

June 2017

Learning How to Learn: A Student Success Course for At Risk Students

Elizabeth R. Bowering

Mount St. Vincent University, elizabeth.bowering@msvu.ca

Joanne Mills

Mount St. Vincent University

Allison Merritt

Mount St. Vincent University

Follow this and additional works at: http://ir.lib.uwo.ca/cjsotl_rcacea



Part of the [Psychology Commons](#)

Recommended Citation

Bowering, E. R., Mills, J., & Merritt, A. (2017). Learning How to Learn: A Student Success Course for At Risk Students. *The Canadian Journal for the Scholarship of Teaching and Learning*, 8 (3). Retrieved from http://ir.lib.uwo.ca/cjsotl_rcacea/vol8/iss3/12

Learning How to Learn: A Student Success Course for At Risk Students

Abstract

It is well known that university students with ineffective learning strategies and low motivation are at risk for lowered grades and stress. Given the needs of these students, Mount St. Vincent University developed the Student Success Course (SSC), a 14-week intervention that offers instruction in learning strategies, self-management, and motivation. The purpose of this study was to evaluate the effectiveness of the SSC for 100 undergraduates on academic probation. From pre- to post-test, participants reported a significant increase in cognitive strategies, study skills, and motivation as well as a significant decrease in test anxiety and procrastination ($p < .05$). Over time, participants also demonstrated a significantly improved GPA ($p < .0001$). These results support the hypothesis that the SSC is an effective intervention, at least in the short-term, for improving learning and motivational strategies in at risk students.

Il est reconnu que les étudiants d'université dont les stratégies d'apprentissage sont inefficaces et qui ont une faible motivation risquent de souffrir de stress et d'obtenir de mauvaises notes. Au vu des besoins de ces étudiants, Mount St. Vincent University a mis en place un cours pour faciliter la réussite des étudiants (Student Success Course - SSC). Il s'agit d'une intervention de 14 semaines au cours de laquelle on enseigne des stratégies d'apprentissage, de gestion autonome et de motivation. L'objectif de cette étude est d'évaluer l'efficacité de ce cours dans le cas de 100 étudiants de premier cycle placés en probation. Les participants ont rapporté, avant et après le test, une augmentation significative de leurs stratégies cognitives, de leurs compétences en matière d'apprentissage et de leur motivation, ainsi qu'une baisse importante de leur anxiété face aux examens et de leur procrastination ($p < .05$). Avec le temps, les participants ont également démontré une augmentation de leur moyenne pondérée cumulative ($p < .0001$). Ces résultats soutiennent l'hypothèse selon laquelle le cours en question représente une intervention efficace, tout au moins à court terme, pour améliorer les stratégies d'apprentissage et de motivation chez les étudiants à risque.

Keywords

student success, learning strategy, motivation, GPA, academic probation

Cover Page Footnote

Elizabeth R. Bowering, Department of Psychology, Mount St. Vincent University; Joanne Mills, Counselling Center, Mount St. Vincent University; Allison Merritt, Department of Psychology, Mount St. Vincent University. Joanne Mills is now at Counselling and Psychological Services, Dalhousie University. Correspondence concerning this article should be addressed to Elizabeth R. Bowering, Department of Psychology, Mount St. Vincent University, Halifax, Nova Scotia, Canada B3M 2J6. Email: Elizabeth.Bowering@MSVU.ca

Understanding the variables that contribute to academic success, and hence to student retention (persistence), is an issue that has increasingly come to the forefront as post-secondary institutions in Canada become more accountable academically, administratively, and fiscally (Clark, Moran, Skolnik, & Trick, 2009). While a number of theories of student progression and retention exist (Bean & Metzger, 1985; Campbell & Mislevy, 2013; Kerby, 2015; Pascarella & Terenzini, 2005; Reason, 2009; Tinto, 1975; Whannell & Whannell, 2015), most suggest that both institutional and student variables mediate the likelihood of completion of the undergraduate degree. Institutional variables that improve persistence include high quality and frequent student interactions with faculty members, the availability of academic advising, as well as an explicitly stated university mission that commits to student success (Kuh, Kenzie, Buckley, Bridges, & Hayek, 2006; National Survey of Student Engagement, 2014; Pascarella & Terenzini, 2005). Student variables that increase persistence include being female and having parents with a university education (Dennis, Phinney, & Chuateco, 2005; Finnie, Childs, & Qiu, 2010; Finnie & Qui, 2009; Kuh et al., 2006; Padgett, Johnson, & Pascarella, 2012). While students discontinue university studies for many reasons (most commonly because they do not like it; Finnie et al., 2010), the strongest proximate predictor of retention is academic grades (Gershenfeld, Hood, & Zhan, 2016; Kuh et al., 2006; Pascarella & Terenzini, 2005; Wintre & Bowers, 2007).

Furthermore, success in post-secondary education requires that the student possess complex cognitive, metacognitive, and psychological processes (Bälter, Cleveland-Innes, Pettersson, Scheja, & Svedin, 2013; Friedman & Mandel, 2011; Ning & Downing, 2010; Ross, Salisbury-Glennon, Guarino, Reed, & Marshall, 2003; Soria & Stubblefield, 2015), including the desire to master challenging material (e.g., motivation and persistence), the use of sophisticated cognitive strategies (e.g., critical analysis and synthesis of information; Bloom, 1964; Dumford, Cogswell, & Miller, 2016), and the ability to self-regulate (e.g., stress and time management; Day, Mensink, & O'Sullivan, 2000; Tuckman, 2003). Not surprisingly, these processes are intertwined; intrinsically motivated students with a high expectancy for success are more likely to be academically successful than peers without these characteristics (Komarraju & Nadler, 2013; Pintrich & De Groot, 1990). For example, college instructors report that students with an intrinsic motivational orientation are more likely to attend to instruction, actively participate in discussion, and experience self-efficacy for learning (Lei, 2010). Similarly, self-regulated learners use more effective learning and monitoring strategies to master complex material (Pintrich & Johnson, 1990). In contrast, at risk students are more likely to demonstrate less sophisticated learning strategies and study skills, low motivation, poor concentration and time management skills, and ambiguous career goals (Altmaier, Rapaport, & Seeman, 1983; Berry & Plecha, 1999; Tinto, 1975). As a result, at risk students are more likely to experience lowered academic achievement, increased distress and frustration, and higher attrition rates (Keup, 2007; Salinitri, 2005).

