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## Do Student Success Courses Actually Help Community College Students Succeed?

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Many first-time college students arrive on campus unprepared to succeed in college. This is especially the case at community colleges, which pursue an “open door” mission of serving all students, regardless of prior educational background. According to a survey of degree-granting institutions by the National Center for Education Statistics (2003), 42 percent of entering first-time students at public two-year colleges in fall 2000 took at least one remedial course (or one “developmental” course; we use these terms interchangeably), compared to 20 percent of entering students at public four-year institutions. Among recent high school graduates who entered higher education through community colleges in the mid-1990s, over 60 percent took at least one remedial course (authors’ calculations based on the National Education Longitudinal Survey of 1988 [NELS: 88]).

Underpreparation is typically viewed in terms of deficiencies in students’ basic academic skills, specifically in those skills integral to the reading, writing, and mathematics subject areas. Community college educators maintain, however, that many entering students are also unprepared in other important ways. It is widely believed that many students have poor study habits and lack clear goals for college and careers. Some experts contend that helping students address these non-academic deficiencies is just as important as helping them acquire basic academic skills through remedial classes, which typically do not address issues such as study skills, goal setting, and the like (Boylan, 2002; Pascarella & Terenzini, 1991).

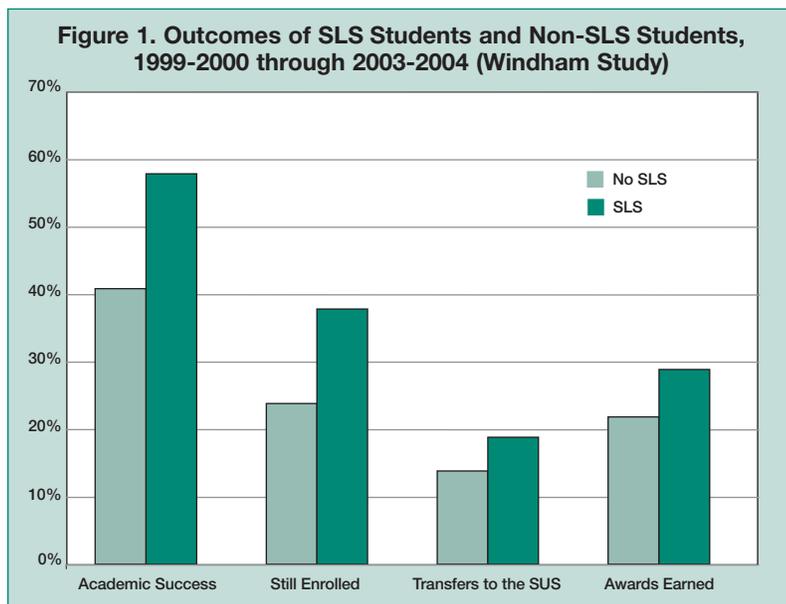
In response to this increasingly acknowledged need, community colleges now offer “student success” courses that teach students how to write notes, take tests, and manage their time; that help students explore their learning styles; and that encourage students to develop plans for college and

careers (Derby & Smith, 2004). A wide spectrum of students may find these courses useful. Although such courses are not themselves considered to be remedial, sometimes colleges require that they be taken by students who need academic remediation. Student success courses have certainly become well-established. Indeed, several publishers offer textbooks for these courses, in some cases allowing colleges to customize the course material with institution-specific information such as support services available on a given campus.

Student success courses, and their effectiveness, are the focus of this Brief. Despite the prevalence of these courses at community colleges, little research has been conducted on their effectiveness. Recently a research team headed by Dr. Patricia Windham at the Florida Department of Education compared the outcomes of students who completed a student success course — which in Florida is known as a “student life skills,” or “SLS,” course — with those of students who did not take or complete such a course (Florida Department of Education, 2006). They found that SLS course completers were more likely than non-completers to achieve one of the following three indicators of success: earning a community college credential, transferring to the state university system, or remaining enrolled in college after five years. Results of this study are shown in Figure 1. Among students who needed at least one remedial course, those who passed an SLS course were more likely to achieve these milestones than were those who did not take or complete an SLS course. The same pattern holds for students who were required to take remedial courses in all three subject areas — students who are generally plagued by high rates of failure.

In Florida’s 28 community colleges, SLS courses are open to all students, but some of the colleges require that certain students take them. According to an earlier study (Florida Department of Education, 2005), 13 colleges have no requirement that any particular students take an SLS course; it is, rather, an elective course. Most of the other colleges tie a requirement to enroll in SLS to enrollment in developmental courses, although the rule varies in terms of which, and how many, developmental courses students need to enroll in before they are required to take SLS. One college requires all students

on academic probation to enroll in an SLS course, and one college requires all students, whether they need remediation or not, to take an SLS course.



