

A Closer Look at College Students:

Self-Efficacy and Goal Orientation

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Despite increases in undergraduate college student enrollment, low academic achievement, and high attrition rates persist for many students (Devonport & Lane, 2006; Lloyd, Tienda, & Zajacova, 2001; Tinto, 1994). There are many reasons that students drop out of college, some of which include unrealistic expectations about college, financial difficulties, stress, and lack of study strategies (Allen, 1999; Chemers, Hu, & Garcia, 2001; Lee, Kang, & Yum, 2005; Tinto, 1987). College students who are at risk of dropping out tend to have difficulties adjusting to college as indicated by low academic achievement (Gillock & Reyes, 1999; Murtaugh, Burns, & Schuster, 1999). Given that student retention is now one of the leading challenges faced by colleges and universities, research seeking to understand students' reasons for attrition is of critical importance.

Of the many factors that may influence students' retention and underachievement, this study examined students' motivation towards learning, which has been found to be a strong predictor of students' achievement (Ames & Ames, 1984; Caraway, Tucker, Reinke, & Hall, 2003; Dweck, 1986; Elliot, 1999; Schunk, 1989). Motivation is a process in which a goal-directed activity is initiated and sustained (Pintrich & Schunk, 2002), and it is related

Given that student retention is now one of the leading challenges faced by colleges and universities, research seeking to understand students' reasons for attrition is of critical importance. Two factors influence students' underachievement and subsequent dropping-out of college: self-efficacy and goal orientation. Self-efficacy refers to peoples' judgments about their abilities to complete a task. Goal orientations refer to the motives that students have for completing tasks, which may include developing and improving ability (mastery goals), demonstrating ability (performance-approach goals), and hiding lack of ability (performance-avoidance goals). This study examined differences among goal orientations and self-efficacy using two distinct student groups: college students in good academic standing (GPA of 2.0 or higher) and college students on academic probation (GPA of less than 2.0). Results indicated that self-efficacy and mastery goals were positively related to academic standing whereas performance-avoidance goals were negatively related to academic standing. Students in good academic standing reported having higher self-efficacy and adopted significantly more mastery goals toward learning than students on academic probation. Among students who reported having high self-efficacy, those on academic probation reported adopting significantly more performance-avoidance goals than those in good academic standing. These findings suggest that teachers should identify those students with not only low self-efficacy, but those also adopting performance-avoidance goals. Teachers and administrators may be able to provide guidance to students who have beliefs and goals that contain maladaptive patterns of learning that sabotage their ability to succeed in school.

Summary

to (and can be inferred from) behaviors such as students' choice of tasks, initiation, persistence, commitment, and effort investment (Allen, 1999; Maehr & Meyer, 1997; Ormrod, 2006). Motivation also plays an influential role in students' retention. Early student achievement research conceptualized motivation as dichotomous in nature (i.e., students exhibit either internal or external motivation), but this line of research has now shifted to the examination of learners' cognition (Dweck, 1986). Recent research suggests that motivation varies based on situational and contextual factors (e.g., tasks, instruction). Within the college retention literature, motivation has been measured by students' aspiration, that is, the desire to finish college, and has also been identified as a form of "goal commitment" (Allen, 1999). Although these approaches have not been as comprehensive as the contemporary cognitive views of examining motivation through individuals' thoughts, beliefs, expectations, goals, and emotions, motivation researchers now see value in how and why students develop motivation through this approach (Linnenbrink & Pintrich, 2002). The implications of this research provide educators with a better understanding of their students' belief systems. Thus, classrooms can be designed to create environments and activities that will facilitate student motivation.

The present study addresses students' self-efficacy (defined as students' beliefs about their capabilities to successfully complete a task) and goal orientation (defined as students' reasons for approaching an academic task). The concern with identifying potential college noncompleters is critical, because there is a need to find strategies to retain such students and increase their achievement. The distinctions between noncompleters and achievers are stark. Students with more confidence generally are more willing to persist in the face of adversity, and students with goals of "mastering a task" tend to invest in focused effort. The purpose of this study is to address concerns raised by college educators (Chemers et al., 2001; Devonport & Lane, 2006) by examining differences between students in good academic standing and those who are on academic probation. Specifically, differences in students' self-efficacy beliefs and goals toward learning are examined. This information may be useful in the identifica-

tion of college students who are considered at risk for academic failure or are on the verge of dropping out of college.