To support and encourage academic success, a number of practices and programs have been implemented at universities, including generic study skills workshops, tutoring, supplemental instruction, learning communities, experiential learning, peer mentoring, early alert referrals, and counseling services (e.g., Cholewa & Ramaswami, 2015; National Survey of Student Engagement, 2012; National Survey of Student Engagement, 2013; Tinto, 2012). Despite these efforts (see Seifert, Gillig, Hanson, Pascarella, & Blaich, 2014), attrition at Canadian universities remains surprisingly high, with estimates varying according to the characteristics of the sample and methodology (Albert, 2010; Finnie et al., 2010; Finnie & Qiu, 2009; Grayson & Grayson, 2003; Parkin & Baldwin, 2009). For example, analysis of the Statistic

Canada's Youth in Transition dataset suggests a dropout rate from programs in Ontario of approximately 25%, with most dropping out after the first year of study (Finnie et al., 2010). Moreover, for those who persist, considerable time is required to complete the undergraduate degree: at year five, only 58% have graduated (Finnie et al., 2010). Indeed, at our university, the seven-year graduation rate (for the years 2007 – 2014) is 65.8% (Retrieved from <http://www.msvu.ca>).

Despite the availability of potentially helpful supports and programs on campus, many students (at risk or otherwise) do not willingly avail of them (Dietsche, 2012). Our experiences in university teaching, advising, and counselling additionally suggest that many at risk students cannot pinpoint why they are academically unsuccessful or what they need to do differently to succeed (see Bjork, Dunlosky, & Kornell, 2013). Specifically, our students frequently identified *external* factors as contributing to their low GPA (e.g., their professor, roommate, personal relationships), attributions that suggest an external locus of control. Not surprisingly, students who feel unable to control their environment are more vulnerable to decreased motivation and diminished academic achievement (Stupnisky, Renaud, Perry, Ruthig, Haynes, & Clifton, 2007).

Additionally, our students typically failed to recognize the importance of cognitive and metacognitive factors (e.g., goal setting, deep processing of information) to academic achievement. For example, when queried about their study habits, many students described ineffective learning strategies, including passive reading of their textbook chapters, rote memorization of material, and cramming for a test. Moreover, when we asked them what they needed to change to increase the likelihood of academic success, a common response was a vague "I'll try harder" and "I'll study more." In this, our observations agree with Bjork et al. (2013) who suggest that students often harbor misconceptions and biases that impede learning.

In the current study, we examined the impact of an intervention (i.e., a Student Success Course/SSC, described below) on the academic success of at risk students (i.e., those on academic probation). We predicted that, prior to the intervention, many students would exhibit rudimentary learning strategies (e.g., rote memorization), display inefficient study behaviors (e.g., poor time management and procrastination), and possess weak metacognitive skills (e.g., poor monitoring of comprehension while reading). Moreover, we expected that many students would be unaware that their strategies are insufficient to meet the complex learning demands characteristic of the postsecondary environment. We hypothesized that within the context of a SSC, students would learn more sophisticated, task appropriate strategies and then transfer their newfound skills to the "real life" classroom setting, resulting in an increased GPA and the subsequent removal of the academic probation designation. We believed that attendance at the SSC itself would bring about these changes.

History and Description of the Student Success Course

In 1997, Mount St. Vincent University implemented a new policy that placed undergraduate students on academic probation (AP) for a 12-month period when their term GPA was between 1.0 and 1.7 (equivalent to the letter grades of D and C-, respectively), and subsequently dismissed these students if their term GPA did not improve to 1.7 or above in the following year. (When the cumulative GPA increased above 1.7, the AP status is removed). As a result of this policy, more students were placed on AP and/or dismissed, creating both a failure experience for the student and enrollment management concerns for the university. Other terms of the policy required students to meet one on one with the Academic Advisor (situated in the

Academic Dean's Office) and to register for a reduced course load that included a mandatory, noncredit intervention called the SSC.

The SSC had been proposed by the Dean of Student Affairs and then developed and taught by the current paper's second author, at that time a Psychologist from the Counselling Centre. The stated objectives of the SSC are to:

- identify individual academic strengths and weaknesses,
- discover and enhance motivation for academic learning,
- develop and/or enhance effective study skills, and
- develop and/or enhance personal developmental skills necessary for academic success.

To achieve these objectives, the SSC uses diagnostic assessment as well as instruction in learning strategies using multiple pedagogical methods (including lecture, group discussion, written assignments, presentations, and in-class application exercises). The course consists of 36 contact hours across a 14-week academic term, costs the student \$350, and is taught by qualified instructors who hold graduate degrees in Education and/or Psychology, demonstrate a keen interest in student learning, and possess an empathetic attitude toward the entire student experience.

From the very beginning of the course and then threaded throughout each topic area, students are engaged in *self-assessment and reflection* to identify their own thinking patterns and to gain insight into why they have not been academically successful. Early in the course, each participant completes a diagnostic assessment (i.e., LASSI: Learning and Study Strategies Inventory) and other informal self-report measures (e.g., on time management) that provide a snapshot of the student's current learning style strengths and weaknesses. The results are then interpreted with each student so as to increase awareness of areas that require strengthening. To measure change over time, the LASSI is re-administered at the last class of the SSC; by processing the assessment with the student, we hoped to reinforce positive change and build confidence and motivation to learn.

