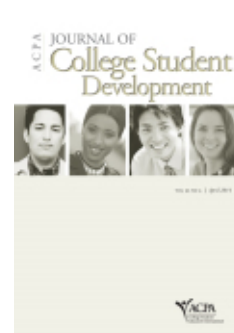PROJECT MUSE®

Academic Course Engagement During One Semester Forecasts College Success: Engaged Students Are More Likely to Earn a Degree, Do It Faster, and Do It Better

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Academic Course Engagement During One Semester Forecasts College Success: Engaged Students Are More Likely to Earn a Degree, Do It Faster, and Do It Better

Soren Svanum   Silvia M. Bigatti

The past several decades have witnessed an impressive array of studies that have attempted to identify and explain the factors important to the success and failure of students as they pursue a college education. The extent of this effort is not surprising given the impact that level of education has on a variety of life domains (Pascarella & Terenzini, 2005) and given the difficulties universities have in retaining students (Braxton, 2001; Tinto, 1993). College success has been variously defined with a focus upon either performance outcomes, such as grades for individual courses or semesters; outcomes such as college persistence, often measured over one or two semesters; and, less frequently, degree attainment.

Many of these studies have been guided by educational or engagement theories of student success (e.g., Bean, 1985; Tinto, 1993). These theories have focused upon student involvement in college and propose a distinctly contextual perspective: success is influenced by the degree to which students become engaged and involved in academic and other activities of college life. These engagement approaches emphasize what individuals do and what institutions do to encourage and support individual student involvement. Astin's (1984) definition of student involvement captures the centrality of student actions and behaviors in engagement theorizing as well as the scope of behaviors that could reflect engagement:

student involvement "refers to the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, p. 297).

Previous studies have often broadly measured academic engagement including such components as, for example, time- and task-management skills (Garavalia & Gredler, 2002; Trockel, Barnes, & Egget, 2000), seeking help from peers (Larose, Robinson, Roy, & Legault, 1998), and interactions with professors (Strage, 1999). Thus, academic engagement is broadly conceived and captures not just course-related activities (e.g., class attendance, completion of assignments) but includes broadly defined involvement in academic life. Additionally, engagement is often measured by student intentions or perceptions of academic engagement, often captured by single items assessed at a single point in time. Although these measures provide important information regarding student intentions or perceptions, they do not necessarily inform us about students' actual engagement behaviors.

To address measurement shortcomings of single items representing a complex content domain, Handelsman, Briggs, Sullivan, and Towler (2005) explored the structure of a subset of academic engagement, student engagement in a single course. They developed a multi-item scale representing course engagement and analyzed the factor structure on a sample of students

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enrolled in a course. Their results indicated that although academic course engagement is multidimensional, containing emotional, participatory, and performance components, there is a single and large dimension that measures a skill-effort component. This first skill-component factor that emerged included items about going to class, doing reading assignments, studying notes, and generally putting forth academic effort.

This skill-effort component of engagement has been found to be reliably related to various measures of college success. Robbins et al. (2004) provided an integrative meta-analytic review of the degree to which engagement behaviors predict college success. Outcomes were categorized along two dimensions: college academic performance measured by GPA and retention or persistence toward a degree. The authors categorized over 100 studies along nine constructs assumed to relate to college success. One of these constructs, termed academic-related skills, was defined as "activities necessary to organize and complete schoolwork tasks, and to prepare for and take tests" (p. 264). Similar in content to Handelsman et al.'s (2005) first factor of engagement, it was found to relate to college performance, and somewhat surprisingly, even more strongly to retention. Furthermore, academic-related skills demonstrated incremental validity in predicting retention after the inclusion of other engagement constructs such as social involvement, institutional commitment, and social support. Based upon these unexpectedly robust relations of academic-related skills and retention, Robbins et al. concluded that engagement models of persistence may underestimate the importance of skill- and effort-focused academic engagement in college student retention. Moreover, they proposed that theoretical clarity and the interpretability of future empirical findings will be enhanced by more narrowly measured constructs with

more psychometrically sound measurement.

