The Relationship Between Classroom Motivation and Academic Achievement in Elementary-School-Aged Children

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The relationship between motivation and academic success has been better established with older children and adults than with younger children. As part of a larger project, the purpose of this study was to examine the relationship between classroom motivation and academic achievement in young elementary-school-aged children. The participants were 122 first-grade and 129 third-grade children from a mid-sized city in the southern United States. The findings from the current study were consistent with previous research in that higher levels of mastery motivation and judgment motivation were found to be related to higher math and reading grades in third graders. However, higher levels of mastery motivation, not judgment motivation, were related to higher math and reading grades in first graders.

Keywords: *academic achievement; classroom motivation; cognitive development; elementary-school-aged children*

A student's motivation for learning is generally regarded as one of the most critical determinants of the success and quality of any learning outcome (Mitchell, 1992). Examining the construct of intrinsic motivation in young elementary school children is important, because academic intrinsic motivation in the early elementary years may have profound implications for initial and future school success (Gottfried, 1990). A national thrust to increase the rigor of academic standards makes it even more important to motivate even the disengaged and discouraged learners (Brewster & Fager, 2000).

The development of young children's intrinsic motivation is particularly important as beliefs and practices set early in life shape later behavior. Motivational patterns in older children were already associated with motivational patterns as early as first grade (Gottfried, 1990). Motivation has been defined as the attribute that "moves" us to do or not do something (Gredler, 2001). When studying motivation, it is useful to distinguish between two basic orientations toward learning: intrinsic or mastery and extrinsic or performance. Intrinsic motivational patterns have been associated with high perceived ability and control, realistic task analysis and

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planning, and the belief that effort increases one's ability and control (Fincham & Cain, 1986). An extrinsic orientation toward learning is characterized by a concern with external reasons for working, such as the judgment of others regarding one's performance, grades, or some anticipated reward. A child has an intrinsic orientation when classroom learning is determined by internal interests and an extrinsic orientation when classroom learning is determined by external interests such as teacher approval or grades (Harter, 1981).

An ecological model, a contemporary theory of human development, emphasizes that development is influenced by many factors. In contrast to other general theories of human development, an ecological model involves a contextual approach to research in which the child is at the center of the model and in constant interaction with the environment. Surrounding the child is the "microsystem" that is comprised of those entities that directly impact the child including family members, neighborhood, school, and so forth. Outside of this microsystem is the "exosystem" that includes those entities that exert indirect influences on the child such as the mother's job or the availability of fresh produce at the local grocery store. Beyond the exosystem is the "macrosystem" that constitutes the influences of larger society and culture such as the requirement that dictates that a child must pass a standardized examination before proceeding to the next grade in elementary school or the observance of specific holidays. The final system is termed the "chronosystem," which contains the elements of time and history (Bronfenbrenner, 1979, 1986; Bronfenbrenner & Morris, 1998). As part of a larger project, an ecological approach was used to guide the overall research. Specifically, children's development was assumed to both impact and be impacted by the environment. Children's development is interactive and contextual, although in the current study these environmental processes were assumed to be true rather than tested.

REVIEW OF LITERATURE

The intrinsic motivation of young children to learn is very high (Entwisle, Alexander, Cadigan, & Pallas, 1986). Children's intrinsic motivation for learning may diminish as they begin to adapt to the incentive structure of our elementary schools (e.g., grades, praise, and criticism) (Harter, 1981). The influence of rewards and reinforcement on intrinsic motivation has been a subject of much debate. In a meta-analysis on intrinsic motivation for both children and adults, Cameron and Pierce (1994) concluded that neither reward nor reinforcement decreases intrinsic motivation. On the other hand, if children are given external justification for engaging in an activity they enjoy, they infer that they participated because of that extrinsic reason, and in the future they tend not to participate in the activity when a reward is not present (Kassin & Lepper, 1984). Children with an intrinsic motivational orientation had higher reading and math scores and higher overall achievement scores than their extrinsically motivated counterparts, whereas children who were extrinsically motivated showed marked performance deterioration (Boggiano et al., 1992).