Most of the course is devoted to improving *critical thinking skills and study strategies* (e.g., textbook reading, lecture note-taking, test preparation, and time management). Writing assignments (e.g., journals, one minute papers) are regularly completed to encourage critical reflection and practice new skills. A group presentation near the end of the course provides another opportunity for constructive feedback from the instructor and peers and to practice public speaking skills. These activities allow each student the opportunity to learn and practice strategies designed to remediate weaknesses and reinforce strengths, as identified by their various self-assessments.

Woven throughout the course is an emphasis on becoming an *autonomous and motivated learner* who sets well-defined goals and accepts personal responsibility for learning. It is our belief that self-efficacious students are more likely to succeed and persist to graduation (Findley & Cooper, 1983). Students also learn coping and self-regulatory strategies to manage stress and control anxiety and, when necessary, instructors refer students for personal counselling to the Counselling Centre.

At the end of the course, the instructor summarizes in writing the students' progress and assigns a grade that reflects attendance, participation, and performance on assigned work. At that time, the instructor also advises the student on how to access other university-based sources of

support and coaching (e.g., academic advisors, career planning, financial aid). While the SSC grade does not appear on their university transcript or affect their GPA, students who do not pass must remain on AP and re-take the course. However, in practice, these few students (less than 3%) rarely return because often they have been academically dismissed based on their GPA.

An unpublished evaluation of the SSC's pilot year suggested that the course had a positive impact on learning strategies, GPA, and university retention (Fancey, 2000). As a result of this pilot evaluation and formative feedback from students, the SSC has evolved over time. To permit more individualized attention and feedback from the instructor, classes now are smaller (no more than 20 students). Additionally, by request of the students, more practice opportunities are provided for some content areas (e.g., public speaking).

As part of their ongoing strategic planning and development, the University Counselling Centre (who oversaw study skills programming, and thus the SSC) proposed to evaluate whether the SSC was successfully meeting its stated objective of supporting the academic development of at risk students, and invited the first author (who was a faculty member external to the Counselling Centre) to do so. We chose the following measures as indicators of success. We hypothesized that students would show significantly improved performance from pre- to post-SSC on standardized measures of learning strategies (i.e., Learning and Study Strategies Inventory), motivation (i.e., Motivated Strategies for Learning Questionnaire), and procrastination (i.e., Academic Procrastination Questionnaire). We also predicted that participants would transfer their newfound knowledge and skill to the classroom context and so, with the support of the Registrar's Office, we tracked over the course of the school year the GPA and AP status of each participant. We hoped that our study would provide evidence of a successful intervention that would be of use both to our university and to the broader community of professionals working in the field of student support and persistence.

Method

Participants

Participants ($N = 100$) were undergraduate students on AP (defined as a cumulative GPA below 1.7 or C-) who completed the SSC during the fall or summer (in the latter case, one low enrollment section). The typical participant was female, 20 to 25 years of age, and a full-time student (i.e., registered for three or more courses per semester) entering their second year of study. Nearly all participants were native English speakers; those who were not were proficient in English (having achieved satisfactory scores on the Test of English as a Foreign Language, as required for admission to the university).

The intervention group included 85 participants (59 women, 26 men). To control for practice effects, the comparison group was a randomly chosen SSC section ($n = 15$; ten females, five males). The groups were similar demographically: a third of each group were undecided about their program of studies, approximately 22% were from Professional Studies programs (e.g., Applied Human Nutrition, Business and Tourism), and the remaining students were from Arts and Science. The majority of participants reported spending less than six hours per week on course work (97% and 79% of the intervention and comparison groups, respectively). In contrast, participants spent a significant amount of time (more than 21 hours per week) in paid employment (30% and 47% of the intervention and comparison group, respectively).

Materials and Procedure

Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ is an 81-item questionnaire consisting of two scales: Motivation and Learning Strategies (Pintrich, Smith, Garcia, & McKeachie, 1991). The Motivation Scale (31 items) assesses three areas: value (i.e., intrinsic goal orientation, extrinsic goal orientation, and task value), expectancy (i.e., control beliefs and self-efficacy for learning and performance), and affect (i.e., test anxiety). The Learning Strategies Scale (50 items) assesses the use of cognitive strategies (i.e., rehearsal, elaboration, organization, and critical thinking), metacognitive strategies (i.e., metacognitive self-regulation), and resource management strategies (i.e., time and study environment, effort regulation, peer learning, and help seeking). The questionnaire has adequate reliability with alpha coefficients ranging from .52 to .93, as well as adequate construct and predictive validity (Garcia & Pintrich, 1996; Pintrich et al., 1991).

Learning and Study Strategies Inventory (LASSI). The LASSI is a 77-item questionnaire that assesses the thoughts and behaviours associated with successful learning (Weinstein & Palmer, 2002; Weinstein, Schulte, & Palmer, 1987). It measures will (i.e., attitude, motivation, and anxiety), skill (i.e., information processing, selecting main ideas, and test strategies), and self-regulation (i.e., time management, concentration, study aids, and self-testing). The inventory has adequate reliability with alpha coefficients ranging from .68 to .86, and adequate content, predictive, and convergent validity (Weinstein et al., 1987).

Academic Procrastination Questionnaire (APQ). The APQ is a 70-item questionnaire that measures general procrastination on academic tasks, including thoughts, feelings, and behaviours. Subscales include evaluation anxiety, dependent, discouraged/depressed, ambivalent/independent-minded, socially focused/optimistic, and oppositional. Construct validity for the APQ is adequate (Day et al., 2000).

Procedure

The research study received ethics approval from the university. All participants provided demographic information and informed consent. The intervention group completed the LASSI, MSLQ, and the APQ at the first and last class of the SSC (requiring less than an hour each time). To assess the potential confound of practice effects, one course section during the fall session was randomly chosen to serve as the comparison group. This group completed the LASSI only during their first class, and the LASSI, APQ, and MSLQ during the last class. While the SSC instructors were blind to the purpose of the research study, once the course ended, each instructor provided informal feedback to the current paper's second author regarding their observations and impressions.

