

## Self-Motivation for Academic Attainment: The Role of Self-Efficacy Beliefs and Personal Goal Setting

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*The causal role of students' self-efficacy beliefs and academic goals in self-motivated academic attainment was studied using path analysis procedures. Parental goal setting and students' self-efficacy and personal goals at the beginning of the semester served as predictors of students' final course grades in social studies. In addition, their grades in a prior course in social studies were included in the analyses. A path model of four self-motivation variables and prior grades predicted students' final grades in social studies,  $R = .56$ . Students' beliefs in their efficacy for self-regulated learning affected their perceived self-efficacy for academic achievement, which in turn influenced the academic goals they set for themselves and their final academic achievement. Students' prior grades were predictive of their parents' grade goals for them, which in turn were linked to the grade goals students set for themselves. These findings were interpreted in terms of the social cognitive theory of academic self-motivation.*

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In recent years, there has been a growing interest in students' self-regulation of their academic learning and performance (e.g., Corno, 1989; Harris, 1990; McCombs & Marzano, 1990; Paris & Newman, 1990; Pressley & Ghatala, 1990; and Zimmerman & Schunk, 1989). Academic self-regulation is concerned with the degree to which students are metacognitively, motivationally, and behaviorally proactive regulators of their own learning process (Zimmerman, 1986, 1990a). Self-regulated learners are not only distinguished by their proactive orientation and performance but also by their self-motivative capabilities.

From a social cognitive perspective (Bandura, 1986; 1989b; 1991a), self-regulated learners direct their learning processes and attainments by setting challenging goals for themselves (Bandura, 1989c; Schunk, 1990), by applying appropriate strategies to achieve their goals (Zimmerman, 1989), and by enlisting self-regulative influences that motivate and guide their efforts (Bandura & Cervone, 1983, 1986). Self-regulated learners exhibit a high sense of efficacy in their capabilities, which influences the knowledge and skill goals they set for themselves and their commitment to fulfill these challenges (Zimmerman, 1989, 1990b). This conception of self-directed learning not only encompasses the cognitive skills emphasized by metacognitive theorists, but also extends beyond to include the self-regulation of motivation, the learning environment, and social supports for self-directedness.

An increasing body of evidence provides support for these assumptions. Experimental studies have shown that teaching low-achieving students to set proximal goals for themselves enhances their sense of cognitive efficacy, their academic achievement, and their intrinsic interest in the subject matter (Bandura & Schunk, 1981; Schunk, 1983). Numerous studies have shown that students with a high sense of academic efficacy display greater persistence, effort, and intrinsic interest in their academic learning and performance (Schunk, 1984, 1989). Finally, a growing body of correlational research indicates that self-regulated learners make greater use of learning strategies and achieve better than do learners who make little use of self-directed learning strategies (Zimmerman & Martinez-Pons, 1986, 1988, 1990). To date, however, the causal impact of students' self-efficacy beliefs, personal goal setting, and use of learning strategies on their academic grades under natural school conditions has not been systematically examined.

According to social cognitive theory (Bandura, 1986, 1991b), goals increase people's cognitive and affective reactions to performance outcomes because goals specify the requirements for personal success. Goals also prompt self-monitoring and self-judgments of performance attainments (Bandura & Cervone, 1983, 1986; Locke, Cartledge, & Knerr, 1970). However, self-regulation of motivation depends on self-efficacy beliefs as well as on personal goals. Perceived self-efficacy influences the level of goal challenge people set for themselves, the amount of effort they mobilize, and their persistence in the face of difficulties. Perceived self-efficacy is theorized to influence performance accomplishments both directly and indirectly

### *Self-Motivation for Academic Attainment*

through its influences on self-set goals. This hypothesized relationship has been tested and verified in organizational research (Bandura & Wood, 1989; Wood & Bandura, 1989).