Review of Literature

Self-Efficacy

As defined by Bandura (1997), self-efficacy refers to people's judgment of their capabilities to organize and successfully complete a task. An extensive body of research has examined the relationship between self-efficacy and achievement in the domains of math and reading (Betz & Hackett, 1983; Hackett, 1985; Hackett & Betz, 1989; Pajares, 1992, 2003; Pajares, Britner, & Valiante, 2000; Pajares & Johnson, 1996; Pajares & Miller, 1994, 1995), suggesting that students with higher self-efficacy perform better in these areas than students who have lower self-efficacy. Many researchers have also suggested that self-efficacy correlates highly with college achievement (Bong, 2001b; Chemers et al., 2001; Gore, 2006; Multon, Brown, & Lent, 1991; Zajacova, Lynch, & Espenshade, 2005) and it has been described as an essential component for successful learning (Zimmerman, 2000). Researchers suggest that self-efficacy beliefs influence academic motivation and achievement (Multon et al., 1991), given that students with higher self-efficacy tend to participate more readily, work harder, pursue challenging goals, spend much effort toward fulfilling identified goals, and persist longer in the face of difficulty (Bandura, 1997; Pajares, 2003; Schunk, 1991). Therefore, students not only need to have the ability and acquire the skills to perform successfully on academic tasks, they also need to develop a strong belief that they are capable of completing tasks successfully.

Motivation is thus reinforced when students believe that they are capable or feel that they can be successful. Having high self-efficacy may therefore lead to more positive learning habits such as deeper cognitive processing, cognitive engagement, persistence in the face of difficulties, initiation of challenging tasks,

and use of self-regulatory strategies (Pintrich 2000b; Pintrich & De Groot, 1990), all of which can contribute to students' college coursework success.

Goal Orientations

Although students' self-efficacy has been studied in great detail in the college performance literature (Alfassi, 2003; Chemers et al., 2001; Devonport & Lane, 2006; Zajacova et al., 2005), goal orientation theory, which has received less attention, may contribute to this line of research, given its influential role in motivation and performance. Goal orientation is defined as the motives that students have for completing their academic tasks (Ames, 1992; Dweck, 1986). Researchers have articulated three types of achievement goal orientations: mastery goals, where students pursue their competence by developing and improving their ability; performance-approach goals, where learners are concerned about demonstrating their ability; and performance-avoidance goals, where students' main concern is hiding their lack of ability (Elliot, 1999). Researchers have consistently concluded that mastery goals are associated with positive patterns of learning, achievement, and self-efficacy (Anderman & Young, 1994; Middleton & Midgley, 1997; Midgley & Urda, 1995; Pajares et al., 2000). However, inconsistencies have been found with regard to how performance-approach goal orientations relate to patterns of learning and self-efficacy beliefs. Although some researchers found a positive relation between performance-approach goals and self-efficacy (Bong, 2001a; Middleton & Midgley, 1997; Pajares et al., 2000; Wolters, Yu, & Pintrich, 1996), others have found performance-approach goals to be unrelated to self-efficacy (Anderman & Midgley, 1997; Middleton & Midgley, 1997). Performance-avoidance goals, on the other hand, have consistently been found to have negative relationships with self-efficacy, challenge-seeking behaviors, and intrinsic value for learning, and they appear to be linked to maladaptive patterns of learning (Elliot, 1999; Hidi & Harackiewicz, 2000; Middleton & Midgley, 1997; Pajares et al., 2000).

Researchers have recently further divided mastery goals into mastery-approach and mastery-avoidance goals (Elliot & McGregor, 2001; Pintrich, 2000a) to examine how these additional goals predict the need for achievement and the fear of failure. However, as Pintrich (2000a) suggested, it may not be easy to conceptualize a mastery-avoidance goal. Because empirical hypotheses examining the relationship between mastery-avoidance goals and performance are difficult to generate, we did not address these mastery goals in our study.