Results

Improvement in Learning Strategies

The Learning Strategy scores on both the LASSI and MSLQ increased from pre-test to post-test. Overall, the LASSI learning strategies improved from pre-test ($M = 23.96$, $SE = .34$) to post-test ($M = 26.89$, $SE = .33$), $F(1, 99) = 68.02$, $p = .001$; specifically, will, skill, and self-regulation each showed significant improvement over time (respectively, $F(1, 99) = 36.55$, $p =$

.001, $F(1, 99) = 71.82$, $p = .001$, and $F(1, 99) = 47.36$, $p = .001$). Moreover, the pre-test percentile scores for the ten subscales ranged from 21 (test strategies) to 50 (attitude). At the post-test, percentile scores improved, ranging from 37 (test strategies) to 68 (information processing). Nine of the ten subscales improved significantly over the brief (14 week) time-period (the exception was attitude, which demonstrated the highest pre-test score) (see Figure 1).

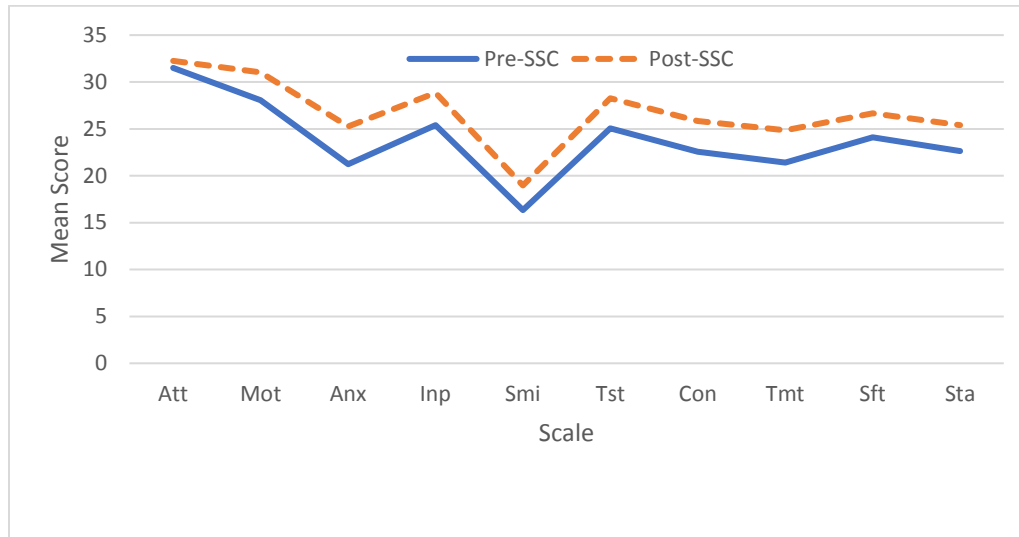


Figure 1. Mean LASSI scores pre-SSC and post-SSC (Att: attitude, Mot: motivation, Anx: anxiety, Inp: information processing, Smi: selecting main ideas, Tst: test strategies, Con: concentration, Tmt: time management, Sft: self-testing, and Sta: study aids).

As was true for the LASSI, MSLQ learning strategies improved from pre-test ($M = 4.30$, $SE = 0.09$) to post-test ($M = 4.77$, $SE = .09$), $F(1, 64) = 20.74$, $p = .001$, for each of cognitive strategies $F(1, 64) = 9.20$, $p = .004$, metacognitive strategies $F(1, 64) = 26.10$, $p = .001$, and resource management strategies $F(1, 64) = 17.73$, $p = .001$. Practice effects did not explain improvements in cognitive strategies or resource management strategies ($ps \geq 0.1$) but may have contributed to higher metacognitive strategies scores (as the intervention group scored 0.45 higher than the comparison group at post-test, $p = .03$). Of the nine MSLQ subscales, pre-test scores ranged from 3.37 (peer learning) to 4.71 (time and study environment), with a maximum possible score of seven. At the post-test, scores ranged from 3.86 (peer learning) to 5.09 (effort regulation) (see Figure 2). Every subscale showed significant improvement over time ($ps < 0.05$).

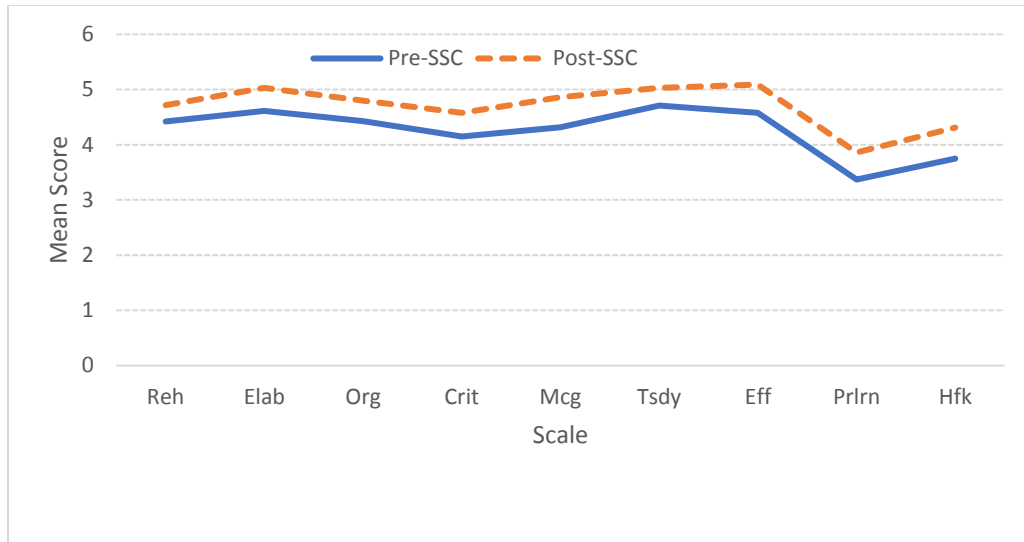


Figure 2. Mean MSLQ learning strategies scores pre-SSC and post-SSC (Reh: rehearsal, Elab: elaboration, Org: organization, Crit: critical thinking, Mcg: metacognitive self-regulation, Tsd: time and study environment, Eff: effort regulation, Prlrn: peer learning, and Hfk: help seeking).

