms with a perceived performance structure did not encourage interaction and focused on correct answers rather than understanding. When students perceive that their school or classroom holds a mastery goal structure, they are more likely than those who perceive a performance goal structure to report a personal mastery goal orientation (Midgley et al., 1995). Achievement goal structure of the classroom or school appears to be a mediating factor in the relationship between students' own goal orientation and their self-efficacy (Midgley et al.). Students with high self-efficacy are more likely than those with low self-efficacy to choose challenging tasks, be more persistent, and expend more effort (Schunk, 1989).

Previous studies have suggested that teacher beliefs and practices contribute to classroom goal structure (Patrick et al., 2001) and that the classroom goal structure perceived by students contributes to their personal goal orientations (Midgley et al., 1995). However, it is also possible that students' goal-oriented beliefs and behaviors influence teachers' beliefs about what motivates their students. Such teacher beliefs, in turn, may influence teacher behaviors. For instance, if a teacher believes that her students are motivated by competition (a strategy often associated with a performance-oriented goal structure), she may be more likely to utilize competition in the classroom. This descriptive study explored the relationships among teachers' knowledge, personal beliefs, perceptions of students' beliefs, self-reported classroom behaviors, and perceptions of school goal structures as related to student motivation. The study focused on specific aspects of teachers' personal beliefs and perceptions about mastery and performance goals, including their beliefs about the relationships between student mistakes, effort, and learning, and their perceptions of students' beliefs about the relationships between mistakes, effort, and learning.

Method

Participants

Elementary and middle school teachers from two school districts in Iowa participated in this study. Due to the exploratory nature of the study, school districts were selected based on their willingness to participate. Both districts are located in small cities and have K–12 enrollments of around 11,000. The majority of the students in each district are White. In one district, about 24% of the students qualify for free or reduced-price lunch; 18% of the students in the other district qualify. In one district, 18% of the 570 elementary and middle school teachers completed the survey. In the second district, 4% of the 450 teachers completed the survey. Ninety-seven teachers chose to participate in the study, 19 males and 77 females. One teacher did not indicate gender on the survey. Sixty-nine of the teachers taught in elementary schools and 28 of the teachers taught in middle schools. Respondents were about evenly distributed among early elementary, late elementary, and middle school (n = 30, n= 33, n = 28, respectively), with six respondents not indicating a grade level. The majority of teachers at both levels had been in education 10 or more years and had taught in their current building more than five years. Respondents' highest level of education was evenly divided between bachelor's and master's degrees (45% and 52%, respectively), with one respondent reporting a doctorate. Chi-square tests of homogeneity indicated that there were no relationships between building level (elementary or middle school) and years of experience, $\chi^2(3, N = 97) = .87$, $p = .832$, or level of education, $\chi^2(3, N = 97) = 4.77$, $p = .190$.

Materials

An online survey was developed to measure teachers' knowledge, beliefs, and practices related to student motivation and to achievement goals in particular. Items from the Patterns of Adaptive Learning Survey (PALS) (Midgley & Maehr, 1993) were used to assess teachers' perceptions of school goal structures. The authors developed the remaining items. The survey was piloted with elementary and middle school teachers from a laboratory school. Wording and/or presentation were modified for some items based on feedback from the pilot group. The final survey consisted of 62 items. A subset of 29 items was used for this study. Items were organized into four broad areas:

1. Familiarity and influence of motivational approaches (5 items). Familiarity was rated on an 8-point scale from 1= not familiar to 8 = very familiar. Influence was measured by asking the respondent to select one of four approaches to motivation: behavioral, cognitive, psychodynamic, or humanistic. Participants were not given definitions of the motivational approaches because recognition of the term was considered a component of familiarity.
2. Teacher perceptions of relationships between mistakes and performance, and effort and performance (4 items; 2 items measure teacher beliefs and 2 items measure teacher perceptions of student beliefs). Each item was forced choice with three options.
3. For each of five motivational practices, teacher ratings of the extent to which they (a) verbalize the practice, and (b) demonstrate the practice in their classrooms. The five motivational practices included teaching that people learn from mistakes, teaching that effort improves learning, comparing student performance to the performance of others, comparing student performance to their own past performance, and focusing students on understanding rather than speed of task completion (10 items, 2 for each motivational practice). Teachers rated the frequency with which they verbalized or modeled motivational strategies on a Likert Scale, with 1 = never and 8 = frequently.
4. Teacher perception of school goal structure (10 items). The 10 items were taken from two subscales of the PALS (Midgley & Maehr, 1993): Mastery Goal Structure for Students and Performance Goal Structure for Students. Six items addressed mastery goal structures and 4 items addressed performance goal structures. Three items from the PALS Goal Structure for Students scales were omitted to reduce the length of the current survey. Teachers rated the extent to which statements concerning motivational practices were true of their school on a 5-point scale with 1 = not at all true to 5 = very true. This portion of the survey used a 5-point scale, rather than the 8-point scale used for other items, so that results could be compared with the PALS items.

Procedures

Content of the survey was adapted to a web-based format. Information about the survey was distributed to all elementary and middle school teachers in two districts by their respective district administrators in the spring of 2003. Teachers who were willing to participate were asked to respond to the researchers by email. Each participating teacher was emailed a code number and directions for access to the online survey. It was emphasized to teachers that their participation was completely voluntary. Because the initial response was low, a follow-up call was made to the districts asking the districts to send another email to teachers to encourage participation.

Results

Survey responses of elementary and middle school teachers were analyzed to investigate similarities and differences in teacher knowledge, beliefs, practices, and perceptions of school goal structure related to student motivation and achievement goals. Results are reported for each variable, followed by an analysis of relationships among the variables.

Teacher Knowledge

Teachers rated their familiarity with four types of motivational approaches (behavioral, cognitive, psychodynamic, or humanistic). Ratings of familiarity for elementary and middle school teachers were investigated using a 2 x 4 mixed ANOVA with building (elementary or middle) as the between subjects

variable and motivational approach as the within-subjects variable. Elementary and middle school teachers did not differ in their familiarity with motivational approaches in general, nor was there any Building x Motivational Approach interaction, $F(1, 90) = .084$, $p = .772$, and $F(3, 270) = 2.21$, $p = .087$, for building and interaction effects, respectively. However, when responses for elementary and middle school teachers were combined, there were significant differences in familiarity among motivational approaches, $F(3, 270) = 60.428$, $p = .000$, with pairwise comparisons using a Bonferroni adjustment demonstrating that each familiarity mean was different from all the others (p </= .001 for all differences). Teachers indicated the highest level of familiarity with the behavioral approach, followed closely by the cognitive approach. Teachers indicated a more moderate level of familiarity with the humanistic approach, and a lower level of familiarity with the psychodynamic approach. Mean familiarity levels for elementary and middle school teachers are reported in Table 1.

