The Role of a Skills Learning Support Program on First-Generation College Students’ Self-Regulation, Motivation, and Academic Achievement: A Longitudinal Study

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Abstract
The purpose of this longitudinal study was to assess the impact of the Skills Learning Support Program (SLSP) aimed to support entering first-generation college students’ motivational beliefs, use of self-regulatory strategies, and academic achievement. The study included 137 students from ethnically diverse cultural backgrounds who were in need of academic, counseling, and financial support. In addition, the study gathered academic data on 739 admitted students who did not participate in the program for comparison. The SLSP students were asked to respond to a number of scales assessing their self-regulation and motivational beliefs at the beginning and end of their freshmen year. Comparison academic data were also collected for all students during...
the next 4 years until graduation. It was hypothesized that students who participated in the SLSP would experience an increase in their academic self-regulation and motivation by the end of the first year. In addition, it was expected that students in the SLSP group would show similar or higher levels of achievement and graduation rates when compared with other freshman students admitted the same year. Findings revealed that students who enrolled in SLSP reported higher levels of motivation and study skills from the pretest to the posttest assessments. In addition, students enrolled in the program exhibited levels of academic achievement similar to or higher than regularly admitted college freshman during their first year and as they approached graduation. However, these differences in the two groups diminished by the time students graduated. These findings may have important implications for instructors, students, and college administrators.

**Keywords**
first-generation college students, retention, intervention, motivation, self-regulation, academic achievement, longitudinal

According to the U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Education Data Systems (IPEDS, 2013), first-year full-time college students who registered for studies at public 4-year institutions of higher education in 2011 showed an average retention rate of 79%, with retention rates ranging from 61% to 95% depending on school selectivity (NCES, IPEDS Spring 2013). On average, one out of three freshmen do not return for their sophomore year (Sheehy, 2013). Dropout rates for first-year students are a source of much concern for institutions of higher education, and many researchers have proposed interventions to aid students in successfully navigating their first year of college (Arco-Tirado, Fernandez-Martin, & Fernandez-Balboa, 2011; Barton & Donahue, 2009; Fowler & Boylan, 2010; Tuckman & Kennedy, 2011; Walsh, Larsen, & Parry, 2009). The purpose of this longitudinal study was to assess the impact of the Skills Learning Support Program (SLSP) on students’ retention. The SLSP aimed to support first-generation college students from educationally and economically disadvantaged backgrounds, who were not initially admitted to the university under regular admission standards, by providing them with an array of academic, counseling, and financial support services.

**A Review of Interventions Designed to Enhance College Student Success**

A significant number of theoretical models and intervention studies have addressed possible sources or indicators of failure that may affect a student’s
academic success in the first year of college and future academic performance (Cambridge-Williams, Winsler, Kitsantas, & Bernard, 2013; Henning & Shulruf, 2011; Mega, Ronconi, & De Beni, 2014; Ning & Downing, 2010; Okun, Fairholme, Karoly, Ruehlman, & Newton, 2006; Rodriguez, 2009; Tinto, 1997; Vukman & Licardo, 2010; Zusho & Edwards, 2011). For example, Tinto (1997) proposed a theoretical model for freshman dropouts that emphasized three factors: (a) failure to break away from friends and family; (b) failure to understand or accept the role of a college student; and (c) failure to bond with the institution socially or academically. Interventions designed to increase college student retention and facilitate students’ transition to college life tend to emphasize the latter two components of the model. Such interventions often include transition courses such as summer bridge programs, supplemental courses that support students academically in their core courses or aid in study skills training, introduction or orientation to the university sessions, development of learning communities, and student support services and workshops.