Current theories of motivation focus on beliefs and cognitions and address three broad motivational questions: Can I do this task? Do I want to do this task and why? What do I have to do to succeed in performing this task? (Eccles, Wigfield & Schiefele, 1998). Attribution theory (Graham, 1991; Weiner, 1985), self-efficacy

theory (Bandura, 1994), and self-worth theory (Covington, 1992) drive the first question, and when children answer this question affirmatively, they perform better and select more challenging tasks (Eccles et al., 1998). On the other hand, social cognitive theories of self-regulation (e.g., Zimmerman, 1989) and theories of motivation and volition (e.g., Corno & Kanfer, 1993; Kuhl, 1987) are used to address the third question, which presumes higher levels of cognitive ability than found in young children.

Of particular importance to the present study is the second question, Do I want to do this task and why? The theories that drive this question include modern expectancy-values theories (e.g., Feather, 1992), intrinsic motivation theories, such as Harter's (1983) effectance or mastery motivation theory and self-determination theory (e.g., Deci & Ryan, 1985). Harter's work is of particular interest as it has received empirical support for the same ages of children as in the current investigation and for which the scale for measuring different aspects of intrinsic and extrinsic motivation was based. Based on Harter's theory of effectance motivation, the purpose of this study was to examine the relationship between intrinsic classroom motivation and academic achievement in an understudied age of children—first and third graders.

A review of the extant empirical literature has revealed a paucity of published research on classroom motivation and academic achievement in young elementary-school-aged children as well as mixed findings among the studies with different ages of children and adults. Fortier, Vallerand, and Guay (1995) and Niebuhr (1995) both studied ninth graders and reported contradictory findings. Fortier et al. found support for the relationship between motivation and academic achievement. Niebuhr, in contrast, found that student motivation had no significant relationship with academic achievement. Mitchell (1992), in a study of college students, found intrinsic motivation positively related to grade point average, but not standardized test (ACT) scores, and extrinsic motivation negatively related to both measures of academic achievement.

As previously mentioned, empirical studies of the classroom motivation and academic achievement of young elementary-school-aged children are not voluminous, and the findings from the few studies that do exist are mixed (see Table 1). Using a shortened version of Harter's (1981) measure of classroom motivation and standardized test scores, Goldberg and Cornell (1998) found a positive, albeit indirect, relationship between intrinsic motivation and academic achievement in more than 900 second and third graders from 15 school districts in 10 states. Using the Children's Academic Intrinsic Motivation Inventory (CAIMI) rather than Harter's (1981) motivational assessment to assess motivation, Gottfried (1985, 1990), in a series of studies on elementary- and middle-school-aged children, demonstrated the salience of academic intrinsic motivation on children's school achievement. Specifically, young children with higher academic intrinsic motivation had significantly higher achievement and intellectual performance. Overall, young children with higher academic intrinsic motivation functioned more effectively in school. Gottfried also found that early intrinsic motivation correlated with later motivation and achievement and that later motivation was predictable from early achievement. In a study of very young elementary-school-aged, ethnically diverse children, Stipek and Ryan (1997) revealed that children entered school with positive motivation profiles. Using multiple assessments for both constructs, however, they

TABLE 1: Summary of Empirical Literature of Young Children's Motivation and Academic Achievement

Author(s) and Year	*Sample*	*Motivation Assessment(s)*	*Academic Achievement*	*Statistical Method*	*Relevant Findings*
Goldberg & Cornell (1998)	*N* = 949 second and third graders	Harter's measure of Intrinsic versus Extrinsic Orientation in the Classroom—Shortened	ITBS: reading comprehension, math concepts, and math problem solving	structural equation modeling	Intrinsic motivation influenced perceived competence, which influenced subsequent academic achievement.
Gottfried (1990)	Study 1: *N* = 107 children, aged 7-9	Y-CAIMI completed by children	Woodcock-Johnson Psycho-Educational Battery	Data from both studies were merged for correlation, regression analyses	Academic intrinsic motivation and achievement were positively correlated. Motivation was predictive of report card grades but not standardized achievement test scores.
	Study 2: *N* = 98 first, second, third graders		CTBS tests in reading and math, end-of-year report card grades		
Gottfried (1985)	Study 1: *N* = 141 fourth and seventh graders	CAIMI (initial version)	standardized achievement tests: math, reading, and auditory comprehension skills—all children	correlation regression	Academic intrinsic motivation is positively related to children's school achievement, as measured by both standardized achievement tests and grades.
	Study 2: *N* = 260 fourth to seventh graders	CAIMI (expanded version)	CTBS—all children. Teachers' grades (Study 2: year-end report card grades; Study 3: current semester report card grades)		
	Study 3: *N* = 166 fifth- to eighth-grade boys				