Table 1
Elementary and Middle School Teacher Familiarity with Motivational Approaches

	Motivational Approach							
	Behavioral		Cognitive		Psychodynamic		Humanistic	
	M	SD	M	SD	M	SD	M	SD
All teachers	6.11	(1.84)	5.53	(1.88)	3.12	(2.06)	4.36	(2.25)
Middle	6.07	(1.92)	5.36	(1.99)	3.11	(2.17)	4.96	(2.32)
Elementary	6.12	(1.82)	5.60	(1.85)	3.12	(2.03)	4.10	(2.19)

Teachers were asked to indicate which of the four motivational approaches had the most influence on their practices. Influence of the approaches for elementary and middle school teachers were analyzed with a chi-square test of homogeneity. The psychodynamic motivational approach was dropped from the analysis because only one teacher indicated that he or she was most influenced by this approach and inclusion resulted in an unacceptable number of cells with expected count of less than 5. Elementary and middle school teachers did not differ in their indications of the most influential approach, $\chi^2(2, N = 84) = 3.80$, $p = .150$. However, indications of influence differed significantly among the approaches, $\chi^2(2, N = 85) = 16.12$, $p = .000$. Over half the elementary and middle school teachers combined (51.8%) indicated they were most influenced by a behavioral approach and nearly a third (30.6%) were most influenced by a cognitive approach. Fewer teachers were most influenced by a humanistic approach (16.5%) and only one teacher (1.2%) was most influenced by a psychodynamic approach. Therefore, not only were teachers most familiar with the behavioral and cognitive approaches to motivation, they were also most influenced by these approaches.

Teacher Beliefs about Mistakes, Effort, and Performance

The second portion of the survey focused on teachers' beliefs about the relationships between student mistakes and performance, and effort and performance. They responded first to a set of questions concerning their own beliefs about these relationships and then responded to a set of questions concerning their perception of student beliefs about these relationships.

Relationship between mistakes and performance. Teachers' beliefs about the relationship between mistakes and performance in student learning were measured by asking teachers which one of three statements best described their personal beliefs: (a) mistakes should be minimized, (b) mistakes should be learned from, or (c) mistakes are unavoidable and should be tolerated. Teachers indicated their perceptions of student beliefs by selecting one of the same three beliefs that best described the beliefs of their students. A belief that mistakes should be learned from reflects a mastery orientation; a belief that mistakes should be minimized or are

unavoidable does not reflect a mastery orientation. Elementary and middle school teachers overwhelmingly indicated their own belief that mistakes are something to be learned from (92.4% and 92.6%, respectively). Few educators at either level reported that mistakes should be minimized or are unavoidable and must be tolerated. (The chi-square test of homogeneity comparing response category by level was not conducted because the overwhelming response that mistakes should be learned from resulted in too many cells with an expected frequency of less than 5.) Figure 1 presents teacher beliefs and their perceptions of student beliefs about the relationship between mistakes and performance.

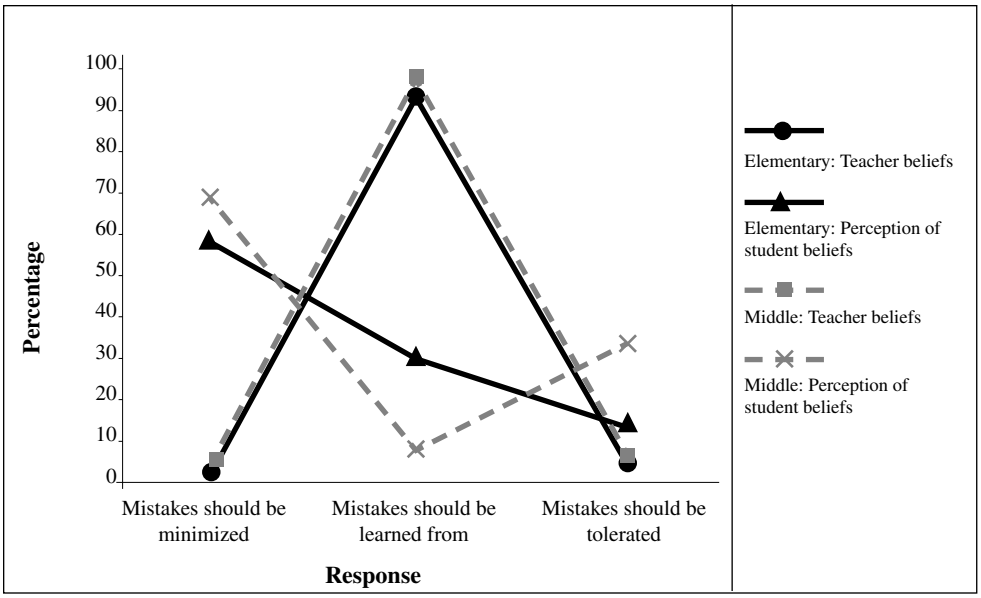

Figure 1. Teachers' personal beliefs and perceptions of student beliefs about the relationship between mistakes and performance

The majority of elementary and middle school teachers indicated that their students view mistakes as something that should be minimized (59% and 67%, respectively). However, elementary and middle school teachers differed in their perceptions of student beliefs about learning from or tolerating mistakes. A chi-square test of homogeneity indicated that a higher proportion of elementary teachers than middle school teachers thought their students believed mistakes could be learned from (29% and 7%, respectively), and a higher proportion of middle school teachers than elementary teachers thought students believed mistakes were unavoidable and should be tolerated (26% and 12%, respectively), $\chi^2(2, N = 92) = 6.36$, $p = .042$.