Summer bridge programs appear to be very prevalent interventions primarily in the last 5 years. These programs serve a variety of purposes, with many focusing on exposure to college courses, the development of academic skills, and student utilization of university support services (Cabrera, Miner, & Milem, 2013). Participation in these programs shows improvement in student retention and graduation rates (Cabrera et al., 2013; Garcia, 1991; Murphy, Gaughan, Hume, & Moore, 2010) and academic beliefs (Strayhorn, 2011). For example, according to Murphy et al. (2010), exposing students to short bridge summer courses in calculus, chemistry, computer science, and English composition and access to upperclassmen mentors resulted in higher graduation rates for program participants, especially for women and students with higher median incomes, although African American students and state residents experienced lower rates of graduation. Other research studies show that underrepresented students (e.g., Black/Hispanic, women, underprepared) who participate in bridge summer programs at community colleges and open-admission/less selective 4-year colleges experience higher graduation rates, than their nonparticipating counterparts (Douglas & Attewell, 2014). Similarly, Cabrera et al. (2013) examined the impact of a summer program focusing on the development of academic and social skills with the majority of participants being minority, low-income, first-generation college students and found that in comparison to nonparticipants, the intervention improved participants’ first-year grade point averages (GPAs) and retention. Finally, studies focusing on implementing summer bridge programs to improve students’ motivational beliefs of economically disadvantaged, first-generation, underprepared, racial or ethnic minorities also show positive results with students reporting more positive beliefs regarding academic self-efficacy and greater academic skills (Strayhorn, 2011).

Research on learning communities also shows positive student outcomes. For example, Buch and Spaulding (2011) studied the impact of a psychology learning
community (PLC) with six cohorts of psychology students. First-year PLC students participated in common psychology courses and an orientation course. The orientation course facilitated academic and career planning by exploring the scientific and clinical aspects of psychology; required student participation in a service-learning project; and exposed students to university support resources, opportunities, and academic advising. Findings showed that in comparison to nonparticipants, PLC students displayed higher first-year GPAs, earned hours versus attempted hours, and first-year retention rates. Additionally, the PLC students participated at higher rates in psychology research, internships, psychology honor societies, university leadership programs, and study abroad programs. However, there were no differences in graduation rates (Buch & Spaulding, 2011).

A sense of belonging buoyed by sociocultural interactions and peer support can be important to students’ decisions to continue their studies at a university (Cerezo & McWhirter, 2012; Gonzales, Brammer, & Sawilowsky, 2015). Interventions focused on Latino/Latina students with an emphasis on building a supportive peer community, helping students identify social and academic resources, and develop skills in balancing their home and university responsibilities resulted in better social adjustment and critical consciousness than students who were not exposed to the intervention (Cerezo & McWhirter, 2012). Similarly, in a recent intervention study, Gonzales et al. (2015) found that by creating a sense of familia between students and the faculty and staff and requiring students to enroll in first-year English and math courses as a cohort, Latino/Latina students experienced a rise in first- to second-year retention rates.

Furthermore, many researchers have also implemented intervention programs that incorporate freshmen courses focused on the development of self-regulatory skills (Arco-Tirado et al., 2011; Barton & Donahue, 2009; Fowler & Boylan, 2010). Self-regulation is critical because differences in high- and low-achieving students are closely linked to varying levels of self-regulation (Zimmerman, 2000). Self-regulated learners are goal directed and metacognitively aware of their own learning process, report high self-efficacy beliefs, and diligently structure their environment in ways that are conducive to their learning (Zimmermann, 2000).