Therefore, the present study specifically focused more narrowly on student engagement as defined by academic course involvement and effort directed toward specific course components such as attending lectures and completing reading assignments. The content of academic course engagement measured in the present study is very similar to Robbins et al.'s (2004) definition of academic-related skills and very closely matches the content of the skill factor identified by Handelsman et al. (2005). The advantage of such an approach is that it provides a narrow but clearly measured construct and thus provides a strong test of the hypothesis that academic course engagement influences college success. This measurement approach is also consonant with a fundamental assumption of engagement theory—namely, college success is greatly influenced by what students actually do.

College success is also a multifaceted construct and not easily or completely captured by a single index or outcome. Robbins et al. (2004) found 37 analyses reported in 31 studies that measured in some degree this academic course engagement component as a predictor variable of college success. In most instances, success was academic performance (GPA). In eight analyses, success was defined by some measure of academic persistence, but in most instances persistence was measured over short periods of time, usually one semester, and not exceeding four semesters. Over the entire body of research reviewed by Robbins et al., only five studies used time to a degree as a measure of success, a variable that in part indexes the efficiency of school success and is widely used by institutions as an index of "student throughput."

The purpose of the present study was to assess the relation of academic course engagement and subsequent college success over a 5- to 6-year period. In the present study,

we defined college success as degree attainment, time to degree, and academic performance (final cumulative GPA). This study reports on follow-up data from participants in an earlier report (Svanum & Bigatti, 2006) that demonstrated a substantial relation between academic course engagement and grade-measured course performance. Specifically, we took the data on engagement from one course and examined whether course engagement was also related to the subsequent accomplishments of: (a) obtaining a degree, (b) how long it took to obtain the degree, and (c) cumulative GPA upon graduation. Thus, these analyses extend those findings by examining the college success outcomes of those study participants.

We assumed that a sample of engagement behavior in a single course may contain information about similar behaviors in other settings and behaviors over time. Thus, academic engagement is not an isolated behavior, but a distinctive component of the fabric of college life. Hence, we hypothesized that degree attainment would be more likely among those who demonstrated higher engagement in a course than those who demonstrated lower engagement, and, secondly, that greater course engagement would be related to a shorter time required to earn a degree. Academically engaged students are more successful, and hence course engagement would relate to student final cumulative GPA. In addition, based on the findings of Robbins et al. (2004) that academic course engagement has a relation to success independent of college admission exam scores, we examined the incremental validity of course engagement after adjusting for college admission exam scores in each analysis. Similarly we hypothesized that academic course engagement would predict degree success independent of mid-career GPA. The reasoning for all these expectations is that course engagement is, in part, a student characteristic that develops and evolves over a

college career (Pascarella & Terenzini, 2005). It is a distinctive method of acting in learning situations that possesses cross-situational consistency, and therefore, we expect that more academically engaged students in one course will demonstrate a similar style in others. Because academic course engagement leads to course success, such success then leads to similar or more engagement in future courses. Measures of course engagement taken in mid-college, then, should add incremental validity to the scores of standardized tests of achievement taken in high school and mid-career measures of college performance in predictions of subsequent college outcomes.

METHOD

Participants

Two-hundred fifty-eight students (195 female, 63 male) originally enrolled in undergraduate sections of an upper division course in abnormal psychology. Subsequently 28 students withdrew from the course and final grades were earned by 172 female and 58 male students. We excluded 5 additional students because 2 were graduate students at the time they enrolled in the course and 3 were transient students without continuing university records. Thus, the final sample consisted of 56 male and 169 female undergraduate students.