In a recent comprehensive review, Locke and Latham (1990) provide substantial evidence that externally assigned goals in organizational settings can influence personally set goals. Parental goals might be expected to have a similar impact on children's goals. Although parental aspirations for children have been found to affect children's achievement (e.g., Henderson, 1981; Majoribanks, 1978), the influences of parental goal setting have received little attention to date. From a social cognitive perspective, students' personal goal setting is influenced jointly by their self-beliefs of efficacy and the goals their parents set for them. In addition, *strategies* for regulating self-motivating processes as well as academic learning processes play an important role. Zimmerman and Martinez-Pons (1992) have reviewed evidence corroborating a close link between students' use of self-regulated learning strategies and their perceptions of academic efficacy. However, the impact of students' perceived self-efficacy for using self-regulated learning strategies has not been tested directly.

Recently Bandura (1989a) developed multidimensional scales for measuring perceived self-regulatory efficacy for academic achievement, and children's perceived self-efficacy in other domains of functioning. The scales for perceived self-efficacy for self-regulated learning assess students' perceived capability to use a variety of self-regulated learning strategies such as planning and organizing their academic activities, transforming instructional information using cognitive strategies to understand and remember material being taught, resisting distractions, motivating themselves to complete school work, structuring environments conducive to study, and participating in class. These items were developed to measure learning strategies reported by high school students during structured interviews (Zimmerman & Martinez-Pons, 1986, 1988).

Perceived self-efficacy for academic achievement items assessed students' beliefs in their capability to learn nine areas of course work, ranging from mathematics to foreign language proficiency. It was hypothesized that students' perceived efficacy to use self-regulated learning strategies would enhance their perceived efficacy to achieve in their academic courses.

The following conceptual model of self-regulated motivation and academic learning was tested: Students' perceived self-regulatory efficacy would influence their perceived self-efficacy for academic achievement, and their efficacy should, in turn, influence their personal goals and grade achievement. These causal paths are depicted in Figure 1.

Following Locke and Latham (1990), a second causal path was hypothesized linking parents' academic goals to their children's personal goals, which in turn are linked to their academic grades. Because self-efficacy beliefs and parental and student grade goals are expected to be influenced by prior academic achievement, the latter variable was entered as an antecedent in-

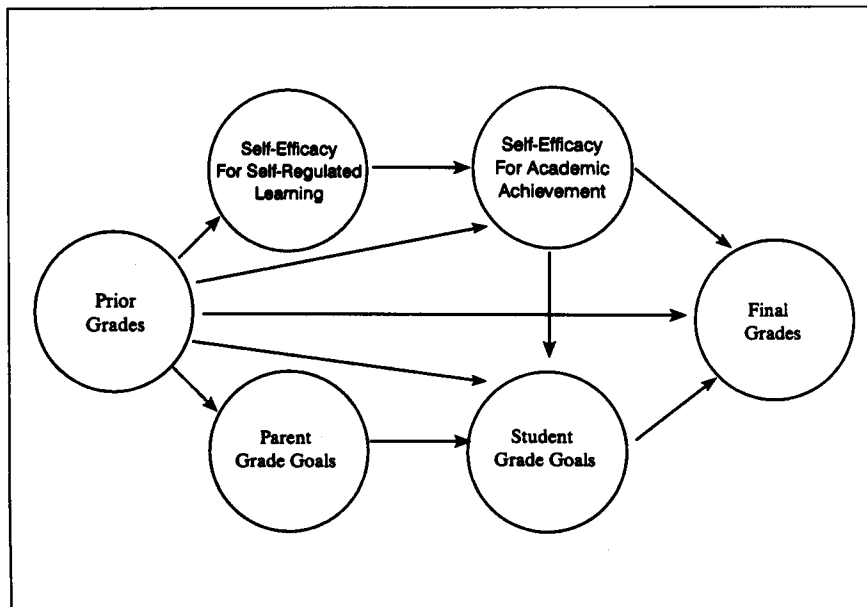


Figure 1. A causal model of student self-motivation

fluence in the causal model. The inclusion of prior achievement will indicate whether self-regulatory efficacy and goal factors make independent contributions to subsequent academic achievement. Path analysis was used to test the sociocognitive model of academic self-motivation and achievement.