Research evidence shows that courses explicitly teaching self-regulatory strategies for studying, writing papers, taking exams, and gleaning information from lectures and texts benefit students, improve total GPAs, and result in significantly higher retention and graduation rates relative to those not enrolled in such courses (Tuckman & Kennedy, 2011). For example, Barton and Donahue’s (2009) study which focused on several first-year seminar forms of support, ranging from college orientation to critical thinking skills and discipline-specific ways of knowing and self-awareness revealed similar results with students showing improved GPAs, stronger work habits, participation in more campus activities, connections with professors, and acknowledging improved adjustment to
Moreover, Arco-Tirado et al. (2011) utilized senior and master’s students trained as peer tutors, who then instructed freshman students in academic and social skills (e.g., time management, goal setting, active learning, etc.). Results showed increases in freshmen’s use of some cognitive and metacognitive strategies as well as significant differences in social skills (Arco-Tirado et al., 2011). Further, Cambridge-Williams et al. (2013) examined the effects of an orientation transition course (University 100) on students’ academic performance, self-regulation, self-efficacy, retention, and graduation rates across a 7-year period. The goal of this orientation transition course was to provide students with life skills, academic strategies, and a sense of a belonging to help students succeed beyond their first semester. Findings showed that students enrolled in University 100 courses had higher percentage of returning to the university for subsequent years (90% vs. 78%) and had higher graduation rates than those who were not enrolled in a University 100 course (75% vs. 60%) 5 years later. Participating students reported greater academic self-efficacy and greater self-regulated learning than nonparticipating students (Cambridge-Williams et al., 2013). Finally, other studies focusing on specific self-regulatory processes such as setting process-oriented goals (mastery goals vs. performance goals) show positive influences on student academic outcomes (Kitsantas, 2002; Okun et al., 2006). For example, intervention studies designed (Morisano, Hirsh, Peterson, Pihl, & Shore 2010) to assist students with goal setting reveal that students who worked through a series of guided steps to set specific personal goals and developed strategies to attain them exhibited improved GPAs, a propensity in enrolling in full course load per semester, and a reduction in negative affect when compared with a comparison group.

Overall, the research studies reviewed earlier clearly demonstrate the importance of developing intervention programs to ensure the academic success and retention of college students. The majority of interventions share common core design elements, including mentoring and community support, combinations of lectures and courses, a focus on student study skills and student- and teacher-centered instruction. In fact, most interventions have integrated a first-year transition seminar course with various forms of support ranging from mandatory tutoring, mentoring and advising, and an emphasis on the role of learning environments that cultivate student motivational beliefs and self-regulation as means of facilitating academic success. The majority of these interventions show gains in students’ GPA, academic standing, success in developmental courses, and retention rates in comparison to nonprogram student participants (Baeten, Dochy, & Struyven, 2013; Fowler & Boylan, 2010; Wang et al., 2012).

The primary scope of the present study was to examine students’ perceptions of their self-regulation skills and motivation as they enter college and progress through their first year and the effectiveness of the SLSP program on freshmen students’ academic performance. We hypothesized that students who participated in the SLSP would experience an increase in their academic self-regulation
and motivation by the end of the first year. In addition, it was expected that students in the SLSP intervention would show similar or higher levels of achievement and graduation rates when compared with other freshman students admitted the same year.

**Method**

**Participants**

Eight hundred and seventy-six ($N = 876$) college freshman from a university in the northeast region of the United States participated in the study. Of those, 137 participated in the SLSP, which served as the intervention for this group. The majority of these students were first-generation college students from a variety of ethnic minority groups. Of those reporting gender, 40% were male and 59% female. After completing informed consent forms, participants in the SLSP group responded to the surveys in two sessions of approximately 1 hour each, at the beginning and end of the freshmen year. The remaining 739 students did not participate in the intervention. During the next 4 years, data for both participant groups were collected.

**Measures**

**Personal Data Questionnaire.** This survey consisted of questions regarding student background information. Participants reported their gender, age, ethnicity, and whether they were first-generation college students.

**The Motivated Strategies for Learning Questionnaire.** The Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1993) is a self-report instrument consisting of 81 items. Students responded to MSLQ items using a 7-point Likert-type scale (not at all true of me to very true of me). Subscales assessed students’ motivational beliefs and learning strategies (e.g., intrinsic motivation, task value, self-efficacy of learning and performance, cognitive strategies [i.e., rehearsal, elaboration, and metacognition], and resource management subscales [i.e., time and study environment and help seeking]). Internal consistency estimates ranged from .62 to .93 for the motivational subscales and from .72 to .80 for the learning strategies subscales.