Relationship between effort and performance. Teachers indicated their beliefs about the relationship between effort and student performance by selecting one of the following three statements that would be true if a person is really good at something: (a) you shouldn't have to work hard to do well or improve, (b) working hard allows you to understand better, or (c) working hard won't have much of an effect on performance. Teachers indicated their perceptions of student beliefs by selecting one of the same three statements that best described the beliefs of their students. A belief that working hard helps one improve is consistent with a mastery orientation; a belief that if you are already good at something you should not have to work hard or that working hard will not make a difference are consistent with a performance orientation. Teachers at both elementary and middle school levels overwhelmingly indicated their own belief that even for people who are really good at something, effort can improve understanding (95% and 96% for elementary and middle school teachers, respectively). Elementary and middle school teachers' beliefs about the relationship between effort and performance were not investigated with statistical analysis, because the overwhelming choice of the mastery-oriented item by teachers at both levels resulted in too many cells with an expected frequency of less than 5. Teacher beliefs about the relationship between effort and performance are presented in Figure 2.

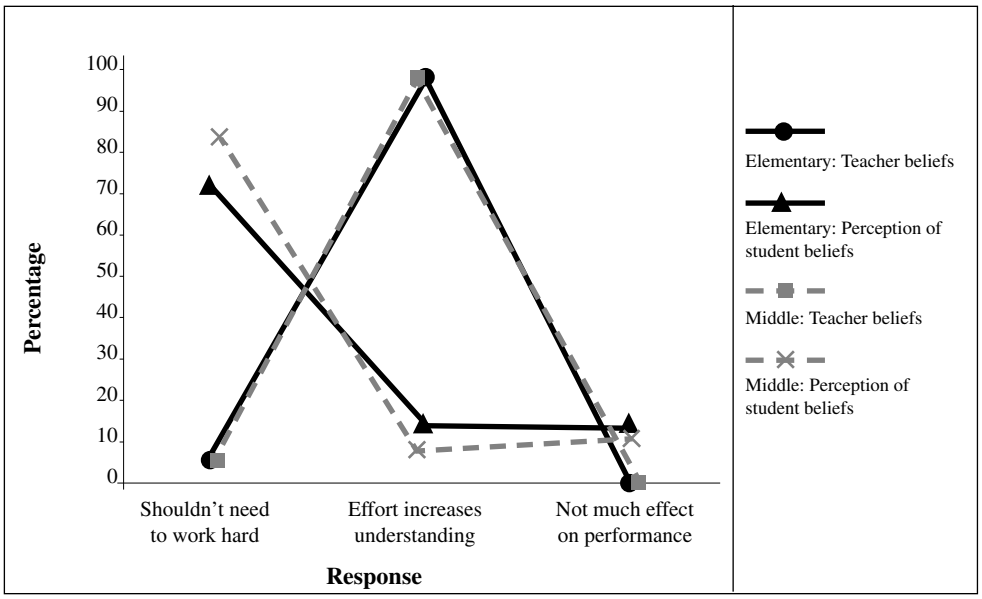

Figure 2. Teachers' personal beliefs and perceptions of student beliefs about the relationship between effort and performance

There was no significant difference between elementary and middle school teachers in their perceptions of student beliefs about the relationship between effort and performance, $\chi^2(2, N = 92) = 1.15$, $p = .563$. For the combined elementary and middle school groups, differences among the three beliefs differed significantly, $\chi^2(2, N = 92) = 68.78$, $p = .000$. The majority of elementary and middle school teachers indicated their students believe that if you are really good at something, you should not have to work very hard to do well or improve (71% and 82%, respectively). A minority of teachers at each level perceived that students believed that effort would not affect performance (11% and 7% for elementary and middle school, respectively) or that effort would help them understand better (18% and 11% for elementary and middle school, respectively). Individual teacher's beliefs about the relationship between mistakes and performance and the relationship between effort and performance tended to be quite consistent, with 90.2% of the teachers indicating mastery-oriented or performance-oriented beliefs on both items. Teachers also tended to be consistent in their perceptions of students' beliefs about the relationships, with 71.4% of the teachers indicating that students held either mastery-oriented beliefs or performance-oriented beliefs on both items.

Teacher Practices

The third set of survey results relates to teachers' self-reported classroom behaviors related to student motivation. Teachers were asked to indicate the frequency with which they engaged in particular verbal behaviors related to motivation and the frequency with which they modeled the same behaviors. Teachers rated their classroom behaviors on a scale of 1 to 8 with a higher score indicating more frequent use of the verbal or modeling strategy. Five verbal and five modeling strategies were addressed, including telling or showing students (a) they can learn from their mistakes, (b) how their current performance compares to their own past performance, (c) the more effort put forth the more they will learn, (d) they should focus on understanding a task rather than completing it quickly, and (e) how their performance compares with others. High ratings for the first four areas indicate behaviors consistent with mastery goals; a high rating for the fifth area indicates behaviors consistent with performance goals. Item means are reported in Table 2. Verbal and modeling behaviors were analyzed using separate 2 x 5 mixed design ANOVAs with building as the between subjects variable and item as the within subjects variable. Results of the analysis for verbal items are reported in Table 3. Elementary and middle school teachers did not differ in their overall use of specific verbal behaviors, but there was a significant Building x Verbal Behavior interaction. The interaction appears to be due to nearly significant differences between elementary and middle school teachers in the frequency with which they tell students how their performance compares to others and how their current performance compares to their past performance.

Table 2
Self-Reported Frequency of Teacher Verbal and Modeling Behaviors Related to Student

Motivation

	Building Level				
	Elementary		Middle		
Item	M	SD	M	SD	*t*
Verbal behaviors: How often do you tell students:					
they can learn from their mistakes	6.01	(1.85)	5.57	(2.20)	1.01
how their current performance compares to their past performance	6.14	(1.63)	5.11	(2.57)	1.98†
the more effort they put forth the more they will learn	5.93	(2.03)	6.43	(1.93)	1.12
to focus on understanding an assigned task rather than completing it quickly	6.55	(1.78)	6.29	(1.76)	.68
how their performance compares to others	2.42	(1.19)	3.11	(1.93)	1.75††
Verbal Behavior Scale (first four items)	24.64	(5.60)	23.39	(5.54)	.96
Modeling behaviors: How often do you show students:					
how they can learn from their mistakes	6.22	(1.56)	6.18	(2.33)	.08
how their current performance compares to their past performance	5.48	(1.85)	5.11	(2.30)	.83
the more effort they put forth the more they will learn	5.59	(1.97)	5.68	(2.02)	.19
to focus on understanding an assigned task rather than completing it quickly	6.58	(1.62)	6.04	(1.97)	1.41
how their performance compares to others	2.17	(1.43)	3.61	(2.39)	2.96**
Modeling Behavior Scale (first four items)	23.87	(5.32)	23.00	(5.93)	.71

† $p = .06$
†† $p = .09$
** $p < .01$

For elementary and middle school teachers combined, there was a significant difference in frequency ratings among the verbal behaviors. Although pairwise comparisons with a Bonferroni adjustment indicated that there were small differences in reported frequencies among the mastery-oriented verbal behaviors, each of the mastery-oriented behaviors was rated as significantly more frequent than telling students how their performance compares with that of other students (significant at $p < .05$ for all differences). Elementary and middle school teachers' agreement ratings for the five verbal items are presented in Figure 3.