Purpose of the Study

Previous findings suggest that cognitive processes play an important role in students' motivation to persist in the face of challenge or to put forth effort when academic tasks become difficult. The goal of this study was to link the two areas of research by examining the interaction between students' goal orientation and self-efficacy and investigate how students with varying self-efficacy levels and academic standings differ in their adoption of academic goals and college achievement. By examining these motivation variables, we hope to be able to obtain a glimpse of how cognitive beliefs and goals contribute to college students' retention and to identify students who may be at risk of dropping out of college.

Based on the previous theoretical and empirical literature on self-efficacy and goal orientation, the following research questions guided this study:

1. How well do students' scores on the self-efficacy and each of the goal orientations scales predict achievement?
2. Are successful (students in good academic standing, with a GPA of 2.0 or above) and unsuccessful (students on academic probation, with a GPA below 2.0) students different in terms of their self-efficacy levels? If so, among the successful and unsuccessful students, how do those who have either a high or low level of self-efficacy differ in terms of their adoption of different goal orientations?

Method

Participants

Participants were 112 undergraduate students from a large, metropolitan, Hispanic-serving institution in the Southwest. Sixty students were on academic probation (GPA of less than 2.0) and 52 were in good academic standing (GPA of 2.0 or higher). The sample was 46.4% Hispanic, 41.2% White, 6.2% African American, 4.1% Asian American, and 2.1% other minority groups. Of the sample, 50.5% were male and 49.5% were female. Our sample included 51% freshmen, 3% sophomores, 17% juniors, and 28% seniors. All of the students on academic probation were freshmen from various programs. All of the students in good academic standing were students in an educational psychology course. For students in the good academic standing group, 6% were sophomores, 33% were juniors, and 61% were seniors. These differences in group composition constitute a limitation to the current study. Table 1 provides the demographic information for the entire undergraduate student body, for the total sample used in this study, and for each of the two groups included in this study (i.e., good academic standing and academic probation). As seen in Table 1, the proportions of the gender, ethnic groups, and age within the sample and subgroups are generally representative of the university's undergraduate student body.

Measures

Students completed two sets of questionnaires, with six items measuring students' perceived academic efficacy (e.g., I am certain I can master the skills taught in school this year) adopted from the Patterns of Adaptive Learning Survey (PALS; Midgley, Maecher, & Urdan, 1993). Eighteen items from the Achievement Goal Orientation Inventory (Elliot & Church, 1997) measured the three goal orientation subscales: mastery goals (e.g., I want to learn as much as possible while

Table 1

Demographic Information for the Sample by Group

	University Enrollment (<i>N</i> = 23,863)	Sample for This Study (<i>n</i> = 112)	Good Academic Standing (<i>n</i> = 52)	Academic Probation (<i>n</i> = 60)
Gender				
Male	47%	50.5%	42.9%	58%
Female	53%	49.5%	57.1%	42%
Ethnicity				
Hispanic	46.2%	46.4%	53.2%	40%
White	39%	41.2%	36.2%	46%
African American	6.9%	6.2%	6.4%	6%
Asian American	5.3%	4.1%	4.2%	4%
Other	2.5%	2.1%	0%	4%
Age				
18–23	63%	72%	50%	80%
24–29	26%	15%	27%	10%
Over 30	11%	13%	23%	10%
Socioeconomic Status				
Lower Class	N/A	20%	23%	18%
Lower Middle Class	N/A	30%	33%	30%
Middle Class	N/A	23%	21%	26%
Middle Upper Class	N/A	27%	23%	26%

Note. *N* for University Enrollment column is based only on undergraduate enrollment.

in college), performance-approach goals (e.g., It is important to me to do better than the other students), and performance-avoidance goals (e.g., I often think to myself, “What if I do badly in college?”). For each questionnaire, students were asked to rate whether they *agree* or *disagree* with the statements using a 5-point Likert scale, with scores ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Based on data from the sample used in this study, internal consistency reliability coefficients using coefficient alpha for self-efficacy, mastery, performance-approach, and performance-avoidance goals were .90, .77, .83,

and .72, respectively. To analyze group differences from the data, students were categorized into either the academically successful group or the academically unsuccessful group based on their GPA, with the cut-off at 2.0. The successful group included the 52 students who were in good academic standing, and the unsuccessful group included the 60 students who were on academic probation.