**Patterns of Adaptive Learning Scale.** Developed by Midgley et al. (2000), Patterns of Adaptive Learning Scale (PALS) assesses students’ goal orientation in terms of mastery goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation. PALS measured students’ mastery goal orientation in terms of students’ engagement with schoolwork, with the aim of expanding their competence. The performance-approach goal orientation
assessed the degree to which individuals value demonstrating their competence, whereas performance-avoidance goal orientation assessed the degree to which students seek to avoid the demonstration of incompetence. These three different dimensions of achievement goal orientation included 14 items where participants rated their self-perceptions on a 5-point Likert-type scale (ranging from 1 as *strongly disagree* to 5 as *strongly agree*). Internal consistency estimates for these subscales ranged from .77 to .83.

**Academic achievement.** This study used existing data available for administrative purposes: Student enrollment status credits completed and GPAs were collected.

**Research Design and Procedure**

**Skills Learning Support Program.** The SLSP provided support to students from educationally and economically disadvantaged backgrounds, who did not demonstrate sufficient academic attributes to be admitted to the university under its regular admission standards; many exhibited standardized test scores below institutional norms. Students received direct program services designed to promote persistence throughout their college life and until graduation, such as financial aid, counseling, and academic enrichment opportunities. Each student was assigned a counselor at the inception of the program. This counselor also served as the student’s academic advisor throughout his or her freshmen year and until he or she completed 30 course credits.

To prepare for the SLSP, faculty and staff participated in two full days of orientation, which included introductions, a description of the summer program goals, a review of academic and administrative duties and responsibilities, and a review of program requirements for students. Each faculty member was assigned an undergraduate teaching assistant and each counselor was assigned a peer student counselor, each chosen from previous SLSP program participants. Faculty members taught the academic classes while teaching assistants conducted subject area workshops and met with students for individual tutoring sessions as needed. SLSP counselors worked with their assigned students individually and in the classroom, and the peer counselors in conjunction with the university counselors, assisted students academically and responded to any questions or concerns.

The SLSP began with a required 6-week intensive summer academic program prior to their admission as regular students in their freshmen year. The goal of this program was to prepare students for the academic and social demands of college life. Support services included college preparatory coursework, study skills instruction, tutorial assistance, and extensive counseling services. Students and their parents also participated in an orientation in which students met the faculty and the program administrators and were introduced to the program requirements, which included mandatory attendance and successful
completion of the academic program. The faculty presented an overview of their
classes and administrators reviewed the academic advising process for the fall
term, the registration process, and issues related to financial aid. The summer
program met for 7 hours a day, 5 days a week. Students who succeeded in
passing the summer course earned three elective credits toward their graduation
and admission to the university.

The academic components of the SLSP program included seminars that intro-
duced the students to concepts taught in introductory college courses, including
an introduction to English (with emphasis on reading and critical thinking), a
choice of biology or geology, math, and speech. Additionally, students were
enrolled in an academic success course, which was taught by SLSP counselors
and designed to support students in their transition to the new environment of
college life. The course focused on issues of self-perception, relationships (both
personal and academic), study skills (such as time management, strategies such
as goal setting, self-monitoring, and self-evaluation), understanding financial
aid, problem solving, and health and well-being issues. To enhance students’
writing skills, the class utilized guided journal writing. The aim of the course was
to help students adapt and develop academic self-regulation strategies and posi-
tive self-motivational beliefs.