The ANOVA conducted with building as the between subjects variable and modeling behaviors as the within subjects variable indicated no main effect of building, although there was a significant Building x Modeling Behavior interaction. Results of the ANOVA are reported in Table 4. Although neither elementary nor middle school teachers reported making frequent comparisons of students' performance to that of other students, middle school teachers were more likely to model such comparisons than were elementary teachers. Mean modeling item ratings are presented in Figure 4. The ANOVA revealed a significant difference between frequency ratings for at least two modeling behaviors. Pairwise comparisons with a Bonferroni correction

indicated that there were small differences in frequency ratings among the mastery-oriented behaviors, but each of the mastery-oriented modeling behaviors was significantly more frequent than modeling comparison of individual student performance to the performance of others (p = .001).

Teachers' self-reported verbal and modeling behaviors were combined across each type of item to form two behavior scales. Each scale included the four mastery-oriented items. (When the performance-oriented items were reverse scored and included in the scales, there was little inter-item correlation and reliability of the scales was considerably reduced, so the performance items were dropped from each scale.) The verbal and modeling scales each had a possible range of 4 to 32 with 4 indicating the teacher did not engage in the mastery behaviors and 32 indicating frequent engagement in the behaviors. Internal consistency reliabilities for the scales were .69 and .71 for verbal and modeling, respectively. As reported in Table 2, there were no differences in mean verbal scale scores or mean modeling scale scores for elementary and middle school

Table 3
Analysis of Variance for Verbal Behavior Items

Source	*df*	*F*	*p*
Between subjects			
Building (elementary or middle school)	1	.17	.69
Error	95	(7.48)	
Within subjects			
Verbal Behavior Items	4	74.71	.00
Verbal Behavior Items x Building	4	4.26	.00
Error	380	(2.34)	

Note. Values in parentheses represent mean square errors.

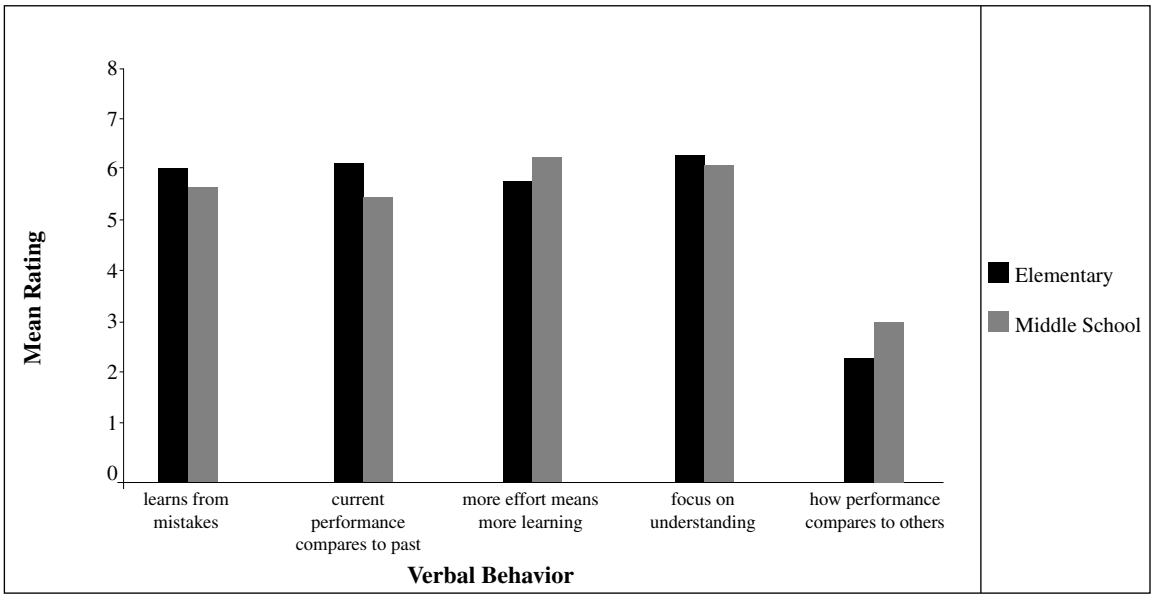

Figure 3. Teachers' self-reported verbal behavior

teachers. Overall, teachers reported moderately high levels of engagement in mastery-oriented behaviors. A mixed ANOVA with building level as a between subjects variable and behavior type (verbalizing or modeling) as the within subjects variable is reported in Table 5. The analysis revealed no difference in mean scale scores for elementary and middle school teachers, no differences between frequencies of verbal behaviors and modeled behaviors, and no Behavior Type x Building interaction.

Teacher Perceptions of School Goal Structure

In addition to asking teachers about their knowledge, beliefs, and behaviors, they were asked about their perceptions of their respective school goal structures. Specifically, teachers were asked the extent to which certain practices were true of their school. They rated statements from the PALS Mastery Goal Structures for Students and Performance Goal Structures for Students scales (Midgley & Maehr, 1993) such as, "In this school students hear a lot about the importance of getting high test scores," and "In this school students are

Table 4
Analysis of Variance for Modeling Behavior Items

Source	*df*	*F*	*p*
Between subjects			
Building (elementary or middle school)	1	.17	.69
Error	95	(7.35)	
Within subjects			
Modeling Behavior Items	4	62.21	.00
Modeling Behavior Items x Building	4	4.89	.00
Error	380	(2.47)	

Note. Values in parentheses represent mean square errors.

