Do self-regulated processes such as study strategies and satisfaction predict grade point averages for first and second generation college students?

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Abstract

The current investigation sought to determine whether self-regulatory variables: *study strategies* and *self-satisfaction* correlate with first and second generation college students' grade point averages, and to determine if these two variables would improve the prediction of their averages if used along with high school grades and SAT scores. Fifty-nine first and 189 second generation college students completed a survey assessing self-satisfaction and study strategies. High school grades, SAT scores, and grade point averages were also obtained. Study strategies correlated with grade point averages for first generation students as compared to second generation. Regression showed self-regulatory processes increased prediction of college averages as compared to a regression model using only high school grades and SAT scores; particularly for first generation students.

Research on college students and what leads to their academic success or failure has been going on for many years. Studies have examined variables such as high school grades and college entrance exams and have shown that when used together, they tend to be good predictors of students' academic achievement in college (ACT, Inc., 2008). Other research has focused on first generation college students who have been viewed to be at risk for attrition and for low achievement (Martinez, Sher, Krull, & Wood, 2009). Various self-regulatory variables have been investigated to determine if they too, affect student success. Bembenutty and Zimmerman (2003) investigated the effects of self-regulation training on at risk college students and found that students who engaged in self-regulatory behavior were better able to postpone personal rewards and more often complete homework. The purpose of the current investigation is to determine whether self-regulatory variables such as *strategies* students use when studying, and if how *satisfied* students would be with certain grade point averages - would correlate with first and second generation college students' grade point averages. Another purpose of this investigation is to determine if these two variables would improve the prediction of college grade point averages for first and second generation college students if used along with already established predictors of high school grades and SAT scores.

As indicated above, personal variables such as those attributed to academic self-regulation have been found to be related to academic achievement. Zimmerman's theory on academic self-regulation presents a model whereby the learner goes through three different phases: forethought, performance, and self-reflection, with a feedback system in place (Zimmerman, 2002). While much research has been conducted to date on many of the various

subprocesses within each of the three phases, little has been done on the *task strategies* of the performance phase or *self-satisfaction* in the self-reflection phase.

According to Zimmerman (2002) the forethought phase of academic self-regulation involves motivational processes and task analysis. Motivational beliefs such as self-efficacy have been found to determine the choice, effort and degree of persistence for one's goal (Bandura, 1986). Task analysis suggests that the learner will plan what needs to be done to accomplish his or her goal. Much research has been conducted on these various subprocesses, particularly on the role of self-efficacy and achievement.

The performance phase, involves two categories: self-observation and self-control. Self-observation involves keeping track of how well one is doing and metacognitive monitoring. Self-control has subprocesses related to the actual behaviors or *strategies* students engage in while learning and studying. Zimmerman (1998) suggests that there are six dimensions to self-regulated learning which can be thought of in terms of task strategies. They involve six "scientific questions" that students must ask themselves related to studying. *Who?* – with whom are you studying with? *What?* – what materials are you studying? *Where?* – are you studying in the library? *When?* – what time of day are you studying? *Why?* – why are you studying? And *How?* – what strategies are you engaged in while studying?

Students who are able to respond to these questions are able to identify what is required of a particular task and it is extremely subjective in that strategies that work for one student, may not necessarily work for another. For example, one student may study better alone whereas another may benefit from working in a group. These key dimensions, when thought out by a student, allow the student to become a strategic, self-directed learner; however, there has been no

research to date which has examined Zimmerman's six dimensions of academic learning, particularly between first and second generation college students.

In Zimmerman's (2002) third phase of academic self-regulation students self-reflect upon their performance. There are two categories in this phase, the first involves the self-judgments one makes about his or her performance such as whether or not his/her standards have been met and what the outcome is attributed to.

The second category involves reactions one makes to one's performance. One may react by an affect of defensiveness or adaptiveness, and one may feel satisfied or dissatisfied with one's performance. These two categories are important because they have consequences for future behavior as they feed back to the forethought phase subprocesses. According to Bandura (1986) "one's previous behavior is continuously used as a reference against which ongoing performance is judged" (p.347). For example, if a student had set a high goal for performance on a science test and then performed poorly, she may be dissatisfied and defensive, meaning she may attribute her performance to an inability to do well in the content area of science rather than to her studying behavior (i.e. reviewing old exams, rewriting her notes, etc.). She may then be less self-efficacious in her capability to do well on her next science exam and may set a lower grade goal for herself, thus she may be less motivated and set fewer plans for how to study and prepare for her next test.

Little research to date has been conducted on student satisfaction of grades, particularly in college students and yet Bandura (1986) has emphasized that self-satisfaction as an especially important component of the self-reaction process.