(continued)

TABLE 1 (continued)

Author(s) and Year	*Sample*	*Motivation Assessment(s)*	*Academic Achievement*	*Statistical Method*	*Relevant Findings*
Stipek & Ryan (1997)	*N* = 233 pre-K and K students at Time 1, *N* = 88 K students and first graders at Time 2	• Two tasks from Crandall and Linn (1989) assessed expectations for success • Counting task used to measure preference for challenge • Dependence measured using picture and puzzle tasks	• Woodcock-Johnson Achievement Test, supplemented with items from the Peabody Individual Achievement Test • McCarthy test for cognitive competency	ANOVA, MANOVA, regression	Motivation negatively predicted cognitive skills, although the R^2 was very low.
Whang & Hancock (1994)	*N* = 353 fourth to sixth graders	Questionnaire adapted from Schoenfeld (1989) used to measure self-concept of ability, causal attributions, task-involved and ego-involved motivation	Standardized achievement tests (CTBS, Metropolitan Achievement Test [MAT6]): math	*t* tests, correlation, regression	Motivational factors are important to understand differences in mathematics achievement between Asian and non-Asian students.

NOTE: ITBS = Iowa Test of Basic Skills; CAIMI = Children's Academic Intrinsic Motivation Inventory; CTBS = Comprehensive Test of Basic Skills.

reported little or no relationship between young children's motivation and their academic achievement.

Studies on differences in gender are also found in the motivation literature; however, they are few in number. Boggiano, Main, and Katz (1991) found females significantly more extrinsically motivated than males. A review of the literature by Schiefele, Krapp, and Winteler (1992) strongly suggests that female students' academic performance is less associated with their interests than male students' academic performance.

Even less is known about the motivation of children from different racial and ethnic groups. Graham (1994) reviewed the literature on differences between African American and European American students, concluding that the differences are not very large; however, African Americans were found to be more externally motivated than European Americans. In a study of achievement in mathematics, Whang and Hancock (1994) concluded that Chinese Americans attribute their academic achievement to trying hard and their academic failures to lack of effort, whereas Anglo American students tend to divide their explanations for achievement and failure more evenly between good luck, ability, and effort. Similar patterns favoring effort attributions for achievement have also been found among native-born Mexicans (Covington, 2000).

In summary, the extant literature suggests that most young children begin their academic career with a desire to learn and with an intrinsic approach to achievement (Entwisle et al., 1986; Stipek & Ryan, 1997), although there is a dearth of published empirical research in this area. In addition, females may be less intrinsically motivated than males and racial and ethnic group differences may exist. Thus, the general hypothesis for this study is that a positive relationship exists between classroom motivation and academic achievement among first- and third-grade children.

METHOD

Sample

Children from 19 different schools in a mid-sized southern city in the United States were studied during the spring of 2001. As part of a larger project, the participating children's parents completed a survey on family processes (N = 290). First- and third-grade children were selected to be interviewed in the larger project because children in these grades are members of an acknowledged understudied age of childhood. Eleven of the 290 children could not be interviewed because they moved out of the area, transferred to a nonparticipating school, or did not meet the initial sampling criteria (they were not the target age or had a disability). Based on U.S. Census information, an estimate of the socioeconomic and demographic characteristics of the residents of participating schools indicated that the sample adequately represented the population of the area. The majority of children were African American (51%) or White (41%); 12 children were Native American, Hispanic/Spanish/Latino, or Asian/Pacific Islander. Most of the parents of the participating children were married or cohabiting and had graduated from high school. Almost all of the fathers and most of the mothers (67%) were employed and most worked

full-time (at least 40 hours per week). The mean level of reported annual household income was between $20,000 and $40,000.

At the end of the same school year, teachers received a form by mail specifically requesting students' math and reading grades. Grades from one of the elementary schools were collected by visiting the campus, and two schools failed to turn in grades for the study. In all, grades were recorded for 251 of the 279 children.