Table 1 provides the background charac-teristics of study participants and academic characteristics obtained at the semester in which students took the course and over the following years as the students continued their academic career. Although the sample is not representative of the population of college students in the U.S., it was fairly representative of the population of students at this urban university. Most students were female (75%), Caucasian (84%), and enrolled as full-time students (76%) at study entry. Students who had completed college admission examinations

(n = 169) tended to be younger than those who did not, with an average age of 23 vs. 30, $F(1, 223) = 44.8$, $p < .05$, reflecting university admission requirements for students who enter the university following high school graduation. Older students are not required to submit these scores.

Students in the course were attempting degrees across a broad range of schools and departments including Arts and Science, General Studies, and the professional schools of Criminal Justice, Social Work (BSW), and Business. Such a broad pattern is not unexpected because this course attracts a wide array of undergraduate majors, most of whom are taking the course as a required elective in behavioral science.

We obtained information concerning college admission exams scores, undergraduate major, cumulative GPA, year in school, semester course schedule, and semester grade performance from university records during and at the end of the course semester. We then obtained data on the academic performance of these students over the ensuing 5–6 years from university records. This data included information concerning baccalaureate degree attainment, semester of graduation, or last semester of enrollment, along with their undergraduate GPA at the time of the degree, or in the absence of a degree, the cumulative GPA at their last semester of enrollment.

Setting

The institution where the present study was conducted is a large (29,000 students) urban

TABLE 1.

Demographics and Academic Characteristics Obtained at the Semester in Which Students Took the Course and Over the Following Years

Characteristic	N	M	SD	Range
Male (Proportion)	225	0.25	0.43	
Age	225	24.65	7.20	18–64
Year in School (1-4)	225	2.67	1.02	1–4
Caucasian (Proportion)	225	0.84	0.36	
SAT (Re-Centered)	147	998.30	167.60	570–1400
ACT	46	20.67	4.02	13–31
Semester Hours Attempted	225	12.24	3.43	3–22
Full Time, > 11 Semester Hours *(Proportion)*	225	0.76	0.43	
Cumulative GPA at Course Semester (Mid-Career GPA)	224	2.72	0.57	1.32–4.00
BA/BS Success (Proportion)	225	0.61	0.49	
Time to Degree (Months Since Course Semester)	138	23.12	14.66	0–60
Last or Degree Cumulative GPA	223	2.80	0.71	0.17–4.00
Degree Cumulative GPA	138	3.11	0.48	2.1–4.0

"commuter campus" of a state university where most are in-state students (92%), 80% are employed full- or part-time, and 44% take longer than 6 years to earn a bachelor's degree. The students tend to be older than students at residential campuses, and 14% are minority students, 59% female, 42% over age 25, and 42% part-time students enrolled in fewer than 12 semester hours.

Course

The course was an upper-division, academically demanding survey course in abnormal psychology that had the same course requirements, instructor, and learning materials over each semester. The course format involved lectures and textbook assignments, and included review sessions before each of five multiple choice exams that broadly sampled content from textbook readings and lectures. Test items were moderately difficult, frequently requiring several bits of information in a compare or contrasting context. The sections of the course were offered in the fall and spring semesters of 2000–2001, and the final semester on which college career data were collected was the fall semester of 2005 for degrees and the spring semester of 2006 for enrollment. Thus, the window of time during which students could earn a degree was approximately 5 years.

Measures

Academic Course Engagement. Students were required to complete four of five computer-administered examinations over the semester. Following the completion of each exam and before learning their score for the exam, students completed a questionnaire that consisted of six individual questions that asked about the amount of completed textbook readings, the extent of textbook review, study guide use, attendance at lectures and at a review session, and hours studied for the exam.