Procedure

One week before the beginning of the targeted semester, students who were on academic probation were required to attend a 3-hour workshop provided by the academic support unit of the university. During the workshop, which focused on accessing student resources and strategies for academic success, students were invited to complete the two sets of questionnaires. The second group of students, identified as the academically successful group, was recruited from two sections of an undergraduate educational psychology course. They were also invited to complete the two questionnaires. Upon receiving their consent to participate in this study, both groups of students were asked to report their GPA on the questionnaire and rate their self-efficacy about being a college student and goal orientations for learning in college.

Results

Research Question 1

To answer the first research question, we first calculated simple correlations among all measures. Means, standard deviations, and correlations among the variables are shown in Table 2. Results indicated that GPA was positively related to both self-efficacy ($r = .36, p < .01$) and mastery goal orientation ($r = .40, p < .01$), but negatively related to performance-avoidance goal orientation ($r = -.35, p < .01$). Results indicated no significant

Table 2

Means, Standard Deviations, and Correlations Among Self-Efficacy, Goal Orientations, and GPA

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Self-efficacy	4.13	.71					
2. Performance-Approach	3.33	.80	.24*				
3. Mastery	3.91	.67	.60**	.24*			
4. Performance-avoidance	3.30	.78	.06	.46**	.20		
5. GPA	2.22	.84	.36**	-.13	.40**	-.35**	-

* $p < 0.05$. ** $p < 0.01$.

relationship between GPA and performance-approach goals ($r = -.13, p > .01$). Consistent with what other researchers have found (Bong, 2001a; Church, Elliot, & Gable, 2001; Wolters, 2004), results of this study also indicated a strong positive correlation between performance-approach and performance-avoidance goals ($r = .46, p < .01$). These two goals are more similar than different because individuals who adopt either of these two goals tend to be more concerned about their performance as compared to others and how they will be judged by others than about the learning process. We also conducted a hierarchical regression analysis to evaluate how well self-efficacy and the different goal orientations predicted students' GPA. Results indicated that self-efficacy alone was significantly related to students' GPA, $R^2 = .13$, adjusted $R^2 = .12$, $F(1, 94) = 14.15, p < .001$. When goal orientation was added to the regression analysis, results indicated an R^2 change of .23, $F(3, 91) = 10.61, p < .001$, with performance-avoidance goals and mastery goals being the overall strongest predictor. That is, the less students reported the adoption of performance-avoidance goals and the more students adopted mastery orientations, the higher the GPA. Performance-approach orientation was not a significant predictor of GPA. Results are shown in Table 3.

Table 3

Hierarchical Regression Analysis: Using Self-Efficacy and Each Type of Goal Orientation to Predict GPA

Step	Variables	<i>B</i>	SE <i>B</i>	Standardized Coefficient β	<i>t</i>	Significance
1	Self-efficacy	.42	.11	.36	3.76	<.001
2	Self-efficacy	.21	.12	.18	1.67	<.09
	Mastery	.47	.14	.38	3.50	.001
	Performance-approach	-.10	.10	-.09	-.98	.330
	Performance-avoidance	-.41	.10	-.39	-3.95	<.001

Note. Adjusted $R^2 = .12$ for Step 1; $\Delta R^2 = .23$ for Step 2 ($p < .001$).

Research Question 2

To address the first part of the second research question, an ANOVA was conducted using self-efficacy scores as the dependent variable and the two groups of students as the independent variable. The two groups of students were formed based on their GPA cut-off created by the university. Results indicated that students' self-efficacy judgments were significantly higher for those who were in good academic standing ($M = 4.41$, $SD = .51$) than those who were on academic probation ($M = 3.85$, $SD = .78$), $F(1, 99) = 17.92$, $p < .001$, Cohen's $d = .85$.

