

Understanding Intrinsic and Extrinsic Motivation: Age Differences and Links to Children's Beliefs and Goals

Jennifer Henderlong Corpus, Megan S. McClintic-Gilbert, & Amynta O. Hayenga
Reed College

Abstract

We examined the relationships among intrinsic and extrinsic motivational orientations, achievement goals, and intelligence beliefs for 202 3rd- through 8th-grade children from K-8 schools. Analyses of age differences revealed substantial declines in intrinsic – but not extrinsic – motivation with increasing grade level. *Intrinsic motivation* was associated with mastery goals but unrelated to performance goals for both elementary (3rd-5th) and adolescent (6th-8th) subgroups. The *extrinsic desire for easy work* was associated with performance-avoid goals and entity beliefs for the elementary subgroup, and school performance goals for both age groups. The *extrinsic desire to please others* was associated with performance-approach goals, ability-validation goals, and entity beliefs for the elementary subgroup, but only school performance goals for the adolescent subgroup. Overall, the elementary subgroup appeared extrinsically motivated in order to protect or prove competence, whereas the adolescent subgroup appeared extrinsically motivated in order to successfully navigate a performance-oriented environment.

Introduction

•Intrinsic motivation produces a host of benefits for children's learning and sustained academic engagement, especially relative to extrinsic motivation (Deci & Ryan, 1985). However, intrinsic motivation dissipates as children progress from 3rd-8th grade, both when measured in opposition to extrinsic motivation (Harter, 1981), and when the two constructs are assessed independently of one another (Lepper, Corpus, & Iyengar, 2005).

•Because previous research has often focused on the middle school transition (Anderman & Midgley, 1997), our first objective was to examine age differences in motivational orientations with children from K-8 schools, where grade-level motivational shifts could be assessed independently of school transitions (cf. Harter, Whitesell, & Kowalski, 1992).

•Our second objective was to examine how motivational orientations relate to other explanatory constructs concerning children's academic behaviors. Identifying such relationships may shed light on the origins or outcomes of different motivational orientations.

Links to Theories of Intelligence: Dweck (1999) finds that an entity (fixed) view of intelligence predicts helplessness, which has been associated with extrinsic motivation (Boggiano et al., 1992). On the other hand, an incremental (malleable) view of intelligence predicts persistence and challenge-seeking -- behaviors that are also associated with intrinsic motivation. It is striking that these two traditions of research have addressed the same important issues, but little has been done to relate them.

Links to Achievement Goals: Previous research shows that mastery goals lead to intrinsic motivation (Rawsthorne & Elliot, 1999; Wolters, 2004) and performance-avoid goals tend to harm intrinsic motivation (Elliot & Harackiewicz, 1996). However, these studies have focused on limited aspects of intrinsic motivation, rather than a richly defined and more stable intrinsic orientation grounded in challenge-seeking, curiosity-based engagement, and mastery drives. Moreover, essentially no research has examined the link between goals and extrinsic motivation, though it is likely that performance-approach goals would relate

to some aspects of extrinsic motivation (e.g., pleasing others) and that performance-avoid goals would relate to others (e.g., a desire for easy work). Finally, most research has been conducted with college students or children from a limited age range, so we lack information about how relationships between concepts might differ at various developmental stages.

The Present Study: In order to address these limitations, we examined relationships between children's motivational orientations, theories of intelligence, and achievement goals in a sample of 3rd- through 8th-grade children. We also examined the significance of perceived school goal structures (Roeser, Midgley & Urdan, 1996) in predicting motivational orientations, which is important because few studies have simultaneously examined the predictive power of personal goals and goal structures (cf. Linnenbrink, 2005; Wolters, 2004).

Method

Participants: 202 3rd- through 8th-grade children (110 girls, 92 boys) from two K-8 schools participated in the study.

Procedure: In the spring, children completed a questionnaire packet in classroom groups. The following measures were included:

•**Motivational orientations.** Intrinsic motivation was assessed with 17 items focusing on challenge-seeking, independent mastery, and curiosity-driven engagement. Three dimensions of extrinsic motivation were assessed: a preference for easy work, an orientation toward pleasing others, and a dependence on the teacher. A 16-item composite measure of extrinsic motivation was created by averaging across the three dimensions. (See Lepper et al., 2005.)