Methods

Sample

Participants were randomly selected from fall freshmen orientation classes from a large, ethnically diverse urban public university and consisted of 59 first generation and 189 second generation college students.

Measures

Survey: A 44 question survey was created to assess information as follows:

Demographic information: Seven demographic questions were asked assessing family income, ethnicity, and prior family members who may have attended college.

Study strategies scale: Twenty-seven self-regulation questions were used to address Zimmerman's six scientific dimensions as related to studying. For example addressing the dimension *Who?* the following question was asked: *Do you find a study partner when you need help in a course?* And to address the question *When?* the following question was asked: *Do you set a particular time aside to do homework each day?* Students were required to circle their responses on a scale ranging from *1 – almost never* to *5 – always.*

Self-satisfaction scale: Students were asked 10 questions about how satisfied they would be about earning a particular grade point average beginning with D and ending with A. Students were asked to circle their responses on a scale ranging from *1 – very dissatisfied* to *7 – very satisfied.*

Academic Measures: High school grades, SAT scores, and cumulative grade point average were obtained from the students' files. College grades were obtained after three semesters because the college considers this a critical period in which students may or may not perform well enough to continue in school.

Results

Cronbach's alpha was conducted on the study strategies scale and found to be .84. A principal component factor analysis was conducted and the results indicated that 53% of the variance was explained by six factors matching the six dimensions of self-regulated learning. Cronbach's alpha was also conducted on the self-satisfaction scale and found to be .90. A principal component factor analysis was conducted on the self-satisfaction scale and the results indicated that there was one main factor which also accounted for 53% of the variance. Means were calculated for students' self-regulation of study strategies and students' self-satisfaction.

Table 1 below shows the correlations between the four variables and cumulative grade point average for the group as a whole, then separately for students who were either second or first generation college students. The correlations are very similar for the high school grades and college grade point averages, although slightly higher for first generation college students.

With regard to the college entrance exams and study strategies, when the groups were separated, the correlations for second generation students were nonsignificant. The correlations for self-satisfaction and college grade point average are negative suggesting that the higher the level of satisfaction, the lower the grades. The inference from this is that students who have higher standards will not be as easily satisfied as those with lower standards. With regard to this measure, the strength of the relationship was greatest for first generation students suggesting that these students had higher standards than those of second generation.

Table 1. Correlations with college cumulative grade point average

	All students: first & second generation	**Second generation**	**First generation**
High school	.33**	.32**	.36**
College Entrance Exam	.18**	.13	.32*
Study strategies	.10*	.11	.29*
Self-Satisfaction	-.28**	-.20**	-.49**

* significant at the .05 level
** .significant at the .01 level

A second set of analyses were conducted to determine the predictability of these measures. Multiple regressions were conducted for the group as a whole, then separately for students who were either second or first generation college students. Initial regressions were for high school grades and SAT scores, followed by the addition of the study strategies and self-satisfaction variables. The results of the multiple regression for the entire group with only high school grades and SAT scores were F (2) = 26.78, $p < .01$, $R^2 = .19$. The variance increased when study strategies and self-satisfaction scores were added to the regression as follows: F (4) = 19.39, $p < .01$, $R^2 = .25$.

When the two groups were separated, the results for second generation with only high school grades and SAT scores were: F (2) = 16.01, $p < .01$, $R^2 = .15$. The variance did not increase by much when the study strategies and self-satisfaction measures were added as follows: F (4) = 10.27, $p < .01$, $R^2 = .19$.

The results for first generation college students with just the high school grades and SAT scores were F (2) = 12.05, $p < .01$, $R^2 = .31$. For first generation college students when the study strategies and self-satisfaction measures were added, the findings were significantly stronger F (4) = 9.91, $p < .01$, $R^2 = .44$.

Discussion

These preliminary analyses suggest that students' high school averages are similarly related to student's grade point averages for both first and second generation college students. It is interesting to note that neither the entrance exam nor study strategies were correlated with grade point average for second generation students suggesting there may be other factors which may be more related. Self-satisfaction was significantly correlated with grade point average for both groups, but 50% more for first generation college students (.20 versus .49).

In addition, a large percentage of the variance (44%) was explained by the four variables for the first generation college students as compared to the second generation college students (19%). As was found in the study conducted by Bembenutty and Zimmerman (2003), self-regulatory processes appear to be related to achievement for first generation college students in the current investigation.

Bandura (1986) has emphasized that standards not only guide the direction of the behavior, but also serve as motivators. These findings also suggest that students who do not have family members who went to college, may set higher standards and thus perhaps, be more motivated to engage in learning and study strategies to do well.

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