Students were informed that survey responses would not influence their grade in any way as they were unavailable to the instructor until the end of the course. Textbook reading items used a 5-point Likert-type scale ranging from "*none*" to "*all of the assigned material.*" Similarly, study guide use ranged from "*none*" to "*extensive use*" on a 5-point scale. Lecture attendance was measured as the number of lectures missed, review session attendance was a dichotomous yes or no, and students reported an estimate of the total number of hours of test preparation. These responses were numerically coded, converted to z scores, and then averaged over the semester to provide an index of course effort, which we conceptualized as academic course engagement consistent with the findings of Handelsman et al. (2005) and Robbins et al. (2004). The resulting scores for each item were highly correlated and averaged once again to provide an index of academic course engagement. A coefficient alpha of .80 indicated substantial index homogeneity and provided support for conceptualizing a single dimension representing academic course engagement. Six students remained enrolled in the course but did not complete the required examinations, earned a failing grade, and did not have sufficient data. Consequently, analyses involving this variable were conducted with a sample of 219.

College Admission Exams Scores. One-hundred sixty-nine students had taken a college admission exam, either the Scholastic Aptitude Test (SAT; $n = 147$) or from the American College Testing Program (ACT; $n = 46$), or both ($n = 24$). Combined ACT scores were converted to SAT (re-centered) scores using national normative data providing a single index of college admission exam performance. In instances where students had completed both, their actual SAT performance was used.

College Success. University records reported

the semester and year of degree attainment along with the type of degree earned and final cumulative GPA. Baccalaureate degree attainment or the last semester of enrollment was coded along with the semester and year of the attainment of these milestones. These were then converted into standard months and years, and SPSS date calculations provided the time interval between course completion and milestone attainment.

RESULTS

Results are presented for each of the three outcome variables: degree attainment, time to a degree, and cumulative GPA. For each variable, descriptive information is presented first, followed by a statistical consideration of the hypothesized relations between course engagement and outcome.

Degree Attainment

Over the 5-year period, 138 (61%) students earned at least one BA/BS degree, 69 (31%) left without degree attainment, and 18 (8%) were

still enrolled in school. Figure 1 presents the distribution of these milestones broken down by years following course completion. The largest number of students who left without a degree at any single point exited the semester following completion of the course. However, the majority of students who failed to earn a degree persisted for a number of semesters following completion of the course, and one student left the university 5 years later without degree success. The majority of students who earned a degree (76.1%) earned a degree two or more years following the course.

Age, sex and race were unrelated to degree attainment whereas year in school, $r(225) = .35$, $p < .01$, $95\% CI$ $r = .23$ to $.46$, and cumulative GPA at the time of the course, $r(224) = .34$, $p < .01$, $95\% CI$ $r = .22$ to $.45$, were positive and significantly associated with degree attainment. Full-time students were also more likely to graduate, $r(225) = .14$, $p < .05$, $95\% CI$ $r = .01$ to $.27$, than their counterparts, taking fewer than 12 hours during the semester of the course.
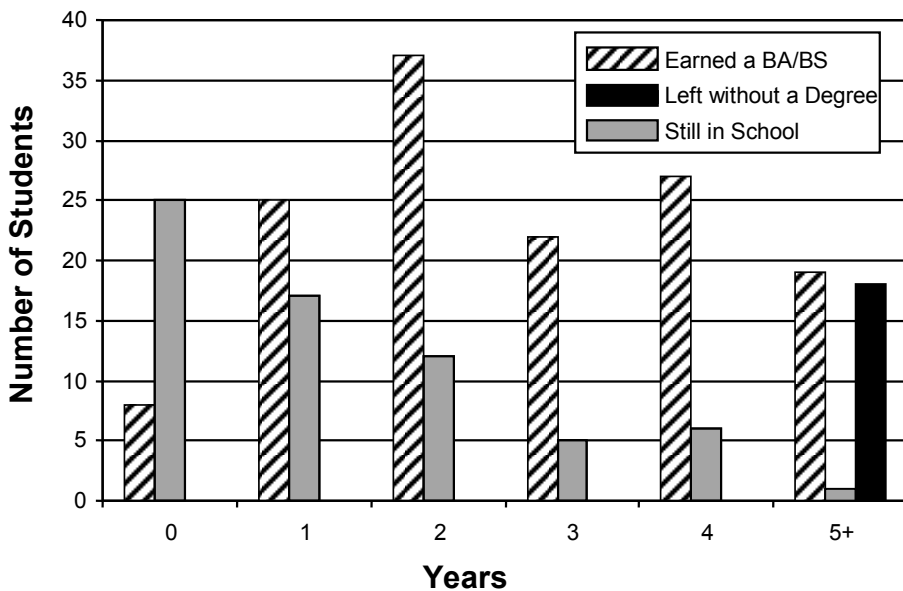