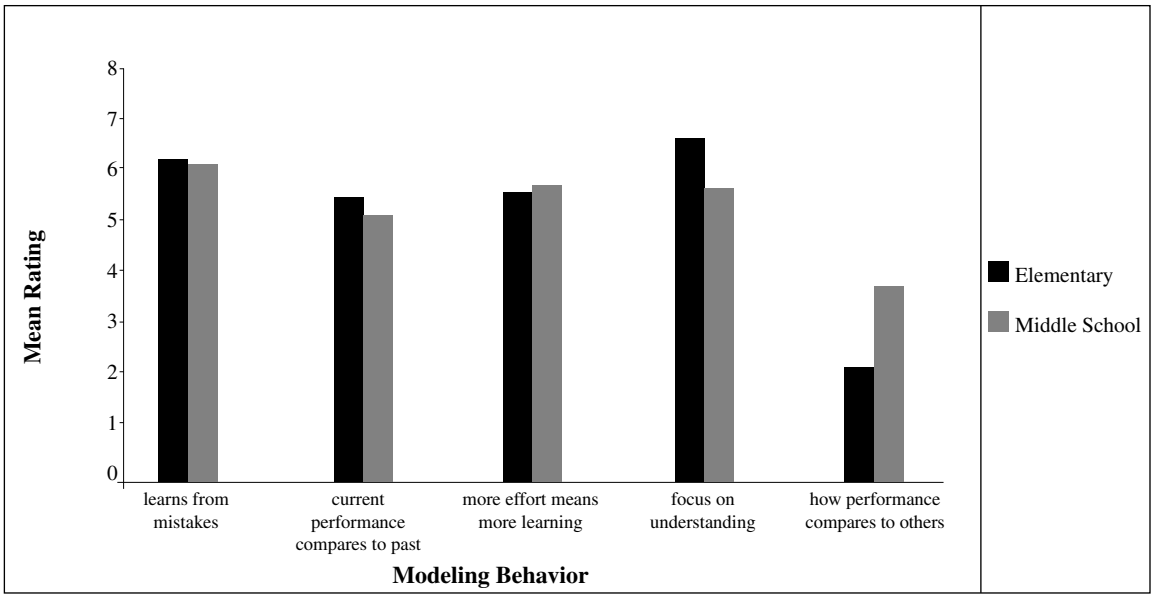

Figure 4. Teachers' self-reported modeling behavior

Table 5
Analysis of Variance for Verbal and Modeling Behavior Scales

Source	*df*	*F*	*p*
Between subjects			
Building (elementary or middle school)	1	.82	.37
Error	95	(54.26)	
Within subjects			
Scale (Verbal or Modeling)	1	1.87	.18
Scale x Building	1	.20	.66
Error	95	(7.20)	

Note. Values in parentheses represent mean square errors.

told that making mistakes is OK as long as they are learning and improving." Items related to school goal structure were rated from 1 to 5, with 5 indicating the highest level of agreement. Six questions about school structure addressed a mastery goal structure. (Ratings on one item, "In this school a lot of the work students do is boring and repetitious," were reverse scored for inclusion on the Mastery Structure Scale.) Mean ratings on the six mastery-oriented items were calculated to form a Mastery Structure Scale with a possible range of 1 to 5. Mean item rating on the scale was 4.02 (SD = 0.75) and the scale had adequate reliability with an alpha of .82. Four questions about school structure were worded so that agreement was indicative of a performance-oriented goal structure. Mean ratings on these items were calculated to form a Performance Structure Scale with a possible range of 1 to 5. The mean score on the Performance Structure Scale was 2.14 (SD = 1.05) and the scale had an alpha of .81. Item and scale means for school structure are presented in Table 6. Elementary teachers were more likely than middle school teachers to indicate that in their schools students are told that learning should be fun, that making mistakes is OK, that the emphasis is on understanding schoolwork, and it is important to try hard. Middle school teachers were more likely than elementary teachers to indicate that in their schools students hear a lot about the honor roll, competition among students is encouraged, students hear a lot about the importance of good grades, and students who get good grades are pointed out as an example.

A 2 x 2 mixed design ANOVA was conducted with building as the between-subjects variable and scale as the within-subjects variable. Results of the ANOVA are reported in Table 7. There was a main effect of scale type, with greater agreement for the Mastery Structure Scale than the Performance Structure Scale. There was also a main effect for building level with middle school teachers producing higher ratings than elementary teachers overall, although this result is not of particular interest because of a Scale x Building interaction, as shown in Figure 5. The interaction was the result of higher ratings for elementary than middle school teachers on the Mastery Structure Scale, but lower ratings for elementary than middle school teachers on the Performance Structure Scale.

Relationships among Teacher Knowledge, Beliefs, and Behaviors
Previous research has suggested positive associations among teacher beliefs, teacher behaviors, school goal structure, and student beliefs. It was speculated by the authors of this study that teachers' knowledge of social cognitive approaches to motivation would also be related to teachers' beliefs and behaviors. Relationships among teacher knowledge of cognitive approaches to motivation, classroom behaviors (verbalizing or modeling mastery behaviors), perception of school climate, personal beliefs about mistakes and effort, and perceptions of student beliefs about mastery and effort were investigated. Teachers' beliefs about the role of mistakes and effort in learning were recoded into dichotomous variables of mastery orientation or non-mastery orientation. Verbal and modeling scales for classroom behaviors were used for this investigation, as opposed to ratings of individual behaviors.

Table 6
Mastery and Performance School Goal Structure Item and Scale Means for Elementary and Middle School Teachers

	Building Level				
	Elementary		Middle		
Item	M	SD	M	SD	*t*
Mastery Structure					
Students are told that learning should be fun	3.68	(1.03)	3.14	(1.18)	2.67**
Students are told that making mistakes is OK	4.32	(0.93)	3.68	(1.19)	2.82**
The emphasis is on understanding schoolwork	4.46	(0.87)	3.64	(1.06)	3.95***
The importance of trying hard is stressed	4.51	(0.66)	3.86	(1.38)	2.39*
Effort is made to show how schoolwork is related to lives outside school	4.04	(0.95)	3.64	(1.13)	1.79
A lot of work students do is boring and repetitious (reverse scored)	4.03	(0.97)	3.68	(1.33)	1.26
Mastery Structure Scale	4.19	(.640)	3.61	(.849)	3.69***
Performance Structure					
Students hear a lot about the honor roll or honor assemblies	1.55	(1.17)	3.21	(1.34)	6.08**
Students are encouraged to compete with each other academically	1.49	(0.82)	2.71	(1.65)	3.73***
Students hear a lot about the importance of getting good grades	2.19	(1.36)	3.29	(1.15)	3.75***
Students who get good grades are pointed out as an example	1.86	(1.03)	2.96	(1.34)	4.65***
Performance Structure Scale	1.77	(0.80)	3.04	(1.08)	6.47***

* $p < .05$
** $p < .01$
*** $p < .001$

Correlations among knowledge, teacher beliefs, teacher behaviors, and perceptions of school goal structure are reported in Table 8. Teachers' familiarity with cognitive approaches to motivation was positively correlated with their self-reported verbalizing and modeling of mastery-oriented behaviors. However, it is interesting to note that knowledge of behavioral approaches to motivation, which was moderately correlated with knowledge of cognitive approaches ($r = .629$, $p = .000$), was also a significant predictor of teacher behavior ($r = .325$, $p = .001$ and $r = .349$, $p = .001$ for verbal and modeling behaviors, respectively). Teacher verbal and modeling behaviors were highly correlated with each other. Teachers who reported verbalizing mastery behaviors more frequently were also likely to report more frequent modeling of mastery behaviors.