•**Theories of intelligence.** Beliefs about the malleability of intelligence were assessed with Dweck's (1999) standard 3 items asking children to indicate agreement with the belief that intelligence is stable.

•**Personal achievement goals.** The Patterns of Adaptive Learning Scales (Midgley et al., 2000) were used to assess children's mastery, performance-approach, and performance-avoid goals. Two additional items were constructed for the present study to measure children's goals to validate their ability through their schoolwork (see Grant & Dweck, 2003): "Doing well in school helps me to know that I'm smart" and "It's important to me to prove I'm smart by getting good grades."

•**Perceived school goal structures.** Perceptions of the school as supporting mastery and performance goals were assessed with 7 items drawn from Roeser et al. (1996).

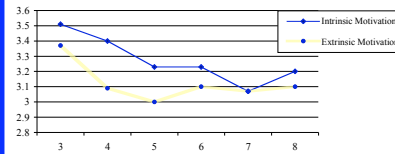
•**Perceived competence.** Children's perceptions of competence were assessed with 4 items drawn from Anderman and Midgley (1997).

Results

Age Differences in Motivational Orientations:

Consistent with Lepper et al. (2005), there was a linear decrease in intrinsic motivation, but no change after 4th grade in intrinsic motivation. (See Fig. 1)

Figure 1: Intrinsic and Extrinsic Motivation by Grade Level



Note: Intrinsic linear contrast testing 3rd-8th grade, $F(1,196)=7.91, p < .01$; Extrinsic linear contrast testing 3rd-8th grade, $F(1,196)=3.79, p = .05$, but 4th-8th grade, $F(1,162)=.04, ns$.

Links to Children's Beliefs and Goals:

Relationships among constructs were analyzed separately for the elementary (Grades 3-5) and adolescent (Grades 6-8) groups. See Tables 1 & 2.

Intrinsic Motivation. Across both age groups, intrinsic motivation was associated with personal mastery goals.

Extrinsic: Easy Work. As expected, a preference for easy work was associated with an avoidance orientation, but the relationship was more robust for the elementary group. The younger children seemed to be protecting competence through the selection of easy work more than the adolescents, who also appeared to seek easy work to the extent they were *not* interested in learning new skills.

Extrinsic: Pleasing Others. As expected, a desire to please others was associated with an approach orientation, though personal-level variables were more predictive for the elementary group and school-level variables were more predictive for the adolescent group.

Table 1: Elementary Group

Predictor Variables	Intrinsic Motivation		Extrinsic Motivation (Easy Work)		Extrinsic Motivation (Pleasing Others)	
	β	AR ²	β	AR ²	β	AR ²
Step 1						
Perceived Competence	.46**	.21**	-.40**	.16**	-.26*	.07*
Step 2						
Perceived Competence	.47**	.01	-.35**	.06	-.20*	.09**
School Mastery Goal Structure	.09		.16		.09	
School Performance Goal Structure	-.03		.24*		.33**	
Step 3						
Perceived Competence	.41**	.17**	-.34**	.08	-.20*	.13*
School Mastery Goal Structure	-.04		.18		.03	
School Performance Goal Structure	.00		.15		.29**	
Entity Theory	.02		-.14		.10	
Mastery Goal	.44**		-.20*		.11	
Performance Approach Goal	.08		-.01		.17	
Performance Avoidance Goal	-.09		.25*		.09	
Ability Validation Goal	.05		-.01		.09	

$p < .07$. * $p < .05$. ** $p < .01$.