Improvement in Motivational Strategies

Some aspects of motivation improved over time, with practice effects unable to explain improved scores in MSLQ value, expectancy, or affect ($ps \geq 0.07$). Three of six MSLQ subscales scores changed significantly from pre- to post-test in the desired direction. While our participants were anxious at both of the pre- and post-tests, their test anxiety significantly decreased over time ($M = 4.9$ to 4.2 , $p < 0.001$). As well, both intrinsic goal orientation ($M = 5.2$ to 5.4 , $p < 0.05$) and self-efficacy ($M = 5.8$ to 6.0 , $p < 0.05$) significantly increased (see Figure 3). While participants still valued their grades (as shown by the lack of significant change on the external goal orientation subscale), perhaps they now better appreciated the value of learning for its own sake and also believed in their ability to master academic tasks, which are overarching goals of the SSC. Similarly, the LASSI motivation subscale, which measures the acceptance of responsibility for learning, demonstrated significant improvement over time ($M = 28.1$ to 31.0 , $p < 0.001$).

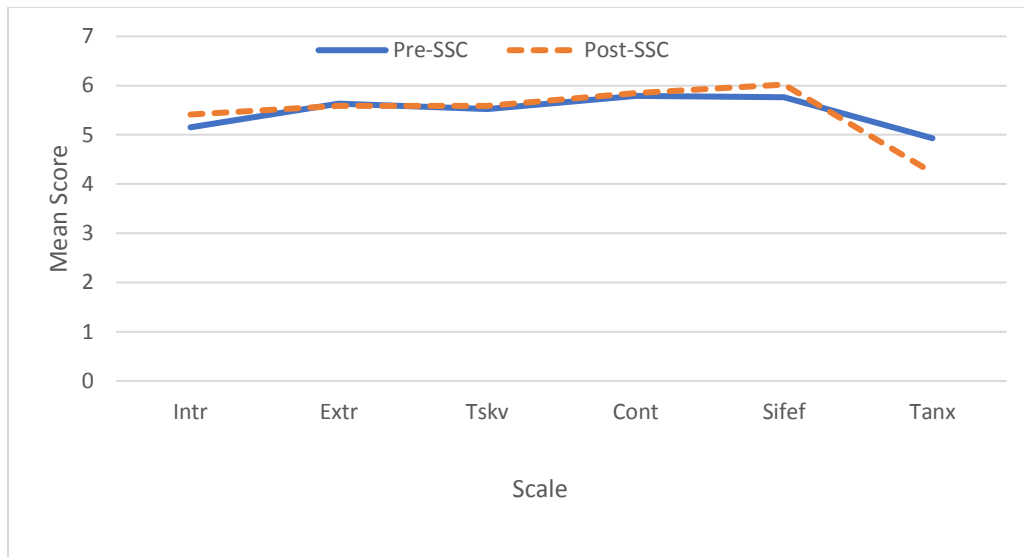


Figure 3. Mean MSLQ motivation scores pre-SSC and post-SSC (Intr: intrinsic goal orientation, Extr: extrinsic goal orientation, Tskv: task value, Cont: control beliefs, Sifef: self-efficacy for learning and performance, and Tanx: test anxiety).

Note, however, as was found for extrinsic goal orientation, the MSLQ task value subscale (i.e., the utility and importance of course material) and the control beliefs subscale (i.e., belief that your own efforts determine the academic outcome) did not significantly improve. We hypothesize that the students need to achieve academic success before these motivational components improve; longitudinal follow-up would demonstrate whether these scores do indeed increase over time.

Decrease in Procrastination Behavior

The general procrastination score ($N = 84$) on the APQ declined significantly from pre-test ($M = 10.9$, $SD = 3.67$) to post-test ($M = 8.4$, $SD = 3.99$), $t(83) = 5.55$, $p = .001$, which was not explained by practice effects ($p = 0.5$). When categorized into the six “patterns of procrastination tendencies” ($n = 69$), only the oppositional procrastination scores (i.e., resistance to external directives) significantly declined from pre-test to post-test ($M = 16.9$ to $M = 15.9$, $p < .05$).

Academic Outcomes: GPA and AP Status

In order to determine whether the SSC improved academic performance, we compared two GPAs for each participant ($N = 97$; 3 participants lacked GPA information). The first GPA ($M = 1.37$) was the cumulative GPA prior to registration for the SSC. The second GPA ($M = 1.94$) was based on two terms of study: the term during which they took the SSC (i.e., fall term) and the subsequent term (i.e., winter term). Note that this GPA potentially may be *lowered* because it includes the academic performance of the term when participants are taking the SSC. A paired sample t -test indicated that the GPA scores improved significantly from pre-SSC ($M = 1.35$) to post-SSC ($M = 1.91$), $t(101) = -8.11$, $p < .0001$ (see Figure 4). Specifically, 81% of students ($n = 79$) improved, with 66% ($n = 64$) improving enough to have the AP status removed (i.e., cumulative GPA now > 1.7).