Teachers who reported more frequent use of mastery-oriented verbal and modeling behaviors were also more likely to consider their school climate more mastery-oriented and to report a mastery-oriented belief about student effort and learning. Teachers who considered their school climate more mastery-oriented were also more likely to hold mastery-oriented beliefs about the role of student mistakes in learning.

Teacher perceptions of student beliefs about the roles of mistakes and effort in learning were not related to teacher knowledge, behaviors, ratings of school climate, or ratings of their own beliefs, nor were the perceptions of student beliefs about mistakes and effort related to each other. Finally, teacher ratings of the extent to which the school climate was performance oriented were not related to any of the other variables.

Discussion

This study explored an achievement goal explanation for the decline in student motivation and performance between elementary and middle school by surveying teachers about their knowledge, personal beliefs, and perceptions of student beliefs about mistakes, effort, and performance, classroom behaviors, and school goal structures. This information is important because student beliefs are likely to be influenced by teacher beliefs, teacher behaviors, the classroom environment, and school goal structure (Ames, 1992; Isenberg, 1990; Kaplan, Gheen, & Midgley, 2002; Midgley et al., 1989; Midgley et al., 1995; Midgley & Urdan, 2001). Student beliefs about performance affect classroom behaviors such as learning strategies, coping with failure, avoidance, and disruptive behaviors (Kaplan, Middleton, Urdan, & Midgley, 2002; Turner et al., 2002). Finally, there is evidence that teacher beliefs, classroom goal structures, and school goal structures are different for elementary and middle schools (Midgley et al., 1995).

What Do Teachers Know about Cognitive Motivational Strategies?

It is reasonable to assume that teachers who are familiar with a cognitive approach to motivation are more likely than those who are not familiar to use cognitive strategies in their classrooms. Understanding and application of social-cognitive approaches such as achievement goal orientation may result in more mastery-

Table 7
Analysis of Variance for Mastery and Performance School Structure Scales

Source	*df*	*F*	*p*
Between subjects			
Building (elementary or middle school)	1	6.09	.02
Error	95	(.78)	
Within subjects			
Scale (Mastery or Performance)	1	179.84	.00
Scale x Building	1	69.73	.00
Error	95	(.49)	

Note. Values in parentheses represent mean square errors.

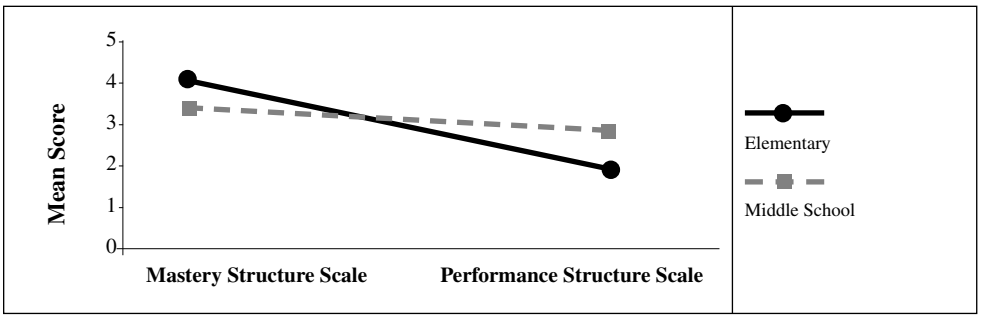

Figure 5. Mastery and performance structure scale scores

oriented classroom goal structures. Teachers in this study were most familiar with the behavioral approach, but also reported moderate levels of familiarity with the cognitive and humanistic approaches. Teachers in this study who were more familiar with cognitive approaches to motivation were also more likely to use mastery-oriented verbal and modeling behaviors in their classrooms. Although these teachers indicated familiarity with behavioral and cognitive approaches, they were most influenced by the behavioral approach. If teachers are familiar with both approaches, why are the majority most influenced by a behavioral approach to motivation? At least two explanations seem plausible. First, it is possible that teachers use cognitively based motivational strategies but do not recognize them as such. Many teachers routinely try to make student tasks interesting and relevant, recognize effort, celebrate individual progress, and turn mistakes into "teachable moments." These behaviors are consistent with a mastery orientation. Second, although most teachers indicate that they are familiar with cognitive theories of motivation, it is possible that fewer are aware of the importance of their classroom practices to their students' learning goals and therefore do not choose to emphasize cognitive motivational practices.

What Do Teachers Believe about Achievement Goals and Student Motivation?

Teacher beliefs. Teachers' achievement goal beliefs are likely to affect their classroom behaviors and through those behaviors, the classroom goal structure. Elementary and middle school teachers in the current study overwhelmingly indicated that they held mastery-oriented beliefs about the relationships between mistakes and performance and effort and performance, and the two groups did not differ in these beliefs. Our results are partially consistent with those of Midgley et al. (1995) who found that although both elementary and middle school teachers held beliefs about motivation that were predominantly mastery oriented, elementary teachers reported stronger beliefs in mastery goals than did middle school teachers, and middle school teachers reported stronger performance-oriented beliefs than did elementary teachers. It is possible that the beliefs of the middle school teachers in our study are truly different from those found in the Midgley et al. study 10 years ago. The difference could also be explained by differences in the way the construct was measured. Midgley et al. asked teachers to rate the extent of their agreement with six mastery-oriented items and five performance-oriented items pertaining to achievement goals for students. In the current study, we used two forced-choice items to measure the construct and had teachers choose between one mastery-oriented option and two performance-oriented options. The effect of teacher self-selection into the current study must also be considered. It is possible that teachers with knowledge about the importance of achievement goals in the classroom were more likely to participate in the study. Teachers with greater understanding of the importance of achievement goals may be more likely to hold mastery-oriented beliefs about student learning goals.