## Method

### Sample

From two high schools in a large Eastern city, 116 ninth and tenth graders were selected to participate in this study. However, 2 students were dropped due to parental refusal to participate, and 12 students were dropped for parental failure to return their questionnaires. Thus, 102 students participated: 50 boys and 52 girls. The schools served lower middle-class neighborhoods, and the students were 17% Asian, 34% Black, 23% Hispanic, and 24% White; 2% did not report their ethnicity. Each of five teachers who taught ninth- and tenth-grade classes in social studies agreed to include one of his or her randomly selected classes in the study. Social studies was selected because the course was required of all students and was not subject to academic tracking according to ability. It thus provided a representative sample of the students attending the high schools.

### Student Perceived Self-Efficacy

Two subscales from the *Children's Multidimensional Self-Efficacy Scales* (Bandura, 1989a) were selected for use in this study: self-efficacy for self-

### *Self-Motivation for Academic Attainment*

regulated learning and self-efficacy for academic achievement. The *self-efficacy for self-regulated learning* scale included 11 items that measured students' perceived capability to use a variety of self-regulated learning strategies. Previous research on students' use of these learning strategies revealed a common self-regulation factor (Zimmerman & Martinez-Pons, 1988), thus providing a basis for aggregating items in a single scale. The *self-efficacy for academic achievement* scale was composed of nine items that measured students' perceived capability to achieve in nine domains: mathematics, algebra, science, biology, reading and writing language skills, computer use, foreign language proficiency, social studies, and English grammar. The items of both sets of self-efficacy scales are listed in Table 1. For each item, students rated their perceived self-efficacy according to a 7-point scale. The descriptions were *not well at all* for a rating of 1, *not too well* for 3, *pretty well* for 5, and *very well* for 7.

#### **Grade Goals**

Both the students' and their parents' grade goals were assessed using rating scales developed by Locke and Bryan (1968). They examined numerous variations in question formats and found two important measures for deriving valid ratings of college students' academic grade goals: one's expected grade and the grade one regarded as minimally satisfying. Locke and Bryan found these two measures to be highly correlated,  $r = .67$ , and recommended using them together to provide an index of goal setting. For purposes of the present study, students rated their goal expectation and the lowest academic grade they would find satisfying in terms of 5 grade levels. Five response options were 1 = F (0-59%), 2 = D (60-69%), 3 = C (70-79%), 4 = B (80-89%), and 5 = A (90-100%). Percentages were included along with letter grades because of the widespread use of this dual system of grading in these schools. To provide the most reliable measure of students' grade goals, the two items were combined into a single measure of *students' grade goals*.

Two parallel goal items were developed for the parents regarding the goal levels they held for their children in the social studies class: (a) What academic grade do you expect your child to receive in the social studies course? and (b) What is the lowest academic grade you find satisfying for your child in this course? Parents recorded their goals using letter-grade response options. These two items were combined in a single measure of *parental grade goals*.

#### **Procedure**

The self-efficacy and goal-setting scales were included in a questionnaire that was administered in the students' social studies class. In addition, the students were asked to provide demographic information (sex, grade, age, ethnicity) and their identification number but not their names. They were assured of anonymity and that only the investigators would see their answers.