To examine whether different groups of students adopted different goal orientations for learning, a 2×2 MANOVA was run. This time, students' self-efficacy (dividing students into high and low groups using median split) was added as an independent variable in addition to academic standing. Mastery, performance-approach, and performance-avoidance goal orientations were used as dependent variables. Results indicated a significant difference in goal adoption between the successful and unsuccessful students, Wilks's $\lambda = .80$, $F(3, 90) = 7.68$, $p < .001$, partial $\eta^2 = .20$. In addition, results indicated that there was a signifi-

Table 4

Means and Standard Deviation of Goal Orientation for Students in Good Academic Standing and Students on Academic Probation ($n = 96$)

Dependent Variables	Students in Good Academic Standing	Students on Academic Probation	Significance	Cohen's d
Mastery goals	4.23 (.45)	3.61 (.71)	.001	1.04
Performance-approach goals	3.18 (.83)	3.47 (.75)	.14	.37
Performance-avoidance goals	3.06 (.82)	3.52 (.68)	.24	.88

cant difference in goal adoption between students with high and low self-efficacy, Wilks's $\lambda = .86$, $F(3, 90) = 5.04$, $p < .003$, partial $\eta^2 = .14$. ANOVAs on each dependent variable were conducted as follow-up tests. To control for Type I error, the alpha level for the follow-up ANOVA using Bonferroni adjustment was set at the .05 level divided by 5, or the .01 level. It was found that students in good academic standing tended to endorse significantly more mastery goals for learning ($M = 4.23$, $SD = .45$) than those students who were on academic probation ($M = 3.61$, $SD = .71$), $F(1, 92) = 13.88$, $p < .001$, Cohen's $d = 1.04$ (see Table 4). Additionally, results indicated that students with higher self-efficacy adopted significantly stronger mastery goals ($M = 4.13$, $SD = .49$) than those who had lower self-efficacy ($M = 3.32$, $SD = .72$), $F(1, 92) = 13.16$, $p < .001$, Cohen's $d = 1.32$ (see Table 5). No significant differences were found for performance-approach and performance-avoidance goals. These results suggest that students who were in good academic standing tended to endorse goals to master the skills taught in college and had a stronger belief that they could complete academic tasks successfully than those who were not in good academic standing.

Table 5

Means and Standard Deviations of Goal Orientations for Students With High and Low Self-Efficacy ($n = 96$)

Dependent Variables	Students With High Self-Efficacy	Students With Low Self-Efficacy	Significance	Cohen's d
Mastery goals	4.13 (.49)	3.32 (.72)	.001	1.32
Performance-approach goals	3.41 (.88)	3.09 (.48)	.06	.45
Performance-avoidance goals	3.34 (.85)	3.22 (.59)	.64	.16

There was also a significant self-efficacy by academic standing interaction, Wilks's $\lambda = .92$, $F(3, 90) = 2.62$, $p < .05$, partial $\eta^2 = .08$. Because this interaction was detected, simple main effects were further examined. Follow-up ANOVA using the Bonferroni method indicated that for students with high self-efficacy, those who were on probation rated performance-avoidance goals higher ($M = 3.80$, $SD = .61$) than students who were in good academic standing ($M = 3.02$, $SD = .85$), $F(1, 92) = 7.26$, $p < .001$, Cohen's $d = 1.05$, as indicated by Table 6 and Figure 1.

Even though results indicated that self-efficacy was significantly correlated with mastery goals, students who were on academic probation but reported having high self-efficacy tended to adopt more self-sabotaging goals for learning, the performance-avoidance goals, than their peers in good academic standing. This implies that even though students may have high self-efficacy for the college courses they are taking, those who fall on academic probation may still shy away from challenging tasks and avoid seeking help when faced with difficulties, as suggested by research examining students who adopt performance-avoidance goals (Elliot, 1999; Hidi & Harackiewicz, 2000; Middleton & Midgley, 1997; Pajares et al., 2000).