Teacher perceptions of student beliefs. Teachers in this study were asked about their perceptions of students' achievement goal beliefs related to mistakes, effort, and performance. Studies in which students

Table 8
Correlations Among Teacher Knowledge, Beliefs, and Behavior

Variable	1	2	3	4	5	6	7	8	9
1. Knowledge of cognitive approaches	—	.30**	.30**	.11	.15	.18	.09	.14	.05
2. Frequency of verbalizing mastery behaviors		—	.77**	.33**	.04	.17	.24*	.05	.03
3. Frequency of modeling mastery behaviors			—	.42**	.06	.07	.21*	.08	.08
4. School climate mastery scale				—	-.02	.24*	.15	.10	-.01
5. School climate performance scale					—	.12	.02	.09	-.07
6. Belief about mistakes						—	.14	.06	-.02
7. Belief about effort							—	.01	.05
8. Perception of student beliefs about mistakes								—	.11
9. Perception of student beliefs about effort									—

* $p < .05$
** $p < .01$

were surveyed directly have found that elementary and middle school students hold predominantly mastery-oriented personal beliefs, although elementary students hold higher mastery beliefs and lower performance beliefs than do middle school students (Anderman & Midgley, 1996; Midgley et al., 1995). Surprisingly, a majority of elementary and middle school teachers in this study believed that their students held performance-oriented beliefs about the relationships between mistakes and achievement and effort and achievement. The only difference between elementary and middle school teachers' perceptions was that a greater proportion of elementary teachers than middle school teachers indicated their students held mastery-oriented beliefs about the relationship between mistakes and performance.

In this study, teachers' perceptions of student beliefs were counter to student reports of their own beliefs found in previous studies. Actual student beliefs were not measured in this study, so it is not possible to ascertain whether the teachers' perceptions are accurate. Although it is interesting to speculate on the accuracy of teacher perceptions of students' beliefs about effort and mistakes, teacher perceptions are of interest in their own right. Why might teachers believe their students hold these performance-oriented beliefs about achievement? It is possible that even teachers fall prey to negative stereotypes about young adolescents. As Arnold (1997, p. 51) pointed out, "Popular wisdom regards [young adolescents] to be opposed to adult values, dominated by peer opinion, and uninterested in any intellectual concerns." If educators hold the stereotype that middle school students are not interested in academic subjects but are dominated by the need for peer acceptance, it is understandable that they would believe that their students hold performance orientations toward scholastic achievement. If teachers perceive that students hold strongly performance-oriented beliefs, they may feel powerless to change those beliefs, especially if the school culture does not support a classroom mastery goal structure.

Are Teachers' Classroom Behaviors Consistent with Mastery or Performance Achievement Goals?
We expected the self-reported classroom behaviors of the teachers in this study to reflect their strongly held mastery goal beliefs about the relationships among student mistakes, effort, and performance. Teachers' self-reports of the frequency of motivation-related verbalizations and modeling in the classroom are consistent with their self-reported beliefs. Teachers at both building levels indicated a higher frequency of mastery-oriented behaviors than performance-oriented behaviors, although middle school teachers were more likely than elementary teachers to engage in performance-oriented behaviors. This result is only partially consistent with the findings of Midgley et al. (1995), who found that teachers at both levels appeared to use more mastery-oriented than performance-oriented instructional practices, but elementary teachers placed a greater emphasis on mastery practices than did middle school students, and there were no differences between grade levels in the emphasis on performance-oriented instructional practices.

How Do Teachers Perceive the Goal Structures of Their Schools?
Elementary and middle school teachers perceived their schools as having more of a mastery goal structure than a performance goal structure. However, elementary teachers indicated a strong mastery structure in their schools and were much less inclined to endorse items indicative of a strong performance structure. Middle school teachers rated items reflecting both goal structures more moderately than did elementary teachers. Although this result was somewhat surprising because of the inconsistency with middle school teachers' strongly held mastery beliefs, it is consistent with the results of Midgley et al. (1995), who also found that although both elementary and middle school teachers thought their schools stressed mastery goals more than performance goals, elementary teachers indicated a more mastery-oriented school culture than did middle school teachers, and middle school teachers indicated a more performance-oriented school culture than did elementary teachers.

Relationships among Beliefs and Behaviors
In general, teachers who were knowledgeable about cognitive approaches were also more likely to indicate that they verbalize and model mastery-oriented behaviors in the classroom. Teachers who report using mastery-oriented behaviors are also more likely to consider their schools as more mastery oriented and to hold mastery-oriented beliefs about student effort. The positive relationships between teacher behaviors and their ratings of the extent to which their school culture was mastery oriented are as expected. However, there

was no relationship between teacher behaviors and their ratings of the extent to which their school culture was performance oriented. It seems inconsistent that middle school teachers report strongly mastery-oriented behaviors and few performance-oriented behaviors (similar to those of elementary teachers) but believe their respective schools have moderately performance-oriented goal structures. The difference may simply be due to the "better than average" phenomenon in which individuals tend to rate their skills or behaviors as better than those of their peers (Gray, 2002). If teachers consider a mastery orientation desirable, they may be inclined to indicate that they are more mastery oriented than other teachers are. However, an actual difference between teacher behaviors and school goal structures is certainly possible if the performance-oriented messages come from administrative policies and practices. School policies such as ability grouping, emphasis on high grades, recognition for superior achievement, and encouragement of competition support a performance goal orientation. In addition, school administrators are responsible for allocation of resources, including time and money. This may have a large effect on teacher inservice training, funds for supplies and authentic learning experiences, and flexibility in scheduling. Administrative practices ingrained at the junior highs may not have kept pace with the move to the middle school philosophy.

Limitations

As with most studies, this study has some limitations that must be noted. The sample consisted of volunteers from two school districts. Despite follow-up contact with potential participants, the response rate was low. The low response rate may have been because the survey was conducted in the spring of the academic year when teachers are particularly busy. It is also possible that teachers were not comfortable completing the online survey. Teachers who have less comfort and experience with technology may have been disinclined to participate. It is not possible to determine how representative these teachers are of their respective schools because the researchers do not have access to the districts' data on teacher characteristics.