Table 1  
**Self-Efficacy Item Means and Standard Deviations**

| Items  | <i>M</i> | <i>SD</i> |
|--|----------|-----------|
| How well can you:  |          |           |
| <i>Self-efficacy for self-regulated learning</i>             |          |           |
| 1. finish homework assignments by deadlines?                 | 4.84     | 1.63      |
| 2. study when there are other interesting things to do?      | 3.49     | 1.50      |
| 3. concentrate on school subjects?                           | 4.30     | 1.39      |
| 4. take class notes of class instruction?                    | 5.34     | 1.52      |
| 5. use the library to get information for class assignments? | 4.69     | 1.76      |
| 6. plan your schoolwork?                                     | 4.10     | 1.01      |
| 7. organize your schoolwork?                                 | 4.85     | 1.63      |
| 8. remember information presented in class and textbooks?    | 4.67     | 1.50      |
| 9. arrange a place to study without distractions?            | 4.16     | 1.84      |
| 10. motivate yourself to do schoolwork?                      | 4.42     | 1.79      |
| 11. participate in class discussions?                        | 4.88     | 1.71      |
| <i>Self-efficacy for academic achievement</i>                |          |           |
| 1. learn general mathematics?                                | 5.33     | 1.66      |
| 2. learn algebra?  | 4.81     | 1.91      |
| 3. learn science?  | 5.35     | 1.43      |
| 4. learn biology?  | 4.83     | 1.72      |
| 5. learn reading and writing language skills?                | 5.97     | 1.30      |
| 6. learn to use computers?                                   | 5.63     | 1.50      |
| 7. learn foreign languages?                                  | 4.41     | 1.85      |
| 8. learn social studies?                                     | 5.01     | 1.49      |
| 9. learn English grammar?                                    | 5.14     | 1.47      |

The questionnaires were administered shortly after the semester began in their social studies class. The parents' questionnaires were sent home with the students with instructions. The parents' completed forms were returned to the school by the students in a sealed envelopes.

At the end of the semester, the teachers provided the final grades for their students in the social studies course. Each student's grade in social studies for the prior year was obtained from school records. Prior academic achievement was selected because it was the most recent indicant of achievement and was identical in numerical form and academic content to each student's final grade in social studies. From a social cognitive perspective, this measure provided the most relevant previous academic experience that could influence students' perceptions of their efficacy and goal setting.

### Results

Cronbach alpha reliability tests were performed for each of the scales used in the present study. The two self-efficacy scales proved to be highly reliable. A coefficient of .87 was found for the 11-item self-efficacy for self-regulated learning scale, and a coefficient of .70 was found for the 9-item self-efficacy

### Self-Motivation for Academic Attainment

for academic achievement scale. The two student grade goal items correlated .65, which was similar to the correlation of .60 reported by Locke and Bryan (1968) by college students. The two parent grade goal items correlated .45. The Cronbach reliability coefficients were .80 for the student goal items and .63 for the parent goal items.

The means and standard deviations for the two self-efficacy scores are presented in Table 1. With regard to self-efficacy for self-regulated learning, students rated their efficacy lowest for being able to get themselves to study when there were other more interesting things to do ( $M = 3.49$ ) and highest for being able to take notes on class instruction ( $M = 5.34$ ). With regard to self-efficacy for academic achievement, they rated their efficacy lowest for learning foreign languages ( $M = 4.41$ ) and highest for learning reading and writing language skills ( $M = 5.97$ ).

The means and standard deviations for each of the variables in the causal model are presented in Table 2. The mean for the final grade in the social studies course was 3.75, which falls between a B (4) and a C (3). The students' mean grade in their prior social studies course was slightly lower at 3.43. The average perceived self-efficacy for self-regulated learning was 4.53, which was below the *pretty well* level. The average perceived self-efficacy for academic learning was 5.16, slightly above the rating of *pretty well*. Students' grade goals were 3.21 for their expected grade and 3.16 for the lowest satisfying grade. Their parents' expected grade was 4.22, and the lowest satisfying grade was 3.74. The parents' grade goals were significantly higher than their children's mean for both these two items ( $t(101) = 8.16, p < .01$ ).

Correlation coefficients for the different variables are in Table 3. Students' prior grade in social studies correlated significantly with their perceived academic self-efficacy,  $r = .22$ , their grade goal,  $r = .23$ , their parents' grade goal,  $r = .26$ , and their final grade in the course  $r = .23$ . Students' perceived efficacy for academic achievement correlated significantly with their grade goals,  $r = .41$ , and with their final grades in social studies,  $r = .39$ . The grade goals of the parents correlated significantly with their

Table 2  
Means and Standard Deviations for Self-Efficacy, Goals, and Grades

| Variables                                | <i>M</i> | <i>SD</i> |
|--|----------|-----------|
| 1. Prior grades                          | 3.43     | .91       |
| 2. Efficacy for self-regulated learning* | 4.53     | 1.07      |
| 3. Efficacy for academic achievement*    | 5.16     | .86       |
| 4. Parent grade goals                    | 7.96     | 1.08      |
| 5. Student grade goals                   | 6.37     | 1.61      |
| 6. Final grades                          | 3.75     | .81       |

Note.  $N = 102$ .