Variables and Assessment

Because it was designed to use with children and theoretically addressed the motivational question of interest in the current study, children's classroom motivation was assessed using Harter's (1980, 1981) Scale of Intrinsic Versus Extrinsic Motivational Orientation in the Classroom. It is a 30-item instrument containing five subscales: (a) preference for challenge, (b) curiosity, (c) independent mastery, (d) independent judgment, and (e) internal criteria. Each subscale contains six questions, which were counterbalanced in the following manner: Three items begin with the intrinsic pole, three with the extrinsic pole. The assessment is completed by an interviewer who reads the questions to the child and records the answers. The questions characterize or depict two different kinds of students (e.g., "Some kids like to go on to new work that's at a more difficult level, but other kids would rather stick to the assignments that are pretty easy to do"). The participants are asked which child or student is most like them. They then determine if this description is "sort of true for me" or "really true for me" as it pertains to them. Each item is scored on an ordinal scale from 1 to 4, with the score of 4 indicating the maximum intrinsic motivation. The two-step decision process and the counterbalancing response format have been shown to be effective in limiting socially desirable responding. The reliability of each subscale (KR-20) ranges from .54 to .84 (Harter, 1981) and has been well established on a sample of more than 3,000 students across grades 3 to 9 (Harter, 1980). As designed, the researcher scores the assessments and creates five subscales that are entered rather than the individual items. Based on higher order factor analysis of these five subscales, two independent factors were revealed: (a) mastery, which includes curiosity, independent mastery, and preference for challenge; and (b) judgment, which includes independent judgment and internal criteria for success or failure (Ginsburg & Bronstein, 1993; Harter, 1981). The current study used these two variables to assess children's classroom motivation.

Academic achievement was assessed by the child's teacher and represented by the child's cumulative grades for the year in reading and math. Grades for first-grade children were scored and entered as 1 (*below grade level*), 2 (*on grade level*), and 3 (*above grade level*). Grades for the third-grade children were scored and entered as 0 (F), 1 (D), 2 (C), 3 (B), and 4 (A).

Based on the review of literature, two control variables were included in the analysis of this study. The race and gender of the children were used as control variables, and standard questionnaire items from the parental survey were used to measure these variables. Of the first-grade children, slightly more than half (52%) were girls and 60% were non-White, primarily African American. A majority (63%) of the third-grade children were girls and 58% were non-White, primarily African American.

TABLE 2: Descriptive Statistics of Children's Motivation Scores

	First Graders (n = 122)			*Third Graders (n = 129)*		
Subscale	*Range*	M	SD	*Range*	M	SD
Challenge	9-24	18.26	3.70	6-24	18.67	3.95
Curiosity	8-24	15.89	3.23	9-24	18.16	3.36
Mastery	7-24	16.12	3.95	7-24	15.96	3.66
Judgment	6-24	9.48	3.64	6-23	10.36	3.81
Criteria	6-24	11.80	4.29	6-24	12.12	4.60
Variable						
Mastery	31-72	50.27	7.84	33-70	52.79	7.81
Judgment	12-45	21.29	6.74	12-43	22.48	6.42

Data Analysis

Separate analyses were performed for first- and third-grade children for two reasons: (a) Previous analyses have indicated statistically significant grade differences (Cramer, 2002), and (b) as previously mentioned, nominal values of the assigned grades for first- and third-grade children were not the same (e.g., *above grade level*, *on grade level*, *below grade level* vs. A, B, C, D, F). Following frequency analyses, simple and multiple regression analyses were employed to test relationships between classroom motivation and academic achievement as measured by child interviews and grades.

RESULTS

Descriptive Statistics

In terms of classroom motivation, each of the five subscales—challenge, curiosity, mastery, judgment, and criteria—ranged in value from 6 to 24, with an expected mean of 15. The actual ranges and means of responses were similar for first and third graders' motivation scores. Both first- and third-grade children had a mean score that was higher than the expected mean for the subscales of challenge, curiosity, and mastery. Likewise, both first and third graders had a mean score lower than the expected mean for the subscales of judgment and criteria. The previously mentioned subscales were combined into two separate variables of mastery motivation and judgment motivation (Ginsburg & Bronstein, 1993). The possible range for the mastery motivation variable was 31 to 72, with an expected mean of 45. The mean scores for the first and third grade children were both higher than the expected mean for this variable (see Table 2).