FIGURE 1. Years in School Following the Course Semester by Degree Outcome

Academic Course Engagement and Degree Attainment

We tested the hypothesis that academic course engagement predicted degree attainment with a Pearson correlation between course engagement and a dummy-coded variable of an earned BA/BS or not. The resulting $r(219) = .20$, $p < .01$, $95\%CI\ r = .07$ to $.32$, indicated that academic course engagement measured in a single course had a reliable relation to degree attainment.

The implications of the magnitude of this correlation can be more readily appreciated by considering the proportions of students who earned a degree broken down by the observed level of high- or low-academic course engagement. To accomplish this we did a median split on academic course engagement and found that those students who were high on engagement had a .72 ($95\%CI\ p = .63$ to $.79$) probability of degree attainment as opposed to $p = .54$ for low-engaged students ($95\%CI\ p = .45$ to $.63$). Thus, this illustrates the magnitude of the relation between academic course engagement and graduation outcomes over a substantial period, revealing that approximately three quarters of high-engaged students graduated versus slightly more than one half of less-engaged students. For another arithmetic perspective we also calculated an odds ratio on these data and found that students with high academic engagement were 1.5 times ($OR = 1.5$, $95\%CI = 1.1$ to 2.0) more likely to graduate than their low engagement peers, a modest although reliable effect.

College admission exams scores were unrelated to degree attainment, $r(169) = .02$, $p = .81$, indicating that the relation of academic course engagement and degree attainment was independent of college admission exam scores. However, as reported above, degree attainment was reliably related to mid-career GPA ($r = .34$), and regressions of mid-career GPA and then academic course engagement with degree attainment as the criterion failed to show evidence of incremental validity for academic course engagement, $F(1, 215) = 1.8$, $p = .17$, $R^2 = .01$.

Time to a Degree

The amount of time required to earn a degree variable was calculated in months between the course semester and the semester date at which the student received a baccalaureate degree. Seven students received a degree at the end of the semester in which they took the course (0 months) and an additional 4 students were awarded a degree in the spring semester of 2005 (60 months). Students took on average approximately 2 years (23.1 months, $SD = 14.7$) from the time of the course to compete a degree.

Academic Course Engagement and Time to a Degree

Not unexpectedly, year in school was strongly correlated with time to degree, $r(138) = -.60$, $p < .01$, $95\%CI\ r = -.70$ to $-.48$, simply reflecting that students closer in semester hours to a degree required less time to reach that goal. Consequently, we statistically adjusted time to a degree for year in school to provide an index of the efficiency with which students pursued and accomplished this goal. Year-in-school-adjusted time to a degree was unrelated to age, sex, or race, and full-time students tended to graduate more quickly than students taking fewer than 12 semester hours, $t(135) = 2.64$, $p < .01$.

Academic course engagement was related to adjusted time to earn a degree such that a high level of academic course engagement forecasted more efficient success, $r(138) = -.27$, $p < .01$, $95\%CI\ r = -.42$ to $-.11$.

To examine this relation more closely, we used the dichotomized academic course engagement variable computed above. An ANCOVA was conducted with time to a earn a degree as the dependent variable, year in school as the covariate, and high and low engagement as the independent variable. After adjustment for year in school, low-engagement students took approximately a semester longer on average to graduate in comparison to their high-engagement counterparts, $F(1, 135) = 4.0$, $p < .05$.

Partial correlations of year-in-school adjusted time to a degree revealed that college admission exam scores, $r(98) = .02$, $p = .87$, and mid-career GPA, $r(134) = .05$, $p = .53$, were unrelated to the time with which students reach the degree milestone.