Table 6

Means and Standard Deviations of Performance-Avoidance Goal Orientation for Students With High or Low Self-efficacy in Either the Good Academic Standing Group or the Academic Probation Group Using MANOVA ($n = 96$)

		Mean (<i>SD</i>)	Significance	Cohen's <i>d</i>
High self- efficacy	Students on academic probation	3.80 (.61)	.001	1.05
	Students in good academic standing	3.02 (.85)		
Low self- efficacy	Students on academic probation	3.17 (.61)	.40	.56
	Students in good academic standing	3.47 (.46)		

These results support prior findings that indicated achieving individuals with high self-efficacy adopt more mastery goals when approaching academic tasks. Complementing previous work based on these two theories, our findings offer additional insights into the understanding of how students who are on academic probation differ from those who are academically successful. Data from this study revealed not only distinctions in students' academic task approach but also different beliefs about their capabilities to be successful in college. This is an important finding because it provides researchers and educators with additional insight into student differences, information that is critical when examining potential dropout factors. Although self-efficacy has been one of the strongest predictors of academic achievement, this study reminds us that educators not only need to know about students' self-efficacy, they should also monitor students' goal orientations for learning, perhaps teaching them to adopt enabling, adaptive goals to help them successfully complete college.

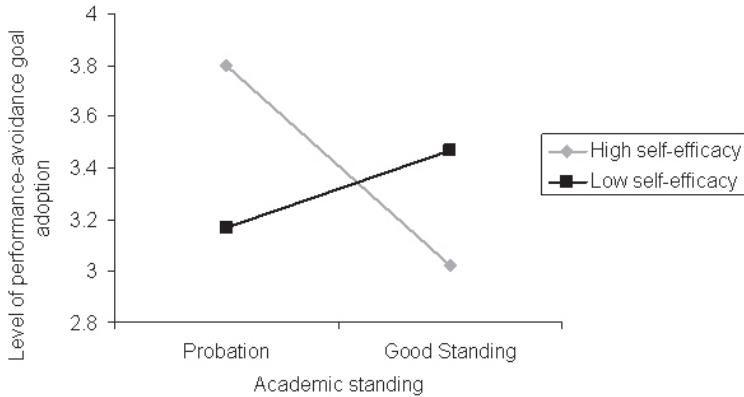


Figure 1. The interaction effect between academic standing and self-efficacy on levels of performance-avoidance goal adoption.

Discussion

College life that requires student initiation, independence, and self-monitoring can be challenging and stressful for incoming, inexperienced students (Bryde & Milburn, 1990; Noel, Levitz, & Saluri, 1985). When students are faced with academic demands, the way they approach academic tasks and view themselves can play a significant role in their academic success.

Self-efficacy has consistently been found to be a strong predictor of achievement (Bandura, 1997; Lane & Lane, 2001; Pajares & Miller, 1994; Pintrich & De Groot, 1990; Schunk, 1982) and this relationship was again found in this study. Our data also revealed that self-efficacy was related to students' adoption of mastery goals. As mentioned in previous research, students who have high self-efficacy and adopt mastery goals tend to value effort, persist in the face of difficulty, engage in academic tasks, and have high achievement (Linnenbrink & Pintrich, 2002), which can lead to successful college performance and graduation.

Our analyses did not reveal a significant difference between the two groups on performance-approach goals. Indeed, previous research has been inconsistent with regard to relationships

between performance-approach goal orientations and patterns of learning and beliefs (Bong, 2001a; Middleton & Midgley, 1997; Pajares et al., 2000; Wolters et al., 1996). Our finding supports earlier research that suggests that the relationships between performance-approach goals and learning variables may be more complex than the relationships among learning and the other goal orientations (i.e., mastery and performance-avoidance). The nature of these relationships merits further investigation.

Although a relationship was found between self-efficacy and the adoption of mastery goals, further analysis indicated some expected and some surprising results. Consistent with goal orientation theory, students in good academic standing who had higher self-efficacy tended not to adopt performance-avoidance goals and students with lower self-efficacy tended to adopt this more debilitating goal orientation. However, inconsistent with the assumption of goal orientation theory and other research findings (Pajares et al., 2000), the opposite was found for students on academic probation. Students who rated having higher self-efficacy endorsed performance-avoidance goals more strongly than those with lower self-efficacy (see Figure 1). A possible explanation for this finding is that the academic probation students were attending a workshop where there was an emphasis on performing well in college and the consequences of being on probation again. Students who believed they were capable of being successful (having high self-efficacy) but perhaps did not put in the effort needed to do well in college may have tended to feel guilty (Hareli & Weiner, 2002) and may have worried that others might equate their probation status to having low ability. Based on goal orientation and self-efficacy theory, these students may have been concerned about their image more than their peers who had lower self-efficacy, and may have displayed a strong adoption of the performance-avoidance goals. This finding alerts researchers to a more complex relationship between self-efficacy and goal adoption for students who are on academic probation, which warrants further investigation.