\*Average item rating.

Table 3  
Correlations Among Measures of Self-Efficacy, Goals, and Grades

| Variables                               | 1    | 2    | 3    | 4    | 5    | 6    |
|---|------|------|------|------|------|------|
| 1. Prior grades                         | 1.00 |      |      |      |      |      |
| 2. Efficacy for self-regulated learning | .14  | 1.00 |      |      |      |      |
| 3. Efficacy for academic achievement    | .22* | .51* | 1.00 |      |      |      |
| 4. Parent grade goals                   | .26* | .15  | .14  | 1.00 |      |      |
| 5. Student grade goals                  | .23* | .30* | .41* | .41* | 1.00 |      |
| 6. Final grades                         | .23* | .16  | .39* | .26* | .52* | 1.00 |

Note. N = 102.

\* $p < .05$ .

child's grade goals,  $r = .41$ . The students' personal grade goals were related to their final grades in social studies,  $r = .52$ . Finally, students' perceived efficacy for self-regulated learning correlated significantly with their self-efficacy for academic achievement,  $r = .51$ .

Before testing the proposed model of self-motivation, two background factors were examined, namely, the students' school and class membership. The scores of the students on each of the variables in the model were compared between the two schools and between each class and the remaining four classes in a series of regression analyses. None of these comparisons yielded any significant differences for students' prior grades for their grade goals or their parents' goals, for students' self-regulatory and academic self-efficacy, or for their final grades. The largest unstandardized beta weight,  $-.65$ , was nonsignificant. As a result neither of these two background factors was included in the final path model. The causal structure of the path model is presented in Figure 2.

The path analysis was conducted using SPSS (Statistical Package for the Social Sciences) procedures (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). A multivariate test for the fit of the model indicated no significant divergence, chi-square (8) = 3.78, ns. Thus, none of the causal paths excluded from the model was statistically significant. The model of self-motivation and students' prior grade achievement was predictive of their final grade in their social studies course,  $R = .56$ ,  $p < .01$ , and accounted for 31% of the variance in their academic attainment.

The path between students' prior grade in social studies and their parents' grade goal for them was significant,  $P = .26$ , but none of the other paths between the students' prior grade and motivation factors attained significance. Nor was the direct path between prior grade and final grade in social studies significant when the impact of self-motivation factors was controlled statistically.