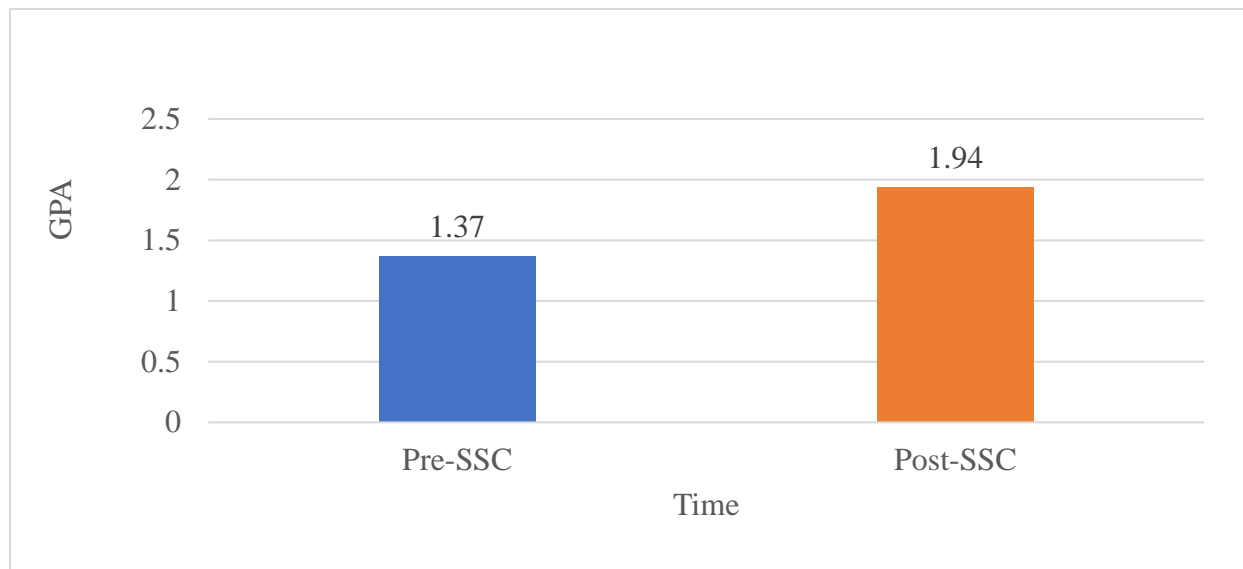


Figure 4. Pre-SSC and post-SSC GPA.

Discussion

Overall, the data provide support for our hypotheses: from pre- to post-SSC, participants significantly improved on most measures of learning strategies, motivation, anxiety, and procrastination. Moreover, by the end of the school year, 81% of the group had significantly increased their GPA, with 66% improving enough to have the designation of AP removed. These results are not explainable by repeated practice with the assessment instruments (with the possible exception of metacognitive regulation).

The observed changes following participation in the SSC are all the more impressive when contextualized. At the start of the course, many participants shared with their course instructor through a written assignment that they not only had no idea of why they were on AP, they also did not know what they needed to do to improve their academic performance. We believe that the following characteristics of the SSC underlie its success as a student support tool: mandatory program registration, diagnostic assessment with feedback, and development of an “academic toolbox” of skills honed through multiple application opportunities.

First, because preliminary evidence suggested the value of the SSC in supporting academic performance and retention (Fancey, 2000), our university administration mandated that all AP students must register for the SSC and pay its (cost recovery) tuition fee. As students often do not seek out (free) academic support services (despite the strong recommendation of academic advisors and faculty), registration was made compulsory.

Not surprisingly, mandatory course registration and payment of associated fees were not initially well received by most students, though their attitude became more positive with time. In fact, on the course evaluation forms completed at the end of the semester, students commented that they wished that they had taken this course in their first year of study, and at least 80% said that they would recommend the course to friends. While instituting mandatory attendance is not without risk, our experience suggests that with enough time (i.e., our program duration was 14 weeks), students came to recognize the program’s worth.

Second, the SSC is distinguishable from generic study skills programs by its inclusion of a diagnostic skill assessment (i.e., the LASSI) at the start of the course, followed by feedback. This assessment procedure served two purposes. First, it made students aware that superficial *and* deep learning strategies exist which, furthermore, are differentially effective in processing complex information. Second, it made students explicitly aware of *their own* relative strengths and weaknesses, thus prompting insight into inefficiencies in their own learning (Bjork et al., 2013). When explaining the assessment findings to the participants, the course instructors emphasized that, with effort and practice, sufficiently motivated students can *learn how to* implement and regulate more sophisticated cognitive and metacognitive skills that enhance the likelihood of academic success. This notion that academic performance is *changeable with effort* is consistent with Dweck's growth mindset: effort, not simply aptitude, matters to outcome (Dweck, 2006). We surmise that these new understandings helped underscore for students their personal responsibility for learning.

Third, after the assessment component, students were exposed to an "academic toolbox" of cognitive and metacognitive strategies as well as self-governance skills. Specifically, the instructors taught a variety of study strategies, including rehearsal, elaboration, organization, and other critical thinking skills, which enable learners to effectively encode, store, retrieve, and apply information (Pintrich & De Groot, 1990; Ross et al., 2003). In practicing the application of new information processing strategies (e.g., selecting key information from readings and lectures, preparing for and writing tests), students anecdotally reported being more cognizant of the characteristics of an effective learner. We speculate that, as the instruction progressed, our students began to experience increased academic self-efficacy (Brady-Amoon & Fuytes, 2011); this is an area for future research.

Additionally, the academic toolbox included instruction in self-regulation; that is, how to maintain motivation (e.g., through personal goal setting), manage time and effort (e.g., using thought-stopping to refocus concentration to the task at hand), and cope with test anxiety and stress (e.g., by relaxing, using positive self-talk, and visualizing success). As indicated at post-assessment, students became better able to organize their time, avoid procrastination tendencies, and manage test anxiety (which is encouraging as emotional distress in and of itself interferes with motivation, confidence, and academic success) (Chapell et al., 2005; Hancock, 2001). That post-SSC anxiety still remained relatively high is not overly surprising – the students were approaching their final exam week (a time of stress for most students) and, being on academic probation, knew that they needed to perform well on their exams to fend off academic dismissal.

Finally, the SSC is an in-depth intervention (i.e., 36 contact hours) that provides *multiple* opportunities for *application* of the learning strategies (e.g., in class exercises, homework assignments), *processing* the concepts ("time on task" over 14 weeks), and *reflection* (e.g., peer discussion, thought papers, individual appointments with the instructor). Throughout the semester, the course instructors provided guidance and constructive feedback, which allowed relationship building, an attribute that influences the likelihood of attaining academic success (Heirdsfield, Walker, Walsh, & Wilss, 2008). In fact, students consistently commented on the course evaluations that their relationship with the instructor was a valued part of their experience.