Table 2: Adolescent Group

Predictor Variables	Intrinsic Motivation		Extrinsic Motivation (Easy Work)		Extrinsic Motivation (Pleasing Others)	
	β	AR ²	β	AR ²	β	AR ²
Step 1						
Perceived Competence	.46**	.21**	-.40**	.16**	-.26*	.07*
Step 2						
Perceived Competence	.47**	.01	-.35**	.06	-.20*	.09**
School Mastery Goal Structure	.09		.16		.09	
School Performance Goal Structure	-.03		.24*		.33**	
Step 3						
Perceived Competence	.41**	.17**	-.34**	.08	-.20*	.13*
School Mastery Goal Structure	-.04		.18		.03	
School Performance Goal Structure	.00		.15		.29**	
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Performance Approach Goal	.08		-.01		.17	
Performance Avoidance Goal	-.09		.25*		.09	
Ability Validation Goal	.05		-.01		.09	

$p < .07$. * $p < .05$. ** $p < .01$.

Conclusions

These findings address several gaps in the literature.

1. There was a linear decrease in intrinsic motivation with children from K-8 schools, suggesting that the negative motivational patterns typically associated with the transition to middle school begin around 4th grade and occur even with no school transition.
2. Entity beliefs about intelligence were systematically related to elementary school children's extrinsic motivational orientations; children who believe intelligence is fixed presumably desire easy work and seek to please others because they aim to protect and prove their own ability.
3. There were theoretically predictable links between particular achievement goals and particular motivational orientations. Mastery goals were associated with intrinsic motivation, performance-approach goals were associated with an extrinsic desire to please others, and performance-avoid goals were associated with an extrinsic desire for easy work.
4. Our developmental perspective revealed nearly identical patterns for the two age groups regarding intrinsic motivation and mastery goals, but distinct patterns for the extrinsic analyses. Adolescents' extrinsic orientations appeared to serve as tools for navigating the school environment more than mechanisms for validating the self.

References

- Anderman, E. M., & Midgley, C. (1997). Changes in achievement goal orientations, perceived academic competence, and grades across the transition to middle-level schools. *Contemporary Educational Psychology*, 22, 269-286.
- Boggiano, A. K., Stebbins, A., Barrett, M., Kellum, T., Thompson, E., Simons, J., & Katz, J. (1992). Helplessness deficits in students: The role of motivational orientation. *Motivation and Emotion*, 16, 271-296.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia, PA: Psychology Press.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, 70, 461-475.
- Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology*, 85, 541-553.
- Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology*, 17, 300-312.
- Harter, S., Whitesell, N. R., Kowalski, P. (1992). Individual differences in the effects of educational transition on young adolescents' perceptions of competence and motivational orientation. *American Educational Research Journal*, 29, 777-807.
- Lepper, M. R., Corpus, J. H., & Iyengar, S. S. (2005). Intrinsic and extrinsic motivational orientations in the classroom: Age differences and academic correlates. *Journal of Educational Psychology*, 97, 184-196.
- Linnenbrink, E. A. (2005). The dilemma of performance-approach goals: The use of multiple goal contexts to promote students' motivation and learning. *Journal of Educational Psychology*, 97, 197-213.
- Midgley, C., et al. (2000). *Manual for the patterns of adaptive learning scales (PALS)*. Ann Arbor, MI: University of Michigan.
- Rawsthorne, L. J., & Elliot, A. J. (1999). Achievement goals and intrinsic motivation: A meta-analytic review. *Personality and Social Psychology Review*, 3, 326-344.
- Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology*, 88, 408-422.
- Wolters, C. (2004). Advancing achievement goal theory: Using goal structures and goal orientation to predict students' motivation, cognition, and achievement. *Journal of Educational Psychology*, 96, 236-250.



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Abstract

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Acknowledgements and Correspondence

We thank Crystal Alvarez and Whitney Nash for their assistance with data collection. Presentation of this study was supported, in part, by a National Academy of Education/Spencer Postdoctoral Fellowship and a Reed College Undergraduate Research Opportunity Grant. Please direct correspondence to Jennifer Henderlong Corpus, Department of Psychology, Reed College, 3203 SE Woodstock Blvd., Portland OR 97202. Email: jennifer.corpus@reed.edu.

Theoretical Framework and Objectives

In ancient times scholars worked for their own improvement; nowadays they seek only to win the approval of others.