Cumulative GPA

Undergraduate cumulative GPAs were calculated for the last semester of enrollment among those students who left the university or were still enrolled, and for those students who earned a degree it represented their undergraduate GPA. Thus, cumulative GPAs could be examined for the entire sample of students, reflecting general student academic performance, and separately for the subset of those who earned degrees, reflecting degree academic performance. For the entire sample, age and sex were unrelated to final cumulative GPA whereas students who were Caucasian tended to have higher GPAs, $r(223) = .18$, $p < .01$, 95%CI $r = .05$ to $.30$, as did students who were enrolled full time during the semester of the course, $r(223) = .14$, $p < .05$, 95%CI $r = .09$ to $.27$. Among those who earned a degree, older students tended to have higher degree GPAs, $r(138) = .17$, $p < .05$, 95%CI = $.01$ to $.33$, as did female students, $r(138) = .17$, $p < .05$, 95%CI $r = .01$ to $.33$, and graduates who were Caucasian, $r(138) = .28$, $p < .01$, 95%CI $r = .12$ to $.43$.

Academic Course Engagement and Cumulative Degree GPA

Among those who earned a degree, college admission exam scores were related to final cumulative GPA, $r(101) = .40$, $p < .01$, 95%CI $r = .22$ to $.55$), as was mid-career GPA, $r(137) = .74$, $p < .01$, 95%CI $r = .65$ to $.81$, and academic course engagement, $r(138) = .47$, $p < .01$, 95%CI $r = .33$ to $.60$). After controlling for previous academic success or college admission exam scores, does academic course engagement provide additional information about subsequent academic degree performance? To answer this question, we conducted multiple regressions with final degree GPA as the criterion variable and cumulative GPA at the semester of the course and then academic course engagement as predictor variables. The results indicated that, together, mid-career GPA and academic course engagement explained approximately 60% of final GPA variance, $F(2, 134) = 102.4$, $p < .01$; $R = .78$). Most notably, academic course engagement added significant explanatory variance, $F(1, 134) = 18.8$, $p < .01$; $R^2 = .06$, to final GPA after adjustment for the cumulative GPA obtained just prior to the semester of the course.

Academic course engagement and college admission exam scores were tested in the same fashion, and once again the results indicated that academic course engagement added appreciably and reliably to the prediction of degree GPA, $F(1, 98) = 21.6$, $p < .01$; $R^2 = .15$. A combined model of mid-career GPA, college admission exam scores, and academic course engagement significantly predicted degree GPA, $F(3, 95) = 62.8$, $p < .01$; $R = .81$, and also demonstrated that academic course engagement provided independent and incremental knowledge to degree GPA, $F(1, 95) = 10.7$, $p < .01$; $R^2 = .04$, after adjustment for both predictors.

DISCUSSION

One primary issue examined in this study was whether academic course engagement, measured as course effort behaviors, predicted baccalaureate degree attainment and the proficiency and efficiency with which students attained this goal. Previous studies provide evidence that academic course engagement is related to success in college (e.g., Robbins et al., 2004), and the present data are consistent with those results. The present study also extends the empirical snapshot in a number of ways. First, the impact of academic course engagement was observed over a longer period than previously studied and increases confidence that the observed influence of engagement behaviors endures over a considerable duration of college time. Second, these results extend previous findings by demonstrating a relation of academic course engagement to degree attainment and time to a degree. These findings underscore the importance of first-year programs such as learning communities and mentoring experiences, which teach students basic academic skills and motivate them to become engaged with their coursework.

Success in earning a degree and success efficiency, or the time it takes to succeed, are two overlapping yet distinctly different outcomes, demonstrating different success components. Academically engaged students were indeed more likely to attain a degree, but they also demonstrated enhanced efficiency in degree attainment; they did it and did it faster. Although the magnitudes of the observed relations were modest, they nonetheless represent an important student impact. For example, high academically engaged students were 1.5 times more likely to graduate and required approximately 1 semester less to do so. Given the focus on retention at many college campuses, especially urban campuses, these findings would suggest that

student affairs practitioners should assess and emphasize course and academic engagement as one significant and important component in a successful college career.