The analysis by Dr. Windham and her colleagues was “descriptive” in that it compared the mean outcomes of SLS completers and non-completers without controlling for student characteristics or considering latent differences between completers and non-completers that might be related to the outcomes observed. This Brief reports the recent findings of a more in-depth analysis of the relationship between enrollment in student success courses and student outcomes using a dataset on Florida community college students similar to the one used in the Windham study. Researchers at the Community College Research Center (CCRC) used statistical models to see if student success courses still appear to be related to positive outcomes even after controlling for student characteristics and other factors that might also influence the relative success of students who take such courses.

## Data and Methods

To further examine the effects reported by Dr. Windham and her colleagues, we used individual student record data provided to us by the Florida Department of Education on a cohort composed of all students who entered a Florida community college for the first time in fall 1999. We tracked these students for 17 terms (or five and two-thirds calendar years) and examined the percentage of these students who completed a credential (a certificate or an associate degree) during that time period. As in the Windham study, we also examined the percentage of students who transferred to the Florida State University System

or persisted in school into the fifth year.

It should be noted that while Windham and her colleagues compared the outcomes of students who *completed* an SLS course to those who did not, we were interested in the effect of *enrolling* in such a course. We decided to examine the effect of enrolling in an SLS course rather than completing one because we were concerned that selecting just those who completed SLS would bias the results toward students who might have latent characteristics that also increase their likelihood of completing a credential.

We used logistic regressions to control for student characteristics that we hypothesized could be related to the decision to enroll in an SLS course or to the completion of a credential. The factors we controlled for in our models include: gender, race and ethnicity (including Hispanic status), age, citizenship status, limited English proficiency, and regular high school completion (as opposed to a GED or any other non-standard diploma). We also controlled for math, reading, and writing test scores because students with higher test scores generally earn credentials at higher rates than those with lower scores, and there may be significant differences in test scores between those who enroll in an SLS course and those who do not. The test scores we used as controls in our models were also used for placement purposes, so they are likely correlated with the remediation variable that was also included in some of the models (as described below).

All students enrolling in an associate degree program at a public community college in Florida must present scores from the SAT or ACT or take a College Placement Test (CPT) administered by the college. We restricted our sample to those students who completed test scores on one of the three tests (ACT, SAT, or CPT) and whose scores were all from the same test (e.g., a student’s math, writing, and reading scores were all from the ACT). This reduced the sample size by about 29 percent, to somewhat less than 37,000 students. We converted all of the test scores to an SAT scale using the test maker’s formula. We also created a flag to indicate whether a student submitted an ACT or SAT score, as opposed to taking the CPT. Since only SAT and ACT scores are accepted in the State University System (SUS), taking one of these tests may indicate an expectation of transferring to a baccalaureate institution.

About 26 percent of students in our sample completed a credential in the allotted time of 17 terms. Most of those who completed credentials obtained an associate degree: about 22 percent were

awarded this degree, and about 3 percent were awarded a certificate. About 1 percent were awarded both. About 25 percent of students in our sample were still enrolled in the fifth year, and about 16 percent transferred to the SUS.

Overall, about 36 percent of the students in our sample enrolled in an SLS course. Of these, about 79 percent passed the course with a grade of D or better.

Since students placed in developmental coursework are often encouraged and, in some cases, required to enroll in an SLS course, we also created a binary variable indicating whether or not students took at least one remedial credit during their 17 terms. Most students in our sample (63 percent) took at least one remedial credit. The data show that students who enrolled in at least one remedial credit were more likely to have taken an SLS course than were students who did not — 44 percent of students in the sample who took at least one remedial credit enrolled in SLS, compared to 21 percent of those who never took remediation. Overall, a significant share of our sample — 28 percent — enrolled in both SLS and remediation.

## Multivariate Models and Results

We first ran a model of the effects of SLS enrollment on earning a credential in 17 terms for the overall sample (Model 1). In addition to student characteristic covariates, the model includes, as independent variables of interest, flags for remediation and the interaction between SLS and remediation. Then we ran separate models for students who had never participated in remediation (Model 2) and for those who had enrolled in at least one credit of remediation (Model 3) to see if the effect of SLS enrollment holds after restricting the sample to a more homogeneous population. Finally, we ran separate models for each of the 28 institutions in the Florida Community College System to estimate the effect that each college's SLS courses had on its own credential completion rates.