The possible range for the judgment motivation variable was 12 to 45, with an expected mean of 30. The first- and third-grade mean scores were both lower than the expected mean for this variable (see Table 2). These findings indicate that in young children, their level of mastery motivation is higher than their level of judgment motivation.

TABLE 3: Correlations Between Predictor and Dependent Variables

Predictor	*First Grade Academic Achievement (*N = *122)*		*Third Grade Academic Achievement (*N = *129)*	
	*Reading (*M = *2.29;* SD = *.63)*	*Math (*M = *2.13;* SD = *.54)*	*Reading (*M = *2.76;* SD = *.97)*	*Math (*M = *2.57;* SD = *.97)*
Race	.17*	.25*	.37*	.32*
White	(*n* = 49)		(*N* = 54)	
Non-White	(*n* = 73)		(*N* = 75)	
Gender	.09	–.22*	.13	.11
Male	(*n* = 59)		(*N* = 48)	
Female	(*n* = 63)		(*N* = 81)	
Mastery	.17*	.20*	.17*	.17*
Judgment	–.01	–.07	.24*	.20*

*$p \leq .05$.

As far as academic achievement, for children in first grade, the mean for grades in math was 2.13, with a standard deviation of .54. For reading, the mean was 2.29, with a standard deviation of .63. The results indicate that most children were "on grade level," and reading scores were slightly higher than math scores. For third-grade children, the mean in math was 2.57, a high C average, with a standard deviation of .97. In reading, the mean was 2.76, with a standard deviation of .97. As with the first graders, reading scores were higher than math scores.

Correlational Analyses

Statistically significant correlations ranged from .17 to .37 (see Table 3). For first graders, race was correlated with reading and math scores, indicating that White children had higher reading and math scores than non-Whites, primarily African Americans. Gender was also correlated with math grades for first graders in that boys had higher math grades than girls. Mastery motivation, but not judgment motivation, was correlated with reading and math grades. For third graders, race, mastery motivation, and judgment motivation were significantly correlated with academic achievement. As with the first graders, Whites had higher reading and math grades than non-Whites, and higher levels of intrinsic motivation were found to be related to higher academic achievement.

Regression Analyses

The results of the two-step regression analyses are depicted in Tables 4 and 5. Although the results were for the most part statistically significant, they nevertheless have limited importance, particularly in terms of the amount of variance explained by the predictor variables.

First-grade children. When race and gender were regressed on reading grades, race was found to be a predictor of academic achievement (see Table 4). Mastery motivation was a significant predictor of reading grades. The predictor variables

TABLE 4: Regression of Predictor Variables and Academic Achievement in First-Grade Children (*N* = 122)

	Reading Grades						*Math Grades*					
	Step 1			*Step 2*			*Step 1*			*Step 2*		
Predictor	B	β	t	B	β	t	B	β	t	B	β	t
Race	.20	.15	1.69*				.25	.23	2.56*			
Gender	.15	.12	1.36				–.19	–.18	–2.02			
Mastery				.01	.20	2.08*				.01	.23	2.45*
Judgment				.00	–.07	–.71				.01	–.14	–.15
Constant	2.13			1.46			2.13			1.59		
F	2.18			2.20			5.73*			4.62*		
R^2	.04			.07			.09			.14		
ΔR^2				.04						.05*		

*$p \leq .05$.

TABLE 5: Regression of Predictor Variables and Academic Achievement in Third-Grade Children (*N* = 129)

	Reading Grades						*Math Grades*					
	Step 1			*Step 2*			*Step 1*			*Step 2*		
Predictor	B	β	t	B	β	t	B	β	t	B	β	t
Race	.67	.34	4.06*				.64	.31	3.59*			
Gender	–.13	–.06	.76				.15	.07	.84			
Mastery				.01	.16	1.90*				.02	.16	1.85*
Judgment				.02	.16	1.87*				.01	.12	1.42*
Constant	2.40			.82			2.21			.64		
F	9.08*			.70*			7.30*			5.50*		
R^2	.13			.19			.10			.15		
ΔR^2				.06*						.05*		

*$p \leq .05$.

explained less than 10% of the variance in reading grades and neither the overall model nor the change in R^2 was statistically significant.