In conclusion, we believe that participation in the SSC enhanced understanding of learning strategies, sharpened time management techniques, and decreased test anxiety. Especially noteworthy (and the intended purpose of the intervention) was the finding that our students were able to transfer their newfound skills to the classroom environment; indeed, their

mean GPA improved such that the majority of students were no longer on AP. Whether the students were able to maintain their academic gains over time and persist to completion of their undergraduate degree was not assessed in the current study.

The published literature indicates that a significant number of undergraduates, especially those in the first year of study, require considerable support in order to persist to degree completion. As such, a challenge for postsecondary institutions in Canada is to pinpoint which student supports are most effective and when they should be offered, a challenge that is heightened by the increasing diversity of student needs (Albert, 2010). Our findings suggest that the Student Success Course is an effective academic support for at risk undergraduate students.

References

- Albert, S. (2010). *Student retention – a moving target. Academic colleagues' discussion paper*. Guelph, ON: Council of Ontario Universities.
- Altmaier, E. M., Rapaport, R. J., & Seeman, D. (1983). A needs assessment of liberal arts students on academic probation. *Journal of College Student Personnel*, 24(3), 266-267.
- Bälter, O., Cleveland-Innes, M., Pettersson, K., Scheja, M., & Svedin, M. (2013). Student approaches to learning in relation to online course completion. *Canadian Journal of Higher Education*, 43(3), 1-18.
- Bean, J., & Metzger, B. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485-540.
<https://doi.org/10.3102/00346543055004485>
- Berry, J. J., & Plecha, M. D. (1999). *Academic performance as a function of achievement motivation, achievement beliefs, and affect states*. Retrieved from ERIC database. (ED 460723).
- Bjork, R. A., Dunlosky, J., & Kornell, N. (2013). Self-regulated learning: Beliefs, techniques, and illusions. *Annual Reviews of Psychology*, 64, 417-444.
<https://doi.org/10.1146/annurev-psych-113011-143823>
- Bloom, B. S. (1964). *Taxonomy of educational objectives: The classification of educational goals. Handbook 1. Cognitive Domain*. New York, NY: McKay.
- Brady-Amoon, P., & Fuertes, J. N. (2011). Self-efficacy, self-rated abilities, adjustment, and academic performance. *Journal of Counseling and Development*, 89(4), 431-438.
<https://doi.org/10.1002/j.1556-6676.2011.tb02840.x>
- Campbell, C. M., & Mislavy, J. L. (2013). Student perceptions matter: Early signs of undergraduate student retention/attrition. *Journal of College Student Retention: Research, Theory and Practice*, 14(4), 467-493. <https://doi.org/10.2190/CS.14.4.c>
- Chapell, M. S., Blanding, Z., Silverstein, M. E., Takahashi, M., Newman, B., Gubi, A., & McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology*, 97(2), 268-274.
<https://doi.org/10.1037/0022-0663.97.2.268>
- Cholewa, B., & Ramaswami, S. (2015). The effects of counseling on the retention and academic performance of underprepared freshman. *Journal of College Student Retention: Research, Theory and Practice*, 17(2), 204-225.
<https://doi.org/10.1177/1521025115578233>

- Clark, I. D., Moran, G., Skolnik, M., & Trick, D. (2009). *Academic transformation: The forces reshaping higher education in Ontario*. Montreal, QC and Kingston, ON: McGill-Queen's University Press.
- Day, V., Mensink, D., & O'Sullivan, M. (2000). Patterns of academic procrastination. *Journal of College Reading and Learning*, 30(2), 120-134.
<https://doi.org/10.1080/10790195.2000.10850090>
- Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46(3), 223-236.
<https://doi.org/10.1353/csd.2005.0023>
- Dietsche, P. (2012). Use of campus support services by Ontario college students. *Canadian Journal of Higher Education Revue*, 42(3), 65-92.
- Dumford, A. D., Cogswell, C. A., & Miller, A. L. (2016). The who, what, and where of learning strategies. *The Journal of Effective Teaching*, 16(1), 72-88.
- Dweck, C. (2006). *Mindset: The new psychology of success*. New York, NY: Random House.
- Fancey, P. (2000). *Student Success Course: Evaluation results*. Retrieved from
<http://www.msvu.ca/site/media/msvu/eval2000.pdf>.
- Findley, M. J., & Cooper, H. M. (1983). Locus of control and academic achievement: A literature review. *Journal of Personality and Social Psychology*, 44(2), 419-427.
<https://doi.org/10.1037/0022-3514.44.2.419>
- Finnie, R., Childs, S., & Qiu, T. (2010). *The patterns of persistence in post-secondary education among college students in Ontario: New evidence from longitudinal data*. Report prepared for Colleges Ontario.
- Finnie, R. & Qiu, T. (2009). *Moving through, moving on: Persistence in postsecondary education in Atlantic Canada, evidence from the PSIS*. Statistics Canada. Culture Tourism and the Centre for Education Statistics - Research Papers, Catalogue no. 81-595-M-No. 072.
- Friedman, B. A., & Mandel, R. G. (2011). Motivation predictors of college student academic performance and retention. *Journal of College Student Retention: Research, Theory and Practice*, 13(1), 1-15. <https://doi.org/10.2190/CS.13.1.a>
- Garcia, T., & Pintrich, P. K. (1996). Assessing students' motivation and learning strategies in the classroom context: The Motivated Strategies for Learning Questionnaire. In M. Birenbaum & F. J. R. C. Dochy (Eds.), *Alternatives in assessment of achievements, learning processes and prior knowledge* (pp. 319-339). The Netherlands: Springer.
https://doi.org/10.1007/978-94-011-0657-3_12
- Gershenfeld, S., Hood, D. W., & Zhan, M. (2016). The role of first-semester GPA in predicting graduation rates of underrepresented students. *Journal of College Student Retention: Research, Theory and Practice*, 17(4), 469-488.
<https://doi.org/10.1177/1521025115579251>
- Grayson, J. P., & Grayson, K. (2003). *Research on retention and attrition*. Montreal, QC: Canada Millennium Scholarship Foundation.
- Hancock, D. R. (2001). Effects of test anxiety and evaluation threat on students' achievement and motivation. *Journal of Educational Research*, 94(5), 284-290.
<https://doi.org/10.1080/00220670109598764>