We show the results of the first three (sample-wide) models in Table 1. The results are given in terms of marginal effects with standard errors in parentheses. The marginal effect of an

independent variable on the dependent variable (here, the probability of completing a credential) is the effect of a unit change in the independent variable on the dependent variable, evaluated at the mean values of the other independent variables. We report marginal effects rather than the logistic regression coefficients themselves because the latter tend to be difficult to interpret (Kennedy, 2003, p. 266), while the interpretation of marginal effects is similar to that of linear regression coefficients. Marginal effects that are statistically significant with a p-value of five percent or less are marked with an asterisk.

The regression results for Model 1 suggest that students who enrolled in SLS courses were 8 percent more likely than their peers to earn a credential, holding all else constant. Students who enrolled in remedial courses were 7 percent less likely to graduate than were students who did not take such courses, even after controlling for observable student characteristics. This finding is consistent with prior research using similar statistical methods (see, e.g., Calcagno, Crosta, Bailey, & Jenkins, forthcoming) and is not surprising since just 17 percent of students in our sample who enrolled in remediation earned a credential in 17 terms,

**Table 1. Marginal Effects of SLS Enrollment and Other Variables on Completion of a Credential**

Variables	Model 1		Model 2		Model 3	
	All students		Students who did not enroll in remediation		Students who enrolled in remediation	
	Marginal Effect	Std. Err.	Marginal Effect	Std. Err.	Marginal Effect	Std. Err.
Enrolled in SLS	0.08*	(0.01)	0.09*	(0.01)	0.05*	(0.01)
Enrolled in remediation	-0.07*	(0.01)				
Enrolled in both	-0.02*	(0.01)				
Female	0.07*	(0.00)	0.10*	(0.01)	0.05*	(0.01)
Asian or Pacific Islander	0.04*	(0.01)	0.03	(0.03)	0.03*	(0.01)
Black (Non-Hispanic)	-0.09*	(0.01)	-0.11*	(0.02)	-0.07*	(0.01)
Hispanic	-0.06*	(0.01)	-0.05*	(0.01)	-0.05*	(0.01)
Native American	-0.09*	(0.04)	-0.16*	(0.07)	-0.04	(0.04)
No race reported	-0.10*	(0.03)	-0.05	(0.06)	-0.10*	(0.03)
Age (over 10)	0.02*	(0.00)	-0.02	(0.01)	0.03*	(0.01)
US citizen	-0.03*	(0.01)	0.00	(0.02)	-0.04*	(0.01)
Limited English proficiency	0.01	(0.02)	-0.02	(0.04)	0.01	(0.02)
Has HS diploma	0.06*	(0.01)	0.06*	(0.02)	0.06*	(0.01)
Did not take CPT test	0.09*	(0.01)	0.12*	(0.01)	0.04*	(0.01)
Math score (over 100)	0.07*	(0.00)	0.09*	(0.01)	0.07*	(0.00)
Verbal score (over 100)	0.02*	(0.00)	0.00	(0.01)	0.03*	(0.00)
Writing score (over 100)	0.01*	(0.00)	0.01	(0.01)	0.01*	(0.00)
Constant	-0.75*	(0.03)	-0.68*	(0.05)	-0.73*	(0.02)
Sample size	34,427		12,621		21,806	
Pseudo R <sup>2</sup>	0.11		0.05		0.06	

Note: Since the test scores have been placed on the SAT scale and rescaled in units of 100, a unit change in the test score corresponds to a 100-point change in the SAT score (because the effect of a one-point change would be too small). Similarly, since the age variable has been rescaled in units of 10, a unit change in age corresponds to a 10-year change in the student's age (again, because the effect of a one-year change would be so small).

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compared with 41 percent of students who enrolled only in college-level courses who did so. However, students who enrolled in remediation and who also enrolled in an SLS course were only 2 percent less likely to complete a credential than were students who enrolled in neither SLS nor remediation. So taking an SLS course combined with enrollment in remediation is associated with a higher probability of completion than enrollment in remedial courses alone.

The apparent positive effect of SLS enrollment is also evident when the sample is restricted to the subgroups of students who took remediation and those who did not. We found that among students who never participated in remediation (Model 2), SLS enrollment is associated with a 9 percent increase in the probability of success; for students who enrolled in one or more credits of remediation (Model 3), SLS enrollment is associated with a 5 percent increase. All of these marginal effects are highly statistically significant, with p-values close to zero.