Confucius, *Analects* 14.24 (551-479 BCE)

Schoolwork can be done as a means to an end (an *extrinsically* motivated pursuit) or as an end in itself (an *intrinsically* motivated pursuit). Indeed, intrinsic motivation, relative to extrinsic motivation, is associated with a host of adaptive behaviors, such as challenge seeking, involvement in school, and strong academic performance (Deci & Ryan, 1985, 1991). Unfortunately, children's levels of intrinsic – but not extrinsic – motivation dissipate as they progress through the school years, both when intrinsic motivation is measured in opposition to extrinsic motivation (Harter, 1981) and when the two constructs are assessed independently of one another (Lepper, Corpus, & Iyengar, 2005).

Given these trends, it is essential to understand more fully the sources, correlates, and consequences of children's motivational orientations, especially using independent measures of intrinsic and extrinsic motivation. We address this issue in the present study by examining how intrinsic and extrinsic motivation relate to other explanatory constructs concerning academic success and failure, such as achievement goals and theories of intelligence. Such relationships plausibly exist, and may shed light on the origins or consequences of different motivational orientations.

Links to Theories of Intelligence

One point of contact comes from Dweck's (1999) program of research on individuals' beliefs about the malleability of intelligence. Dweck finds that a malleable, or *incremental*, view of intelligence predicts a variety of adaptive behaviors, including persistence, challenge-seeking, and an orientation toward task mastery – behaviors that are similarly associated with intrinsic motivation. On the other hand, a fixed, or *entity*, view of intelligence predicts maladaptive behaviors such as helplessness, which has been associated with extrinsic motivation (Boggiano et al., 1992). It is striking that these two prominent traditions of research have addressed largely the same important issues, but that little has been done to relate them. The present study seeks to address this gap in the literature.

Links to Achievement Goals

Another point of contact comes from research showing that *mastery* goals lead to intrinsic motivation (e.g., Grant & Dweck, 2003; Rawsthorne & Elliot, 1999; Wolters, 2004), and that *performance-avoid* goals tend to harm intrinsic motivation (Elliot & Harackiewicz, 1996; Rawsthorne & Elliot, 1999). This research is limited, however, in that studies often have defined intrinsic motivation only in terms of situation-specific enjoyment (e.g., Elliot & Harackiewicz, 1996) or measured only a limited aspect of intrinsic motivation (e.g., Miller, Greene, Montalvo, Ravindran, & Nichols, 1996; Wolters, 2004), rather than focusing on a richly defined and more stable intrinsic orientation grounded in challenge-seeking, curiosity-based engagement, and a drive toward mastery (see Lepper et al., 2005). Moreover, there has been essentially no research directly examining how achievement goals may relate to *extrinsic* motivation, though it is likely that *performance-approach* goals would be associated with some aspects of extrinsic motivation (e.g., a desire to please others) and that *performance-avoid* goals

would be associated with others (e.g., a desire for easy work). A final limitation of the literature linking goals to motivational orientations is that it has been conducted primarily with college students or with children from only a limited age range. Thus, we have little information about how relationships between concepts might differ at various points in development (cf. Harter & Connell, 1984; Stipek & Gralinski, 1996).

The Present Study

The present study sought to address these limitations by examining relationships among children's motivational orientations, theories of intelligence, and achievement goals in a sample of 3rd- through 8th-grade children. We also examined the significance of perceived school goal structures (see Ames & Archer, 1988; Harter, Whitesell, & Kowalski, 1992; Roeser, Midgley, & Urdan, 1996) in predicting children's motivational orientations, which is important because few studies have simultaneously examined the predictive power of personal goals and goal structures (cf. Linnenbrink, 2005; Wolters, 2004).

Before considering relationships among constructs, however, we first sought to replicate and extend recent findings of Lepper et al. (2005) regarding age differences in motivational orientations. Their sample included 3rd- through 8th-grade children who attended elementary schools and transitioned to middle school at 6th grade. Given the host of motivational decrements associated with the transition to middle school (e.g., Anderman & Midgley, 1997), we focused instead on children in K-8 schools where grade-level motivational shifts could be examined independently of school transitions (see Harter et al., 1992).