A second limitation of this study is the investigation of a subset of teachers' personal beliefs and their perceptions of students' beliefs rather than the broader construct. This survey investigated teacher beliefs as they relate to the relationships between mistakes and achievement and effort and achievement. In addition, the use of a forced choice response, rather than the rating scale format typically used to measure goal orientation beliefs (e.g., Midgley et al., 1995), could have an unknown effect on the outcome. The PALS scales allow teachers to indicate to what extent they hold mastery- or goal-oriented beliefs. The forced-choice items used in this study require teachers to choose between mastery- and performance-oriented beliefs. However, there is reason for confidence in the results. Individual teachers were reasonably consistent in indicating either mastery or performance beliefs, and the beliefs we sampled are fundamental to the larger construct (Dweck & Leggett, 1988; Kaplan, Gheen, & Midgley, 2002; Maehr & Midgley, 1996; Meyer et al., 1997). Further, the belief constructs measured in this study generally "behave" as we might expect: More elementary and secondary teachers chose mastery-oriented responses than performance-oriented responses, teachers who indicated mastery-oriented beliefs about mistakes were also more likely to consider their school goal structure as mastery-oriented, and those who indicated mastery-oriented beliefs about error were more likely to verbalize and demonstrate those beliefs in the classroom.

An additional limitation is that only a portion of the PALS items measuring teachers' perceptions of school goal structure was included in the survey. A majority of the PALS items from the Mastery School Goal Structure and Performance School Goal Structure scales was included in the scales used in the current study and these scales performed as expected, given previous research using the PALS (e.g., Midgley et al., 1995). Internal consistency reliability was comparable to PALS for the mastery scale, and higher than the PALS for the performance scale. Differences between elementary and middle school teachers' ratings were very similar to those found by Midgley et al. In addition, factor analysis of the mastery and performance structure items used in the current study resulted in a two-factor solution with items loading on the expected factors. Although it impossible to know to what extent the constructs measured in this study were consistent with those measured by the PALS, these results suggest that it may be possible to collect reliable information about teachers' school structure beliefs with fewer items than were used previously.

Implications and Recommendations

Among the various classroom motivational approaches, teachers reported the most knowledge about behavioral approaches and were most influenced in their teaching by that approach. Although the correlational design of this study does not allow the conclusion that more knowledge leads to more influence, it seems reasonable to suggest that teachers and administrators should receive preservice and inservice training in the social-cognitive approach as well as a behavioral approach. Teachers and administrators who recognize the importance of mastery-oriented behaviors and goal structures may be more likely to use mastery-oriented strategies in their classrooms and buildings.

Educators must consider the effects of school goal structures on teacher and student beliefs and behaviors. In this study, teachers at both building levels indicated strong mastery-oriented beliefs and classroom practices. Thus, we would expect that these elementary and middle school teachers' classroom goal structures would be strongly mastery oriented. However, middle school classroom structures may be in conflict with the goal structures of the schools. Although elementary and middle school teachers in this study reported beliefs and behaviors that were strongly mastery oriented, middle school teachers felt that their school goal structures were less mastery oriented and more performance oriented than did elementary teachers. Midgley et al. (1995) found a tendency for teachers who perceived their school goal structure as more mastery oriented to have higher self-efficacy for teaching than those who perceived a performance structure. Middle school goal structures may also affect the extent to which students' goal orientations and motivation change during the transition from elementary to middle school. It is essential that middle school administrators and teachers investigate the messages that school policies and practices convey to students. Although the use of honor rolls, awards for high achievement, and academic competition may appear particularly appropriate in this time of high-stakes standardized assessments, such practices may have a detrimental effect on student achievement in the long run.

Teachers' perceptions of students' beliefs about the relationships between mistake, effort, and performance as predominantly performance oriented were surprising. If this finding is replicated, it has implications for practice. Because these perceptions are inconsistent with actual student goal orientations reported in previous studies, teachers should not make assumptions about their students' beliefs; they should investigate students' actual beliefs. In addition, educators should consider the effect that their beliefs about students' performance orientations may have on classroom practice and school goal structures. Teachers seek to motivate their students; if they believe that they are motivated by competition or rewards, they may feel more justified in using strategies like comparison with others, honor rolls, and grades, practices that may ultimately decrease student motivation and performance.

It is important that teachers self-monitor their own beliefs and classroom practices. They should examine their expectations and evaluate what they are doing to foster a mastery orientation in their classroom, especially in the middle schools. They must recognize the academic and social needs of the young adolescent, so that practice allows fulfillment of both needs. Kaplan, Middleton, Urdan, & Midgley (2002) pointed out that there is no neatly packaged list of practices that will create a mastery-oriented school environment. However, learning goals can be communicated by the school and classroom environment. Researchers (e.g., Ames, 1992) have identified school and classroom practices that promote a mastery-goal orientation. Maehr and Anderman (1993) described a project in which they worked with a middle school to create a mastery-oriented climate. They organized the middle school's policy and procedure changes according to Epstein's (1989) TARGET model: tasks were made more meaningful to students, and interdisciplinary units were created; student autonomy was increased by allowing choices within assigned tasks and school staff considered allowing student input in discipline decisions; ability grouping was reduced, discouraging comparisons among students and giving the message that all students can be successful; time issues were addressed by eliminating bells between classes and changing to block scheduling at one grade level. This change allowed teachers more flexibility to engage students in meaningful tasks without the limitations of rigid schedules. Although the middle school in Maehr and Anderman's study did not implement changes in student recognition or evaluation, which are important portions of the TARGET model, suggestions for emphasizing task goals are available: Students can be recognized for academic improvement and effort as opposed to using honor rolls or public display of grades, which encourage comparison and competition between students (Anderman & Midgley,

1998). Evaluation can promote a mastery orientation by comparing student achievement with his or her prior achievement, as opposed to comparison with others. Portfolios are recommended for evaluation of progress, as they focus on improvement and emphasize the importance of learning (Anderman & Midgley).

There is some evidence that a K–8 or K–12 grade span in a school can eliminate or reduce the decline in motivation and achievement between elementary and middle school (Coladarci & Hancock, 2003). The move to middle school usually means a change of school building, discipline and behavioral expectations, curriculum, teachers, and peers, and these changes may cause a decline in motivation and achievement. However, Barber and Olsen (2004), in a four-year longitudinal study of transition, found that it was not the transition to a new school that led to a decline in motivation and achievement. Rather, declines occurred when students moved from a supportive "pod" structure to a less supportive structure. NMSA stated that "Middle level education is not about grade configuration, but rather about effective programs and practices…" (NMSA, n.d.). Development of a mastery-oriented school climate appears to be an effective practice for maintaining academic motivation in middle school students.

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