Student counseling was a strong component of the SLSP program. Counselors met with students one-to-one and guided them through a decision-
making process based on personal needs. There were five SLSP counselors, who
each worked with small groups of between 20 and 25 students during the
summer and academic year. Other components of the program were a 3-day
summer retreat for all students, faculty, and administrators offered at the begin-
ing of the summer and a final awards ceremony at the conclusion of the
summer program. The purpose of the summer retreat was to develop social
interaction between students and faculty, to promote bonding and dialogue,
and to encourage students to participate in activities designed to develop lead-
ership skills. The SLSP program was continued in the following two-semester
terms with a course on strategies for academic success, designated academic
support courses, and an assigned college counselor who worked with the stu-
dents and provided counseling on personal, financial, and academic matters.

Results

As expected, preliminary analyses showed that students in the SLPS program
had significantly lower Scholastic Aptitude Test (SAT) scores (verbal and math)
than regularly admitted students, see Table 1.

Based on the first hypothesis, we predicted that freshmen students enrolled
in the intervention program would show higher levels of motivation and self-
regulation from the beginning to the end of their freshmen year. A paired t test
was employed to investigate the changes from pre- to posttest scores on each of
the motivation and self-regulation variables. The results revealed that students exposed to the SLSP intervention reported positive significant changes in motivation, use of learning strategies, and resource management strategies. The results are depicted in Table 2.

In regard to student goal orientation (see Table 3), students reported significantly higher levels of mastery goal orientation from pre to post, $M_{\text{pre}} = 4.59, SD_{\text{pre}} = .74$; $M_{\text{post}} = 4.91, SD_{\text{post}} = .94$; $t(110) = -3.29, p = .01$, and lower levels of performance-approach goal orientation, $M_{\text{pre}} = 4.77, SD_{\text{pre}} = 1.11$; $M_{\text{post}} = 4.46, SD_{\text{post}} = .85$; $t(114) = -2.81, p = .05$, and performance-avoidance goal orientations, $M_{\text{pre}} = 3.16 SD_{\text{pre}} = 1.45$; $M_{\text{post}} = 2.86, SD_{\text{post}} = 1.22$; $t(113) = -2.26, p < .01$.
To examine the second research hypothesis regarding achievement differences between the program participants (who were first generation and underachieving students) and the regularly admitted students, an independent $t$ test was employed using the dichotomous program versus nonprogram students as the grouping variable and the end of first-year cumulative GPA as the dependent variable. The results (see Table 4) revealed that although program students achieved at similar levels than regularly admitted students, $t(872) = 1.37, p = .17$, students in the SLSP group ($M = 2.68, SD = .94$) achieved at significantly higher levels than students admitted regularly ($M = 2.27, SD = .97$) at the end of the first year of studies, $t(820) = 4.58, p = .001$. Furthermore, SLSP students continued to perform better than the regularly admitted students until the fourth year of studies, $t(586) = .68, p > .50$, where SLSP ($M = 3.08, SD = .93$) and non-SLSP students ($M = 3.01, SD = .71$) achieved at similar levels.

To determine whether there was an association between groups (SLSP and regular students) and graduation rates, a chi-square analysis was completed. The results showed that there was no association between the SLSP condition and
graduation rates, \( \chi^2(1) = 2.74, p = .10 \). This suggests that regardless of whether students participated in the SLSP condition, students in this condition (50% graduation rate) were just as likely to graduate as those in the comparison condition (42% graduation rate).

**Discussion**

The findings of this study suggest that the present support program had a positive impact on students’ academic self-regulation development, motivational beliefs, and academic outcomes. Students who enrolled in SLPS showed gains in motivation and self-regulatory skills during the first year of studies as well as higher GPAs in the first seven semesters. Specifically, the SLPS students, despite lower SAT entrance scores, were able to successfully employ learning and resource management strategies and matriculate at the same rate as regularly admitted students. These findings are consistent with prior academic research. For example, Copeland and Levesque-Bristol (2011) suggested that motivation is an important aspect to consider when developing freshmen retention programs, as motivated students are more likely to engage in effective strategies that improve learning outcomes, such as metacognition and knowledge transfer. Similar to Wang et al. (2012) and Rosário et al. (2010) results, this study’s findings demonstrate that students participating in the intervention realized gains in their self-regulatory skills in elaboration, help seeking, metacognition, rehearsal task strategies, and time management. Their motivational beliefs regarding college also improved, demonstrated by their increase in self-efficacy beliefs, intrinsic motivation, values for the college experience, and goal orientation.