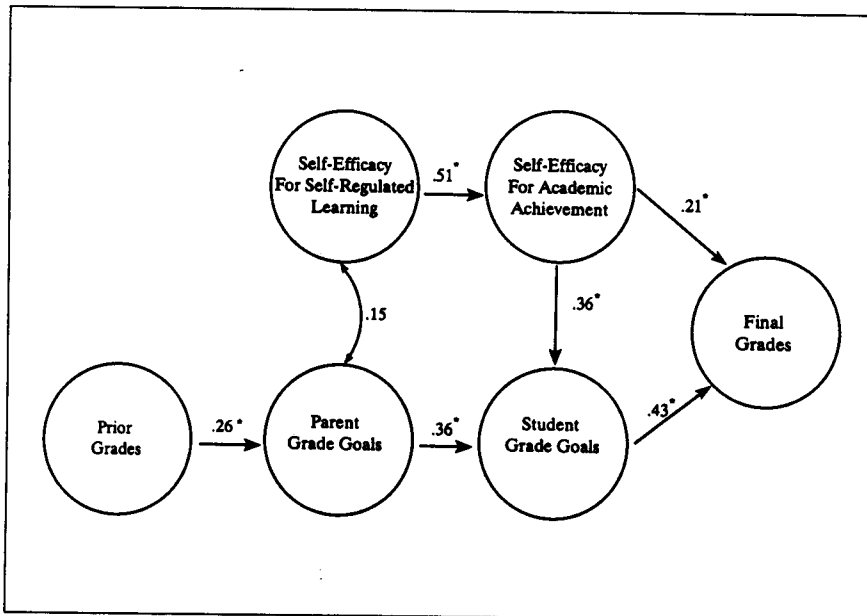


Figure 2. Path coefficients between variables in the sociocognitive model of students' self-motivation and class grades (\* $p < .05$ )

As hypothesized, a significant causal path was found between students' perceived efficacy for self-regulated learning and their efficacy for academic achievement,  $P = .51$ . Students' perceived self-efficacy for academic achievement predicted both their final grade in the course,  $P = .21$ , and their personal goals,  $P = .36$ . Students' grade goals were significantly predictive of their grades in social studies,  $P = .43$ . The combined direct and indirect (i.e., via student goals) causal effect of students' perceived self-efficacy for academic achievement on their final grades was  $P = .37$ ,  $p < .05$ . Parental grade goals were also causally related to student personal goal setting,  $P = .36$ . The direct paths from student self-efficacy for self-regulated learning to their grade outcomes and from their parents' grade goals to students' grade outcomes were not significant.

### Discussion

The present investigation tested the predictiveness of several self-motivational factors of students' academic achievement in the naturalistic context of a high school social studies class. It was an initial effort to test a social cognitive model of academic self-motivation for subsequent academic achievement in a regular class. The proposed model provided a statistically adequate fit for the obtained data, with perceived self-efficacy for academic achievement and student goals accounting for 31% of the variance in the students' academic course attainment. Although the selected self-motivational factors make a significant contribution to academic attainment,

a major portion of the variance in student grades under these natural conditions remains unexplained. Social cognitive theory encompasses additional motivators and guides for performance (Bandura, 1986; 1991b). For example, outcome expectations in the form of anticipatory social and self-evaluative consequences operate as significant contributions to personal attainments. The fully expanded sociocognitive model would most likely account for even more of the variance in academic attainment.

Inferences about causality are often difficult to make in field research because of many uncontrolled background sources of variance. However, two key extraneous variables in this study, students' school and class membership, were eliminated through a series of regression analyses as alternative explanations for the results. Students' prior achievement was entered first in the path model as a potential determinant of perceived self-efficacy, students' and parental goals, and their final academic attainment. The use of this measure of prior achievement provided a particularly stringent test of the independent contribution of the self-regulatory factors because this measure (prior course grade) was obtained recently, was directly relevant to the current course, and was identical metrically for the two academic learning periods. Although prior grade attainment correlated with student academic self-efficacy and goal setting, it operated only through parents' academic goals for their children. Apparently, parents rely on their children's prior grade accomplishments when they set goals for their children; however, their children rely on their self-efficacy beliefs as well as their parents' aspirations for them when setting their goals.

Interestingly, the direct path of influence between students' prior grades and final grades was not significant. This suggests that self-regulatory factors not only mediated the influence of prior achievement, but also contributed independently to students' academic attainment. Whereas prior grades were correlated,  $r = .23$ , with subsequent grades, perceived self-efficacy and academic goals combined to produce a multiple correlation of .56. This represents an increase of 26% in predicted variance in final academic attainment.

It might be questioned whether the size of these self-motivation results was affected by the low correlation between students' prior grades and their final grades in the course. Would a standardized test measure of prior achievement correlate better and correspondingly reduce the relative predictiveness of self-regulation measures? Recently, a highly regarded standardized test was compared with another academic self-regulation measure, time-management ratings. Britton and Tesser (1991) found that college students' Scholastic Aptitude Test (SAT) scores correlated  $r = .20$  with their cumulative grade point during the freshman and sophomore years. In contrast, time-management questionnaire items predicted substantially more variance ( $R^2 = .21$ ) than SAT items did ( $R^2 = .05$ ). These researchers concluded that the best predictor, a time attitude factor, "seems very much like self-efficacy. Subjects report feelings of being in charge of their own

time" (Britton & Tesser, 1991, p. 409). Although this issue merits further study, there is no reason to assume that the results would have been affected substantially by using standardized test scores in place of prior grades in the same subject matter area.