For almost all of the individual colleges, the marginal effects of SLS enrollment on completion are positive and statistically significant (not shown here but available upon request). There are exceptions, however: two colleges show a statistically significant negative association. Also, it should be noted that even among the large majority of colleges that show a positive association, there is substantial variation in the magnitude of the marginal effect. Part of this variation is due to the fact that the colleges differed in the rates at which their students completed credentials. Also, we found wide variation among the colleges in the share of their students who enrolled in SLS. Differences in student or institutional characteristics and SLS course design and delivery probably account for much of these differences in marginal effects and point to a need for further research, both qualitative and quantitative, about which SLS approaches are most effective.

We also considered two additional outcome variables: persistence in school (as measured by still being enrolled in the fifth year) and transfer to Florida's SUS. We do not report the full results here, but consistent with the findings of Windham and her colleagues, we found that enrollment in SLS is associated with increased chances of these outcomes. Specifically, for all students, enrollment in SLS is associated with an 8 percent increase in the chances of persisting in school. For students who did not participate in remediation, chances increased by 7 percent. For students who did participate in remediation, chances increased by 10 percent. For all students, enrollment in SLS is associated with a 3 percent increase the chances of transferring to the SUS. For those not in remediation, there was a 5

percent increase, and for those in remediation, there was a 3 percent increase. As was the case with completion, all of these effects are highly statistically significant, with p-values close to zero.

The design of our non-experimental model has potential problems. Most important is our inability to control for socioeconomic status and student motivation, which may be positively correlated with enrollment in SLS and also with the probability of completing a credential.

Although we cannot formally test the effect of such unmeasured factors on our results, we note that research often finds a high correlation between student test scores (which we do measure) and socioeconomic status (which we do not measure). Socioeconomic status is in turn positively correlated with degree completion rates (Carbrera, Burkum, & La Nasa, 2005). If students with higher test scores and, therefore, higher socioeconomic status, are more likely to enroll in SLS courses, this might help to explain any observed apparent positive effects on completion of enrolling in SLS and thus bias the results. However, as we show below, we find that students with lower test scores are more likely to enroll in SLS courses than are those with higher scores. This is not surprising given that students with lower test scores are more likely to take remedial courses and that colleges encourage and in some cases require students who participate in remediation to take an SLS course.

Figures 2 and 3 show the aforementioned relationship between the total (combined reading-writing-math) test score and the probability of enrollment in SLS (Figure 2) or remediation (Figure 3). Both curves show a negative relationship between test scores and enrollment for both SLS and remediation. (Both Figures 2 and 3 have been smoothed to remove "noise" from the underlying data. Particularly in Figure 3, there are acute jumps in the probability at the beginning and end of the distribution, but these are caused by noise, as there are very few students with test scores at these extremes.) Consistent with the state's policy that uses test score cutoffs in placing students in remediation, Figure 3 shows a very high level of enrollment in remediation at relatively low scores, which remains consistently high up to a combined score of about 1200, after which it declines rapidly.

Enrollment in SLS courses also declines with rising test scores as shown in Figure 2, but it does not start at such a high level and declines less sharply. Students who are in remediation are directed toward SLS disproportionately, and, although more high-test-score students enroll in SLS than in remediation, SLS does not attract a population of students with disproportionately high test scores. Across the board, SLS enrollees have lower median

test scores than are found in the overall sample, regardless of the test (reading, writing, or math).

## Conclusion

Community colleges across the nation face the challenge of serving students who are not prepared to succeed in college. Many of these students have inadequate academic skills, and community colleges offer developmental courses, tutoring, and other academic supports to help students overcome these deficiencies. But students also frequently arrive on campus with other deficits, including poorly formed goals for education and careers, a lack of good study habits, and little awareness of how to succeed in higher education settings. They are also often unfamiliar with resources available on campus to help them succeed.

This is why courses devised to remedy these latter deficits have been developed. Both students and faculty have found such “student success” courses (called “SLS” courses in Florida) to be worthwhile. And it appears that such courses are becoming more popular around the country. But little rigorous research has been conducted that addresses whether or not such courses actually help students succeed in college.

The research described in this Brief is an initial attempt to fill that gap. Based on institutional data from a cohort of students at community colleges in Florida, we have shown that enrollment in an SLS course has a positive marginal effect on a student’s chances of earning a credential, persisting, or transferring. While we have not controlled for every possible factor that could create a difference between those who enrolled in SLS courses and

those who did not, we have controlled for covariates that are well-established and commonly used in the research community. Moreover, because we have shown that SLS courses are mainly targeted at students enrolled in remedial courses, the chances that the positive apparent effects we observe can be attributed to student characteristics such as SES or academic preparation are reduced. We are therefore confident that at least some of the positive differences in students’ outcomes are related to participation in an SLS course. Given this evidence, community college educators may want to consider expanding requirements that students take SLS courses.