Contrariwise, intervention students reported an increase in anxiety and performance-avoidance goal orientation. This was surprising in context of the other gains and might be due to students’ unrealistic expectations about college and college life. If so, then the intervention might foster a reevaluation of their perceptions, possibly resulting in a more realistic view of the college experience which, in turn, might lessen anxiety. These findings are consistent with research evidence indicating that entering freshmen have more positive expectations of college than they actually experience. For instance, Krallman and Holcomb (1997) found students who enter institutions of higher education with unrealistic preconceived expectations (e.g., that their grades would be as high as in high school and that faculty would keep track of their academic progress and teach study skills) may face academic failure. Similarly, Svanum and Bigatti (2006) found that the majority of students overestimated their final grade by an average of one full grade. Specifically, students in the bottom third academically respond more optimistically than their more successful counterparts and are less capable of predicting accurately their final course grade. These academically less successful students may be deficient in important learning skills and an understanding
of how these skills may affect their course grades. This is potentially true of our sample of first-generation college students, who do not have the background or parental models to help shape a realistic perception of college. More research should be conducted to examine these types of skills and motivational beliefs with at-risk students who do not participate in these types of intervention programs.

Furthermore, findings showed that students who participated in the SLSP intervention were not more likely to graduate than regular admitted students. However, findings also clearly showed that students at-risk who were exposed to SLSP intervention were able to develop skills to close the initial academic gap and graduate. A strength of the SLSP program lies in the comprehensive nature of the intervention not only did the program include an academic success course, which impacted motivation and self-regulation, but also summer foundational work and mentoring. The initial summer program support, similar to Cabrera et al. (2013), may have affected the participants strong first-year GPAs in comparison to nonparticipating students. The interactions of the participants with faculty and more experienced peer comparable to other studies (e.g., Arco-Tirado et al., 2011; Buch & Spaulding, 2011) included in the SLSP may have also played a role in the participants encouraging first-year GPA.

Limitations for this study are inherent in capturing the detailed differences between the two groups. There is some slight overlap in the SATs and high school GPAs between the intervention group and the comparison group. SATs and GPAs are summative assessments and only give an overview of academic performance. It would be important to look at specific self-regulatory processes between both groups and to examine these processes systematically during their academic years. It is important to examine other variables that may have an impact on retention and graduation rates, such as high school preparation, the academic and social influence of peers and family (Tinto, 1997), living-learning communities, and student responsibilities outside the college environment such as work or residing off campus (Cambridge-Williams, et al., 2013).

There is evidence to suggest that study skills courses for first-time freshmen students can have a lasting impact (Engle, Reilly, & Levine, 2004). Specifically, within the 12-week time period, at-risk students had significantly increased their cumulative GPA and were better able to maintain a strong GPA than students who did not complete the program. While other pre-freshmen and freshmen academic support programs have been developed, this intervention differs because (a) it is tailored toward participants who are first-generation college students from disadvantaged environments and (b) it includes multiple support systems. Given that the findings of the present intervention proved to be successful in increasing students’ self-regulation and motivation, it is suggested that these students’ chances of staying in and graduating from college would be also improved.

Other similar programs should consider developing multifaceted (e.g., instructional, counseling, etc.), prolonged, yearlong interventions to help
freshmen students succeed in college. In other words, support programs offered to incoming freshmen students should focus on academic support (including teaching study skills), but also the enhancement of students’ social support systems, and even financial support. The findings of this study may be useful for educators instructing students to engage in independent practice and for administrators designing effective academic and support interventions.

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References


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