Achievement goal theorists have suggested that students' perceptions of teachers' expectations and classroom environment

are linked to students' selection of goal orientations (Maehr & Anderman, 1993; Urdan, Midgley, & Anderman, 1998). For example, students who believe that their teachers stress the importance of grades and equate grades with student success are more likely to adopt performance goals. Specifically, students who do not receive good grades tend to adopt performance-avoidance goals to avoid the risks associated with challenges. They are less aware of the importance of seeking help and are concerned about avoiding looking bad, which limits academic challenges. We found that students who are being labeled as less successful, based on their GPA (such as those who have been told that they were on academic probation), adopted goals that were debilitating to their learning.

These findings suggest that educators should not only identify students with lower self-efficacy, but also recognize students who tend to adopt performance-avoidance goals and provide guidance in changing these students' sabotaging beliefs and goals. Students who adopt performance-avoidance goals may be at greatest risk of dropping out of college due to their unwillingness to seek help. Researchers have suggested that students who adopt performance-avoidance goals are not as concerned about learning as they are about failing and looking incompetent (Eccles & Wigfield, 2002). Students who adopt performance-avoidance goals tend to have maladaptive patterns of learning (Elliot, 1999). These students view error as a sign of failure and help-seeking as a sign of weakness (Midgley & Urdan, 2001). Thus, sensible intervention programs and practical ways of altering students' self-sabotaging beliefs and goals are warranted to break this vicious cycle. Interventions for students who are placed on academic probation seem especially critical.

Results of this study suggest the importance of investigating student retention using the motivation indices of self-efficacy and goal orientation. While college enrollment rates continue to skyrocket, suggesting greater student access to higher education, programs are needed to develop student skills that facilitate academic success. This may involve identifying students who are at risk of dropping out and providing them with academic advis-

ing tied to goal-setting and high self-efficacy. Although many studies of students' motivation have been conducted, there is still a need for additional research on developing appropriate intervention programs. Given the results of this study, interventions directed toward helping students identify adaptive and enabling beliefs and goals may assist in the development of strategies for student success.

The results of our study must be interpreted cautiously in light of several limitations. First, other approaches could have been taken to analyze this data, which would have preserved the continuous nature of the variables under investigation. Second, the sample was drawn from a single university. Thus, validity of these findings to college students at other institutions is limited. Another more significant restriction to the generalizability of the findings involves the composition of the two groups of students being compared. All of the students on academic probation were college freshmen, and the students in good academic standing were second- and third-year students with previous successful semesters in college. Additionally, for students to be successful at the university, there needs to be some history of positive experiences and academic success. Unsuccessful students in this study, on the other hand, would be students identified as at risk of dropping out after one semester of underachievement based on a low GPA. Thus, it may be expected that self-efficacy and learning goals for these groups of students would be different. Furthermore, students in the good academic standing group were recruited from a teacher preparation course, and it may also be assumed that their motivation for learning would be different than freshmen who have not selected a major. Although there are major shortcomings to the design of this study, it would be difficult to draw samples of equal levels of classification because students placed on academic probation are often dismissed prior to reaching higher academic classifications (i.e., juniors, seniors). In other words, it is difficult to identify unsuccessful students who have made it to junior- and senior-level status. For future research, qualitative designs through interviews are warranted to provide an in-depth understanding of the reasons for students'

staying in college. In addition, a longitudinal study examining group differences using a more complex goal-orientation model provided by Elliot and McGregor (2001) may be warranted. It is anticipated that the limitations with this study may be addressed through replications and additional larger scale investigations.

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