The path analyses provided support for a social cognitive view of academic self-regulation. As expected, personal goals played a key role in students' attainment of grades in school. These self-set goals committed the students to specific grade achievements for positive self-evaluation. In accord with prior research, the higher the perceived self-efficacy, the higher the goals students set for themselves (Bandura, 1992; Locke & Latham, 1990). Self-efficacy influenced not only students' setting of academic goals for themselves, but also their achievement of these goals. The direct and indirect influence of students' perceived academic self-efficacy on academic attainment produced a combined effect of .37.

As might be anticipated, parents' academic goals for their children were significantly higher than those their children set for themselves. However, the influence of parents' grade goals on their children's goals was tempered by the youngsters' beliefs in their academic efficacy. This finding indicates that academic attainment is regulated, in large part, through self-motivating influences. Further research is needed to determine *how* parents socially influence their children's goal setting.

The findings of this study correspond with what many parents and teachers have learned from frustrating personal experiences: Students often do not adopt the high academic aspirations imposed upon them. Clearly, a determinant of student aspirations is their belief in their academic efficacy. Efforts to foster academic achievement need to do more than simply set demanding standards for students. They need to structure academic experiences in a way that enhances students' sense of academic efficacy as well.

The significant path between parents' grade goals and their children's provides some initial evidence of a causal linkage of goal setting in the academic domain. Previously, most of the assigned and participant goal setting research had been conducted on performance in the organizational domain. The evidence of parental social influence is important because parents can only monitor their children's goal setting and performance in school indirectly. As might be expected, the size of the strength of parental influence on their children's goal setting,  $r = .41$ , is lower than that reported in research in nonacademic settings,  $r = .58$ , by Locke and Latham (1990). In organizational applications, goals are used primarily to enhance use of preexisting skills; in the academic domain, goals are used to develop knowledge and cognitive skills. It is easier to use skills than to develop them originally. Additionally, the social dynamics of the two settings are different. Nevertheless, the present results show that social influences on motivational processes underlying academic self-regulated learning are similar to those underlying performance in nonacademic settings.

A sizable body of research demonstrates that students' use of learning

*Zimmerman, Bandura, and Martinez-Pons*

strategies promotes academic achievement (Pressley, Borkowski, & Schneider, 1987; Weinstein, Goetz, & Alexander, 1988; Zimmerman & Martinez-Pons, 1986, 1988, 1990). However, there is also evidence (Borkowski & Cavanaugh, 1979; Kramer & Engle, 1981) that knowledge of learning strategies does not ensure their effective and consistent use. The present results indicate that student self-beliefs of efficacy to strategically regulate learning play an important role in academic self-motivation. A significant causal path was found between efficacy for self-regulated learning, efficacy for academic achievement, and academic attainment. Students who perceived themselves as capable of regulating their own activities strategically are more confident about mastering academic subjects and attain higher academic performance.

In conclusion, perceived efficacy to achieve motivates academic attainment both directly and indirectly by influencing personal goal setting. Self-efficacy and goals in combination contribute to subsequent academic attainments. However, substantial variance in student achievement remains to be explained, and future research efforts need to focus on additional self-regulatory factors, such as self-monitoring, judgmental processes, and self-reactive influences (Zimmerman, 1989), as well as other influences, such as reading ability and home environment measures, that might affect children's academic pursuits. Research also needs to be extended to include interviews and behavioral measures of academic studying as well as survey rating scales. Such an expanded model is likely to provide a more complete picture of the relative role of self-regulatory factors in student academic achievement.

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### Self-Motivation for Academic Attainment

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Zimmerman, Bandura, and Martinez-Pons

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