Method

Participants

202 3rd- through 8th-grade children (110 girls, 92 boys) from two private K-8 schools participated in the study.

Procedure and Measures

Children completed the following series of measures in a questionnaire packet given to classroom groups during the first two weeks of May. Children responded to all items using five-point scales, with the exception of the theory of intelligence items, for which six-point scales were provided.

Intrinsic and extrinsic motivational orientations. Motivational orientations were assessed with measures from Lepper et al. (2005). The intrinsic motivation scale included 17 items focusing on the dimensions of challenge-seeking, independent mastery, and curiosity-driven engagement ($\alpha = .88$). Three dimensions of extrinsic motivation were assessed: a preference for easy work ($\alpha = .84$), an orientation toward obedience and pleasing others ($\alpha = .74$), and a dependence on the teacher ($\alpha = .74$). The items assessing a desire to please others included Lepper et al.'s three items as well as three items constructed for the present study but based on Harter et al. (1992). On the advice of Lepper et al., these additional items were included in order to increase the reliability of the scale and to include parents (in addition to teachers) as individuals students may wish to please. The new items were: "I answer questions because the teacher will be pleased with me," "I work hard because my parents want me to get good grades," and "I do my school work because it makes my parents happy." Finally, a 16-item composite measure of extrinsic motivation was created by averaging across the three dimensions ($\alpha = .81$).

Theories of intelligence. Beliefs about the malleability of intelligence were assessed with Dweck's (1999) standard three items asking children to indicate agreement with the belief that intelligence is stable ($\alpha = .85$).

Personal achievement goals. The Patterns of Adaptive Learning Scales (Midgley et al., 2000) were used to assess children's mastery, performance-approach, and performance-avoid goals. Each of the subscales was internally consistent in the present sample: mastery (5 items, $\alpha = .88$); performance-approach (5 items, $\alpha = .88$); performance-avoid (4 items, $\alpha = .76$). Two additional items were constructed to measure children's goals to validate their ability through their schoolwork (see Grant & Dweck, 2003): "Doing well in school helps me to know that I'm smart" and "It's important to me to prove I'm smart by getting good grades" ($\alpha = .69$).

Perceived school goal structures. Perceptions of the school as supporting mastery (3 items, $\alpha = .62$) and performance (4 items, $\alpha = .74$) goals were assessed with items drawn from Roeser et al. (1996).

Perceived competence. Because of the documented relationship between competence and intrinsic motivation (Harter, 1981; Harter et al., 1992), children's perceived competence was assessed with four items ($\alpha = .72$) drawn from Anderman and Midgley (1997).

Results and Discussion

Age Differences in Motivational Orientations

A one-way ANOVA with a weighted polynomial contrast revealed the predicted linear decrease in intrinsic motivation with grade level, $F(1, 196) = 7.91, p < .01$, with the sharpest decline between the 3rd and 5th grades. Consistent with the findings of Lepper et al. (2005), there was a drop in extrinsic motivation from 3rd to 4th grade, but weighted polynomial contrasts revealed that levels of extrinsic motivation otherwise remained stable across the 4th- through 8th-grade groups for the composite measure, $F(1, 162) = .04, ns$, and for each of the three separate dimensions, all $F_s(1, 162) < .36$, all $p_s > .55$. Thus, we observed substantial declines in intrinsic motivation and relatively stable levels of extrinsic motivation even in this sample for which there was no school transition.

Links to Theories of Intelligence and Achievement Goals

Based on an examination of correlations by grade level (Tables 1 & 2), we analyzed the relationships among constructs separately for elementary (grades 3-5, $n = 106$) and adolescent (grades 6-8, $n = 96$) subgroups. For each age group, we conducted a series of hierarchical linear regressions in which intrinsic and extrinsic motivation were criterion variables, and the other measured constructs were predictor variables, as shown in Tables 3 and 4. In Step 1, we entered perceived competence and gender. Because gender was never significant, however, it was deleted from the final regressions for the sake of parsimony. In Step 2, we entered the school goal structures (mastery, performance). In Step 3, we entered all the personal-level variables (entity theory, mastery goals, performance-approach goals, performance-avoid goals, ability-validation goals). We chose this analytic strategy as a way to simplify a potentially complex set of relationships; we do not intend to suggest a particular theoretical model in which certain constructs are causal antecedents of other constructs.