For math grades, both control variables were predictors of academic achievement. When the motivation variables were entered into the model, mastery motivation was a predictor of math grades; judgment motivation was not. The overall model was statistically significant, and the predictor variables explained less than 15% of the variance in math grades. The change in R^2 was also statistically significant, indicating that intrinsic classroom motivation is predictive of academic achievement after controlling for the influences of race and gender.

Third-grade children. As found with the first-grade children, race, but not gender, was a predictor of reading grades (see Table 5). Both mastery and judgment motivation were significant predictors of reading grades when entered into the model. The overall model was significant, although less than 20% of the variance in reading grades was explained by the predictor variables. The change in R^2 was also

statistically significant, indicating that intrinsic classroom motivation is predictive of reading grades after controlling for the influences of race and gender.

For math grades, race, but not gender, was a predictor and mastery motivation, not judgment motivation, was a predictor of math grades when entered into the model. The overall model was significant, although less than 15% of the variance in math grades was explained by the predictor variables. The change in R^2 was also statistically significant, indicating that intrinsic classroom motivation is predictive of math grades after controlling for the influences of race and gender.

DISCUSSION AND CONCLUSIONS

The purpose of this study was to examine the relationship between classroom motivation and academic achievement in an understudied age of childhood. Specifically, this study sought to investigate the relationships between mastery and judgment motivation and math and reading grades. In general, the results of the current study modestly supported the hypothesis that intrinsic classroom motivation is positively related to academic achievement, particularly for third-grade children.

Mastery and judgment motivation were both found to be positively related to higher grades in third-grade children, whereas in first-grade children, mastery, but not judgment motivation, was found to be positively related to higher grades. These findings are consistent with previous studies indicating positive relationships between motivation and achievement in young children (Boggiano et al., 1992; Gottfried, 1985, 1990). Possible explanations for this result are twofold. First, it could be attributed to the difference between their cognitive stages of development. The majority of first-grade children are still in the pre-operational stage of development and may not be able to objectively judge their own work. On the other hand, most third-grade children are in the concrete operational stage of development and may be more confident in their judgments of their own work and success. A second reason for this result could be related to socialization in the school environment. It could be that the third graders in this study possess more experience in having their work judged and critiqued by adults and have internalized some of these criteria.

A somewhat different picture emerged with the results of the regression analyses. Mastery motivation, but not judgment motivation, was found to be significantly related to academic achievement for first-grade children. For third-grade children, both motivation variables were significant predictors of academic achievement. Regardless of grade level and subject area, mastery motivation may be a better predictor of academic achievement in young elementary-school-aged children than judgment motivation. This finding is consistent with Harter's (1981) seminal longitudinal study of children from grades three through nine in which higher levels of mastery motivation were found in the lower grades and shifts from intrinsic to extrinsic mastery motivation and from extrinsic to intrinsic judgment motivation over time were found.

It should be further noted that even though the predictor variables were found to be significantly related to academic achievement, the amount of variance in academic achievement explained by the predictor variables was low. This finding indicates that important aspects of academic achievement may have been omitted in the current study. From an ecological perspective (Bronfenbrenner, 1979, 1986; Bronfenbrenner & Morris, 1998), there are environmental factors that could have

been explicitly included. A couple of examples would be aspects from the microsystem, such as family functioning and classroom climate, and aspects from the macrosystem, such as community and culture.

A review of the literature revealed few studies that examined motivation and academic achievement in young children. The results of the current study counter previous studies conducted that found little or no direct relationship between motivation and academic achievement for young children (Goldberg & Cornell, 1998; Stipek & Ryan, 1997). The results support the previous research done in the field and are in line with the motivation literature that found positive relationships between intrinsic motivation and academic achievement in young children. For example, Gottfried (1985, 1990) found positive relationships between motivation and achievement as did this study. Moreover, in a study of fifth-grade children, Boggiano et al. (1992) found that children with an intrinsic motivational orientation had higher reading and math scores and higher overall achievement scores than their extrinsically motivated counterparts.