Academic course engagement also forecasted final cumulative degree GPA after controlling for college admission exams scores and for cumulative GPA calculated just prior to the course semester. These results provide evidence that student engagement in course demands measured on average during mid-college career provided incremental knowledge when forecasting cumulative degree GPA over more traditional measures. This is a notable finding because both SAT scores and mid-career GPA are very solid and robust predictors of final GPA, leaving relatively small amounts of unaccounted variance. Thus, engaged students were more likely to succeed than their less engaged counterparts; succeeded more rapidly; and performed better than expectations based upon mid-career GPA, college admission exams scores, or both combined.

Empirical differences emerged between various measures of college success and the predictor variables employed, indicating that different factors influence different college outcomes. Academic success measured by degree GPA related to college admission exam scores, to previously measured GPA, and to academic course engagement. The time it took for students to earn a degree, however, was unrelated to both mid-career GPA and college admission exam scores, and college admission exam scores did not discriminate among those who did and did not earn a degree, only previously measured GPA and academic course engagement did. Thus, academic potential measured by college admission exam scores and mid-career GPA informs most about future grades, less about degree accomplishment, and little if anything about how long it will take for students to graduate. Academic potential measured by course engagement,

on the other hand, captures elements relating to all three measures of college success. Given these findings, the ability to increase student engagement in the long term may be a good way to evaluate the effectiveness of first year success programs.

These results highlight the robust character of academic course engagement, conceptualized as academic skills and effort, as a factor in school success. Additionally, course engagement behaviors appear to capture elements not measured in standardized tests of academic potential or previous college success captured by GPA. These results are consistent with Robbins et al. (2004) who found that their index of academic course engagement predicted retention independently of a set of three background characteristics including college admission scores. Although Robbins et al. did not find incremental validity of academic course engagement on GPA; it nonetheless emerged in the present analysis when only college admission exams scores were controlled.

A strength of the present study was our measure of academic course engagement. Students reported the extent to which they had engaged in various learning behaviors during the semester, representing a skill-effort portion of the domain of academic course engagement. Often measures of this construct have been obtained with instruments that broadly assess intentions or perceptions of involvement, and it is likely that what students intend or perceive is not always consistent with what they do. Measuring reported effort behaviors at multiple points during a semester allows for a firmer interpretive foundation in the conclusion that what students do has important implications for college success. Multiple measurements of engagement obtained during the semester also likely enhanced measure reliability (Fishbein & Ajzen, 1974), allowing for greater sensitivity in detecting outcome differences.

Academic course engagement measured in the present study can be viewed as representing the behaviors assumed to mediate the influence of achievement motivation and achievement goals (Harackiewicz, Barron, Tauer, & Elliot, 2002) on school success. Motivational theories assume that study strategies and learning behaviors mediate the relation between goals and outcomes, but an understanding of these factors is limited largely to study strategies and metacognitive skills (Elliot, McGregor, & Gable, 1999) and not the self-disciplined and engaged behaviors conceptualized by engagement theories and measured in this study. Robbins et al.'s (2004) meta-review encourages efforts at integrating the conceptual and methodological components from psychological and educational content domains and is also consonant with calls to understand school success by developing "theoretical models and research programs that take a more holistic and integrated perspective" (Pintrich, 1994, p. 141). Thus, an important question is what learning behaviors facilitate the link between goals and success. The results of this study suggest that disciplined effort directed at specific learning goals in some appreciable degree determines college outcomes, and student effort also likely interacts with specific learning skills and strategies as it expresses goal-directed behavior. Students with more effective learning skills may profit more from a given effort, and future research might explore the interrelations among motives and goals, skills and learning strategies, and the engagement behaviors students exhibit over a semester.