Intrinsic motivation. For the elementary group, intrinsic motivation was positively associated with perceived competence ($\beta = .60$), perceived school mastery goals ($\beta = .22$), and

personal mastery goals ($\beta = .33$). Similar to Wolters (2004), however, school mastery goals were only marginally significant once personal goals were added to the model. For the adolescent group, intrinsic motivation was positively associated with both perceived competence ($\beta = .46$) and personal mastery goals ($\beta = .44$). Across both age groups, then, these findings replicate the link between intrinsic motivation and mastery goals (Rawsthorne & Elliot, 1999; Wolters, 2004), and extend it to a wider age range with a richer measure of intrinsic motivation.

Extrinsic motivation. For analyses involving extrinsic motivation, we focused on the two dimensions of preference for easy work and desire to please others because we had the strongest theoretical rationale for how these dimensions would relate to the other measured constructs.

Preference for easy work. For the elementary group, a preference for easy work was negatively associated with perceived competence ($\beta = -.56$) and positively associated with school performance goals ($\beta = .19$), entity beliefs ($\beta = .20$), and performance-avoid goals ($\beta = .27$). For the adolescent group, a preference for easy work also was negatively associated with perceived competence ($\beta = -.40$) and positively associated with school performance goals ($\beta = .24$), as well as marginally associated with performance-avoid goals ($\beta = .25, p < .07$) and personal mastery goals ($\beta = -.20, p < .07$). As expected, then, an avoidance orientation was associated with a preference for easy work, though this relationship was only robust for the elementary group. Indeed, the younger children seemed to be *protecting competence* through the selection of easy work more than the adolescents, especially when they viewed ability as static. The adolescents also appeared to seek easy work to the extent they were explicitly *not* interested in learning or acquiring new skills. Across both age groups, a school focus on normative excellence oriented children toward easy work, although school-level goals were not significant once personal goals were added to the models.

Pleasing others. For the elementary group, an orientation toward pleasing others was negatively associated with perceived competence ($\beta = -.21$) and positively associated with entity beliefs ($\beta = .27$), performance-approach goals ($\beta = .29$), and ability-validation goals ($\beta = .33$). For the adolescent group, an orientation toward pleasing others was negatively associated with perceived competence ($\beta = -.26$) and positively associated with school performance goals ($\beta = .33$). As expected, an approach orientation was associated with a desire to please others across both age groups, though personal-level variables were more predictive for the elementary group and school-level variables were more predictive for the adolescent group. This is consistent with Harter's (1992) finding of a sharp developmental increase in "knowledge of the rules of the game called school" (p. 86). In a school context that doles out privileges only to those who do well, perhaps adolescents seek to please authority figures and obey teachers because such behaviors are explicitly rewarded.

Conclusions

The present study addressed several gaps in the literature. First, we replicated the linear decrease in intrinsic motivation with children from K-8 schools, suggesting that the negative motivational patterns typically associated with the transition to middle school begin around 4th grade (cf. Meece & Miller, 2001) and occur even with no school transition. Second, we showed that entity beliefs about intelligence are systematically related to elementary school children's extrinsic motivational orientations; children who believe intelligence is fixed presumably desire easy work and seek to please others because they aim to protect and prove their own ability.

Third, we documented theoretically predictable links between particular types of achievement goals and particular motivational orientations. Finally, we examined relationships among constructs using a developmental perspective. While nearly identical patterns emerged for the two age groups regarding intrinsic motivation and mastery goals, there were distinct patterns for the extrinsic analyses. In particular, adolescents' extrinsic orientations appeared to serve as tools for navigating the school environment more than mechanisms for validating the self. Overall, then, the present study has established connections across distinct bodies of research and laid the groundwork for future longitudinal work identifying the origins and consequences of children's motivational orientations.