Our data do not allow us to examine the question of why taking a single student success course would

Figure 2. Probability of Enrollment in SLS vs. Combined Test Scores (Smoothed Data)

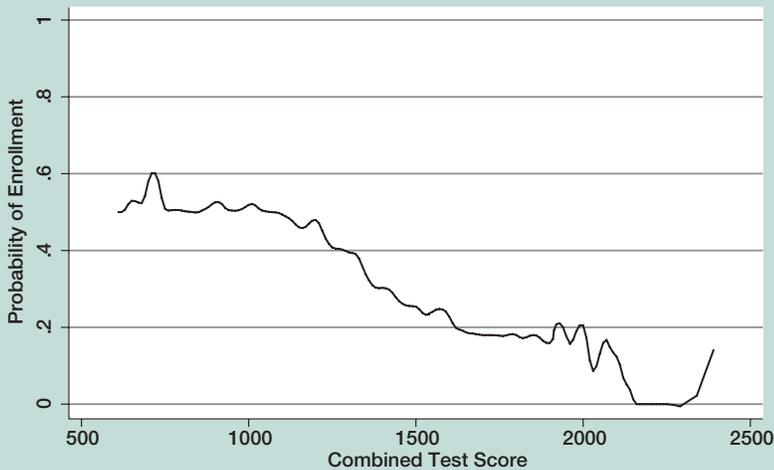
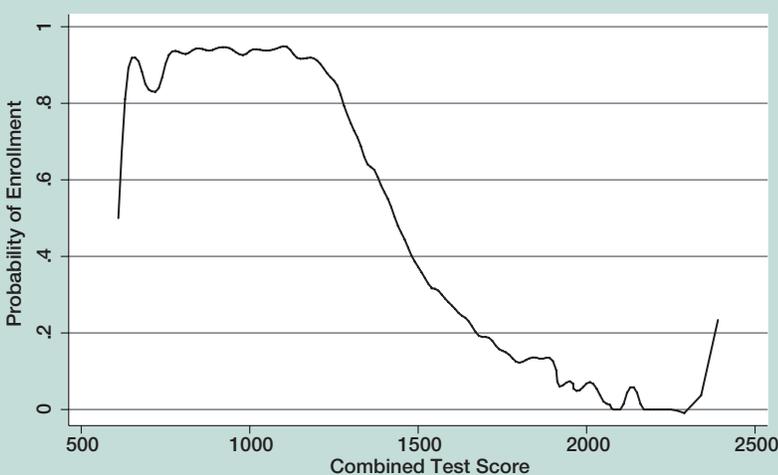


Figure 3. Probability of Enrollment in Remediation vs. Combined Test Scores (Smoothed Data)



Based on this evidence, we are confident that the positive relationships we found between taking an SLS course and various student success indicators — credential completion, persistence, and transfer — are not likely explained by the socioeconomic status or academic readiness of the students who take such courses. Nonetheless, statistical controls for socioeconomic status and/or high school grades would strengthen the accuracy of our findings. Moreover, although we find that SLS enrollment is *correlated* with increased chances of student success, to establish a *causal effect* would require the use of experimental and/or quasi-experimental designs. The promising findings from this analysis suggest that further research along these lines is warranted.

be associated with positive outcomes as much as five years later. Further quantitative and qualitative research is needed to understand these effects. However, we hypothesize that many students come to community colleges with very limited understanding of the opportunities and demands of college life and lack the skills and orientation needed to thrive in a college culture. SLS courses may contribute to positive outcomes by helping students early in the college experience to develop clearer goals for education and careers, better ideas of what it takes to succeed in college, and some practical skills useful for achievement.

Further research is needed on the question of which aspects of these courses are most strongly associated with improved rates of student success. Even in Florida, not all SLS courses teach the same set of topics. Which set of topics seems most useful? What teaching methods are most helpful? The answers to these questions probably account for some of the variation across the Florida community colleges in the effectiveness of SLS courses. Finally, another important question is how can student success courses be customized to serve the needs of particular student populations, since different campuses often have very different student demographics. Given the increasing popularity of student success courses as well as initial research that associates such courses with positive outcomes, more study is certainly warranted.

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