- Heirdsfield, A. M., Walker, S., Walsh, K., & Wilss, L. (2008). Peer mentoring for first-year teacher education students: The mentors' experience. *Mentoring & Tutoring: Partnership in Learning*, 16(2), 109-124. <https://doi.org/10.1080/13611260801916135>
- Kerby, M. B. (2015). Toward a new predictive model of student retention in higher education: An application of classical sociological theory. *Journal of College Student Retention: Research, Theory and Practice*, 17(2), 138-161. <https://doi.org/10.1177/1521025115578229>
- Keup, J. R. (2007). Great expectations and the ultimate reality check: Voices of students during the transition from high school to college. *NASPA Journal*, 44(1), 3-31. <https://doi.org/10.2202/0027-6014.1752>
- Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences*, 25, 67-72. <https://doi.org/10.1016/j.lindif.2013.01.005>
- Kuh, G. D., Kenzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature*. Commissioned Report for the National Symposium on Postsecondary Student Success: Spearheading a dialog on student success. National Postsecondary Education Cooperative.
- Lei, S. A. (2010). Intrinsic and extrinsic motivation: Evaluating benefits and drawbacks from college instructors' perspectives. *Journal of Instructional Psychology*, 37(2), 153-160.
- National Survey of Student Engagement. (2014). *Bringing the institution into focus - Annual Results 2014*. Bloomington, IN: Indiana University Center for Postsecondary Research.
- National Survey of Student Engagement. (2013). *A fresh look at student engagement - Annual Results 2013*. Bloomington, IN: Indiana University Center for Postsecondary Research.
- National Survey of Student Engagement. (2012). *Promoting student learning and institutional improvement: Lessons from NSSE at 13 - Annual Results 2012*. Bloomington, IN: Indiana University Center for Postsecondary Research.
- Ning, H. W., & Downing, K. (2010). The reciprocal relationship between motivation and self-regulation: A longitudinal study on academic performance. *Learning and Individual Differences*, 20(6), 682-686. <https://doi.org/10.1016/j.lindif.2010.09.010>
- Padgett, R. D., Johnson, M. P., & Pascarella, E. T. (2012). First-generation undergraduate students and the impacts of the first year of college: Additional evidence. *Journal of College Student Development*, 53(2), 243-266. <https://doi.org/10.1353/csd.2012.0032>
- Parkin, A., & Baldwin, N. (2009). *Persistence in post-secondary education in Canada: The latest research*. Research Note #8. The Canadian Millennium Scholarship Foundation.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). San Francisco, CA: John Wiley.
- Pintrich, P., & De Groot, E. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82, 33-40. <https://doi.org/10.1037/0022-0663.82.1.33>
- Pintrich, P., & Johnson, G. (1990). Assessing and improving students' learning strategies. *New Directions for Teaching and Learning*, 42, 83-92. <https://doi.org/10.1002/tl.37219904209>
- Pintrich, P., Smith, D., Garcia, T., & McKeachie, W. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: University of Michigan.

- Reason, R. D. (2009). An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development, 50*(6), 659-682.
<https://doi.org/10.1353/csd.0.0098>
- Ross, M., Salisbury-Glennon, J., Guarino, A., Reed, C., & Marshall, M. (2003). Situated self-regulation: Modeling the interrelationships among instruction, assessment, learning strategies, and academic performance. *Educational Research and Evaluation, 9*, 189-209.
<https://doi.org/10.1076/edre.9.2.189.14211>
- Salintri, G. (2005). The effects of formal mentoring on the retention rates for first-year low achieving students. *Canadian Journal of Education, 28*(4), 853-873.
<https://doi.org/10.2307/4126458>
- Seifert, T. A., Gillig, B., Hanson, J. M., Pascarella, E. T., & Blaich, C. F. (2014). The conditional nature of high impact/good practices on student learning. *Journal of Higher Education, 85*(4), 531-564. <https://doi.org/10.1353/jhe.2014.0019>
- Soria, K. M., & Stubblefield, R. (2015). Knowing me, knowing you: Building strengths awareness, belonging, and persistence in higher education. *Journal of College Student Retention: Research, Theory and Practice, 17*(3), 351-372.
<https://doi.org/10.1177/1521025115575914>
- Stupnisky, R. H., Renaud, R. D., Perry, R. P., Ruthig, J. C., Haynes, T. L., & Clifton, R. A. (2007). Comparing self-esteem and perceived control as predictors of first-year college students' academic achievement. *Social Psychology of Education, 10*, 303-330.
<https://doi.org/10.1007/s11218-007-9020-4>
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125.
<https://doi.org/10.3102/00346543045001089>
- Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago, IL: University of Chicago Press. <https://doi.org/10.7208/chicago/9780226804545.001.0001>
- Tuckman, B. (2003). The effect of learning and motivation strategies training on college students' achievement. *Journal of College Student Development, 44*, 430-437.
<https://doi.org/10.1353/csd.2003.0034>
- Weinstein, C. E., & Palmer, D. R. (2002). *LASSI User's Manual* (2nd ed.). Clearwater, FL: H&H.
- Weinstein, C. E., Schulte, A., & Palmer, D. R. (1987). *The Learning and Study Strategies Inventory*. Clearwater, FL: H&H.
- Whannell, R., & Whannell, P. (2015). Identity theory as a theoretical framework to understand attrition for university students in transition. *Student Success, 6*(2), 43-52.
<https://doi.org/10.5204/ssj.v6i2.286>
- Wintre, M. G., & Bowers, C. D. (2007). Predictors of persistence to graduation: Extending a model and data on the transition to university model. *Canadian Journal of Behavioural Science, 39*(3), 220-234. <https://doi.org/10.1037/cjbs2007017>