References

- Ames, C., & Archer, J. (1988). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 80*, 260-267.
- Anderman, E. M., & Midgley, C. (1997). Changes in achievement goal orientations, perceived academic competence, and grades across the transition to middle-level schools. *Contemporary Educational Psychology, 22*, 269-298.
- Boggiano, A. K., Shields, A., Barrett, M., Kellam, T., Thompson, E., Simons, J. & Katz, P. (1992). Helplessness deficits in students: The role of motivational orientation. *Motivation and Emotion, 16*, 271-296.
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation* (pp. 237-288). Lincoln: University of Nebraska Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia, PA: Psychology Press.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*, 461-475.
- Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology, 85*, 541-553.
- Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology, 17*, 300-312.
- Harter, S. (1992). The relationship between perceived competence, affect, and motivational orientation within the classroom: Processes and patterns of change. In A. K. Boggiano & T. S. Pittman (Eds.), *Achievement and motivation: A social-developmental perspective* (pp. 77-115). Cambridge: Cambridge University Press.
- Harter, S., & Connell, J. P. (1984). A model of children's achievement and related self-perceptions of competence, control, and motivational orientation. In J. Nicholls (Ed.), *The development of achievement motivation* (pp. 219-250). Greenwich, CT: JAI Press.
- Harter, S., Whitesell, N. R., Kowalski, P. (1992). Individual differences in the effects of educational transition on young adolescent's perceptions of competence and motivational orientation. *American Educational Research Journal, 29*, 777-807.

- Lepper, M. R., Corpus, J. H., & Iyengar, S. S. (2005). Intrinsic and extrinsic motivational orientations in the classroom: Age differences and academic correlates. *Journal of Educational Psychology, 97*, 184-196.
- Linnenbrink, E. A. (2005). The dilemma of performance-approach goals: The use of multiple goal contexts to promote students' motivation and learning. *Journal of Educational Psychology, 97*, 197-213.
- Meece, J. L., & Miller, S. D. (2001). A longitudinal analysis of elementary school students' achievement goals in literacy activities. *Contemporary Educational Psychology, 26*, 454-480.
- Midgley, C., et al. (2000). *Manual for the patterns of adaptive learning scales (PALS)*. Ann Arbor, MI: University of Michigan.
- Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nichols, J. D. (1996). Engagement in academic work: The role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary Educational Psychology, 21*, 388-422.
- Rawsthorne, L. J., & Elliot, A. J. (1999). Achievement goals and intrinsic motivation: A meta-analytic review. *Personality and Social Psychology Review, 3*, 326-344.
- Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88*, 408-422.
- Stipek, D., & Gralinski, J. H. (1996). Children's beliefs about intelligence and school performance. *Journal of Educational Psychology, 88*, 397-407.
- Wolters, C. (2004). Advancing achievement goal theory: Using goal structure and goal orientation to predict students' motivation, cognition, and achievement. *Journal of Educational Psychology, 96*, 236-250.

Table 1: *Correlations Between Key Variables for the Elementary Group*

	1	2	3	4	5	6	7	8	9	10	11
1. Intrinsic Motivation											
2. Extrinsic Motivation (Easy Work)	-.50										
3. Extrinsic Motivation (Desire to Please Others)	.22	.31									
4. Extrinsic Motivation (Dependence)	.03	.21	.35								
5. Entity Theory	-.05	.36	.36	.24							
6. Personal Mastery Goal	.56	-.11	.31	.42	.09						
7. Personal Performance Approach Goal	.33	.15	.50	.31	.09	.32					
8. Personal Performance Avoidance Goal	.21	.28	.44	.13	.10	.20	.73				
9. Personal Ability Validation Goal	.47	.06	.51	.27	.02	.60	.54	.45			
10. School Mastery Goal	.27	-.04	.06	.12	.05	.18	.22	.20	.19		
11. School Performance Goal	.14	.14	.12	.08	.07	-.01	.18	.12	.01	-.08	
12. Perceived Competence	.59	-.58	-.23	-.17	-.29	.19	.05	-.01	.11	.11	.06