Limitations

Although the present results provided some support for the hypothesized relationships, limitations of the current study should be acknowledged and kept in mind when interpreting the findings. First, the participants were not randomly selected from the population; therefore, a non-probability sample was used in this study. This sampling procedure might limit the generalizability of the results. Second, this study was conducted in a mid-sized, Southern city. Therefore, the results may not be applicable to other geographical locations or to other school systems across the country. Third, as previously mentioned, this study focused on a confined number of factors and imperfectly measured ones. In terms of the latter, the measurement of academic achievement for first graders was limited to three rather than five values because of the way that grades were assigned in the local school systems. In addition, the findings may have been different if another measure of academic achievement was used, such as standardized test scores. For that matter, the findings may have been different if another assessment of motivation was used—one not based on effectance or mastery motivation theory but rather, on other theories, such as attribution theory, self-efficacy theory, or self-regulation theory. When considering the complex nature of human behavior and school performance, many other variables are likely to influence this outcome. Last, this study did not incorporate a longitudinal design. Therefore, relationships over time between motivation and achievement could not be addressed.

Implications for Parents and Educators

Although a subject of debate, as evidenced by the results of Cameron and Pierce's (1994) meta-analysis, research in the field of motivation has revealed that extrinsic rewards may decrease intrinsic motivation in young children (Kassin & Lepper, 1984) and that children's intrinsic motivation for learning may diminish as they begin to adapt to the incentive structure of our elementary schools (e.g., grades, praise, and criticism) (Harter, 1981). Parents and educators might want to avoid using certain methods or practices in the home and school environments that

inhibit the development of intrinsic motivation. In particular, rewards offered for simply engaging in a task rather than the quality of its completion may undermine intrinsic motivation (Cameron & Pierce, 1994). Thus, both parents and educators should avoid tangible rewards simply for task completion and may want to consider minimal use of external rewards with young children (Eccles et al., 1998). For example, a special dinner or pizza party could be beneficial to celebrate a successful grade on a difficult test but not for test completion or every acceptable grade. Parents and educators might also want to compliment behavior that is not usually rewarded, such as teamwork and cooperation.

Almost 20 years ago, Cannella (1986) discussed rewards in the classroom setting, including the importance of recognizing a specific accomplishment of a child versus general comments that are typically unclear. Cannella further developed guidelines for teachers and cautioned them not to assume that social or concrete rewards always positively influence learning. More recently, the best practices advocated by the National Association for the Education of Young Children involve providing reinforcement on process rather than product (Bredekamp & Copple, 1997). Thus, parents may want to call attention to what their children are learning rather than the performance or outcome, and educators should refrain from controlling motivation techniques and use information-based techniques instead. For example, a teacher should say "You're doing fine" or "I like how you've drawn your picture" as opposed to "I bet you will want to do well" or "I know you can do better." Parents and teachers should also offer comparisons on the progress they've noted for each of their students or children. For example, pointing out progression in reading out loud or handwriting or even social skills such as sharing and listening.

Implications for Research

The results of this study also may provide potential insights for future research. First and foremost, more studies need to be done on young children. As indicated by this study's review of the literature, research on young children's motivation is an understudied area. As previously stated, examining the construct of intrinsic motivation in young elementary school children is significant and important because academic intrinsic motivation in the early elementary years may have profound implications for initial and future school success (Gottfried, 1990). To better predict academic achievement, some of the other variables that are likely to influence academic performance should be included in future studies. From an ecological perspective, a variable from the microsystem to consider would be parenting styles. Studies have indicated a link between parenting styles and school performance in older children (e.g., Baumrind, 1991; DeBaryshe, Patterson, & Capaldin, 1993). Other microsystem variables to consider would be classroom differences, instructional practices, and teachers' beliefs. Previous research has revealed a connection between classroom practices and stress in young children (Burts, Hart, Charlesworth, & Kirk, 1990; Hart et al., 1998), and these same classroom practices may also influence young children's motivation. Additional studies with a focus on gifted and talented samples, advantaged versus disadvantaged children, and gender and ethnic differences in motivation would strengthen this area of research. In conclusion, more research needs to be done to better establish the antecedents, correlates, and consequences of intrinsic motivation on the development of young

children. This research should test both prevalent motivational theories and embrace contemporary theories of human development, such as ecology theory.

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