As Robbins et al. (2004) pointed out, academic success is very likely multiply determined and a dynamic process over college life. Therefore, longitudinal studies that incorporate several measures and observe changes over time among the different college success outcomes may provide a more powerful

understanding of school accomplishments. In addition, experimental studies that manipulate components of engagement may demonstrate a causal connection with retention and degree attainment. Research shows improvements in learning with increased academic course engagement (Pascarella & Terenzini, 2005), but do these improvements encourage more engaged behavior in the future and consequently more success?

Participants in this study were not a representative sample of students at this university; however the sample was also not narrow or homogeneous in that students came from many academic units including Arts and Sciences, General Studies, and professional schools including Criminal Justice, Social Work, and Business. Students also spanned freshman to senior status and included both full- and part-time enrollment. Thus, the findings presented likely possess good generalizability to students in general. Furthermore, the primary construct of course engagement likely exerts its influence independent of moderating factors, such as academic domain, year in school, or other factors, and high course engagement is likely to have a similarly favorable effect for all students.

A further shortcoming of the present study was the absence of data on the possible college outcome of the students who left the university. Some may have transferred to other colleges or have returned after a break and are pursuing or have attained a degree at some other institution. Thus, these data may underestimate the overall degree attainment of students, and these results may not fully generalize to college students in general. Institutional records provide high-quality data about student success but at the same time have this limitation. Adelman (1999) estimated that by the year 2000 over 60% of college students would attend more than one institution, and such estimates underscore the

significance of this problem when examining college persistence using institutional records for a single college or college system. The records used in this study were system-wide, adding some breadth to follow up. Eight of the degrees attained that were reported in this study were awarded on other system campuses.

Another study limitation is that college admission exam scores were available on a sample of students who more likely either entered college directly from high school or intended to attend college while in high school. Thus, it is unclear if similar results would be obtained among the entire sample. Moreover, some have suggested (e.g., Weissberg & Owen, 2005) that institutional differences, especially those associated with commuter colleges that attract older, more likely employed students reflect fundamental differences in student characteristics that erode the relations between various measures of ability, college engagement, and college outcomes. However, the meta-analytic review of Robbins et al. (2004) provides some confidence in cross-institutional consistency of effects, and the results of this study conducted at a commuter campus provide direct evidence of the robust predictive nature of academic engagement on a nontraditional campus. These results are consistent with findings from previous research that suggest that even though students who have high work demands may be less academically engaged in a course, they nonetheless derive similar benefit than others from the effort that they do invest (Svanum & Bigatti, 2006).

In conclusion, these findings underscore the consistent predictive character of academic course engagement in forecasting college success measured in several ways. Although college success in some degree relates to previously acquired skills and academic ability, such as those measured by college

admission examination scores, what students do in college and the degree to which they become involved also impacts success, as engagement theories of success and retention maintain. The results provide support for this engagement perspective and demonstrate that students become active and effective causal agents who, in appreciable degree, determine their college outcomes and can experience a degree of success not captured by measures of previous success or measures of academic potential. College success, then, is in some degree malleable and contingent upon what students do.

Academic advisors, instructors, and others engaged in student affairs should find these data encouraging because they show that college success is demonstrably influenced by the academic behaviors of students. The level of student academic engagement in course work, such as attending class, reading, reviewing course material, etc., not only influences course success as measured by grades, but also influences other indices of college success including an increased probability of degree completion, less time to degree completion, and greater grade-measured college success. Therefore, advisor encouragement of student course engagement and programs designed to enhance course engagement would likely have broad and favorable consequences, including enhanced graduation rates and potentially increased retention rates as these are likely influenced by the degree of student success. These data also demonstrate that academic course engagement exerts a positive influence on college success independent of previous GPA-measured success and the attributes measured by college admission examinations. Thus, student motivation that translates into more engagement can tangibly improve college success, encourage self-sufficiency, and allow students to exert greater control of their college destiny.

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