All correlations greater than $\pm .25$ are significant at $p < .01$

Table 2: *Correlations Between Key Variables for the Adolescent Group*

	1	2	3	4	5	6	7	8	9	10	11
1. Intrinsic Motivation											
2. Extrinsic Motivation (Easy Work)	-.53										
3. Extrinsic Motivation (Desire to Please Others)	-.04	.37									
4. Extrinsic Motivation (Dependence)	-.10	.22	.32								
5. Entity Theory	-.14	.01	.19	.23							
6. Personal Mastery Goal	.46	-.15	.13	.15	-.16						
7. Personal Performance Approach Goal	.13	.11	.35	.24	.16	.28					
8. Personal Performance Avoidance Goal	-.04	.28	.37	.15	.14	.12	.70				
9. Personal Ability Validation Goal	.13	-.04	.16	.17	-.07	.32	.44	.29			
10. School Mastery Goal	.03	.13	.01	.32	-.08	.29	.11	-.02	.05		
11. School Performance Goal	-.11	.23	.32	.02	.08	-.16	.09	.29	-.15	-.33	
12. Perceived Competence	.46	-.40	-.26	-.32	-.24	.09	.02	-.10	.10	-.14	-.13

All correlations greater than $\pm .26$ are significant at $p < .01$.

Table 3. Hierarchical Multiple Regressions Predicting Intrinsic and Extrinsic Motivation for the Elementary Group

Predictor Variables	Intrinsic Motivation		Extrinsic Motivation (Easy Work)		Extrinsic Motivation (Pleasing Others)	
	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1		.36**		.32**		.05*
Perceived Competence ($\alpha = .63$)	.60**		-.56**		-.21*	
Step 2		.06**		.04		.03
Perceived Competence	.57**		-.58**		-.23*	
School Mastery Goal Structure ($\alpha = .58$)	.22*		.05		.11	
School Performance Goal Structure ($\alpha = .72$)	.13		.19*		.15	
Step 3		.22**		.11**		.43**
Perceived Competence	.51**		-.50**		-.18*	
School Mastery Goal Structure	.12 [†]		-.01		-.06	
School Performance Goal Structure	.11		.14		.05	
Entity Theory ($\alpha = .82$)	.05		.20*		.27**	
Mastery Goal ($\alpha = .90$)	.33**		-.11		.04	
Performance Approach Goal ($\alpha = .89$)	.15		-.06		.29*	
Performance Avoidance Goal ($\alpha = .76$)	-.07		.27*		.06	
Ability Validation Goal ($\alpha = .61$)	.13		.10		.33**	

[†] $p \leq .07$. * $p \leq .05$. ** $p \leq .01$.

Table 4. *Hierarchical Multiple Regressions Predicting Intrinsic and Extrinsic Motivation for the Adolescent Group*

Predictor Variables	Intrinsic Motivation		Extrinsic Motivation (Easy Work)		Extrinsic Motivation (Pleasing Others)	
	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1		.21**		.16**		.07*
Perceived Competence ($\alpha = .81$)	.46**		-.40**		-.26*	
Step 2		.01		.06*		.09**
Perceived Competence	.47**		-.35**		-.20*	
School Mastery Goal Structure ($\alpha = .69$)	.09		.16		.09	
School Performance Goal Structure ($\alpha = .76$)	-.03		.24*		.33**	
Step 3		.17**		.08		.13*
Perceived Competence	.41**		-.34**		-.20*	
School Mastery Goal Structure	-.04		.18		.03	
School Performance Goal Structure	.00		.15		.29**	
Entity Theory ($\alpha = .88$)	.02		-.14		.10	
Mastery Goals ($\alpha = .85$)	.44**		-.20 [†]		.11	
Performance Approach Goal ($\alpha = .86$)	.08		-.01		.17	
Performance Avoidance Goal ($\alpha = .74$)	-.09		.25 [†]		.09	
Ability Validation Goal ($\alpha = .78$)	-.05		-.01		.09	

[†] $p \leq .07$. * $p \leq .05$. ** $p \leq .01$.