5-19-2018

A Preliminary Examination of the Time and Organization Preparation System-College (TOPS-C) with Undergraduate Students

Ashley Elizabeth Bordelon
Louisiana State University and Agricultural and Mechanical College

A PRELIMINARY EXAMINATION OF THE TIME AND ORGANIZATION
PREPARATION SYSTEM-COLLEGE (TOPS-C) WITH UNDERGRADUATE
STUDENTS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by
Ashley Elizabeth Bordelon
M.A., Louisiana State University, 2016
M.Ed., Southeastern Louisiana University, 2006
August 2018

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ABSTRACT

Many factors contribute to the educational success of undergraduate students, including personal beliefs, effort, and the ability to self-manage. Many students are not prepared for the rigors of post-secondary education. This need is particularly striking given the limited availability of manualized evidenced based interventions available to support college students with academic task demand management. This study sought to determine the efficacy of the Time and Organization Preparation System-College (TOPS-C), a program aimed to increase study skills, organization, self-regulated learning, and time management through direct instruction, group contingency, and performance feedback. To determine changes in skill level, students completed the Learning and Study Strategies Inventory- 3rd Edition (LASSI-3), an assessment measuring skill level in ten areas. Forty-four Louisiana State University students participated in the 6-week program TOPS-C program via a randomized delayed waitlist treatment design. Results of the study indicated that LASSI-3 scores improved for the majority of assessment areas. Limitations of the current research and future directions are discussed.

INTRODUCTION

The ability to manage one's time and plan for the future is vital part of everyday life. From grocery lists to completing on-the-job tasks, the power to create and succeed at goals requires time management, self-regulation, and organizational skills. These skills are especially important in the educational world. As students get older, they are expected to become more autonomous in their lives, taking responsibility for both their academic and social schedules. However, these skills are rarely taught systematically. Many students who succeed in managing this task in high school flounder in post-secondary education (e.g., citation regarding college dropouts or completion rates). An important task for future educators and administrators is to teach these skills in an effective and feasible manner in order to help students avoid the pitfalls of being underprepared for independence when it matters most.

Due to technological advances, the typical undergraduate student is unlike other populations studied before. The millennial generation has never lived without computers, the Internet, and the ability to gather information instantly at their fingertips. This technology has brought students the opportunity to learn from other people around the world, find resources quickly, and opened up a new wave of social communication. Consequently, this technology has also provided students with distractions from learning in the form of text messaging applications and electronic mail available on personal computers. Additionally, millennials want information immediately (Pullan, 2009). They expect for information to be available at all times, and often are unsure how to proceed when they cannot find the help they need on the Internet. Often in post-secondary education, students who rely on technology to guide them have a difficult time navigating

their academic experience in a new environment. Hanson, Drumheller, Mallard, McKee, and Schlegel (2011) report that millennials in college "expect to be coddled" and have a "reliance on technology" (p. 24). For students who have never made their own schedule, managed their own lives, or had to learn to study effectively, the transition to post-secondary education can be disastrous.

As a population, millennials prefer social activities to academics, multitask using technology, and often study in groups rather than alone (Hanson et al., 2011). This tendency towards involvement can be beneficial to undergraduate students. Webber, Krylow, and Zhang (2013) studied over 1,200 students at a large university using the College Student Experiences Questionnaire. The authors found that students who studied more, had more interactions with their professors, and participated in community service outside of the classroom had a higher perceived satisfaction rate with their academic experience. Additional research has also demonstrated that students report positive relationships with faculty members and high family social support increased their persistence to remain in college (Kelly, LaVergne, Boone, & Boone, 2012).

This increase in social activity has been correlated with a decrease in time spent studying. McCormick (2011) summarized the decline in study for students, reporting that approximately 3 out of 5 full-time university students report studying for fifteen or less hours per week. Additionally, Hanson et al. (2011) reported that students average around 12 hours per week of study time while averaging a little over 12 hours attending class. In contrast, these students also reported spending over 14 hours per week text messaging and 6.5 hours per week talking on the phone. This decline in study time may lead to decline in academic success for students.

This regression in study habits may be detrimental to student mental health in addition to their academic life. Flynn and MacLeod (2015) surveyed 192 college students in order to determine the strongest predictors of student happiness. Academic success was the second highest predictor of happiness, after self-esteem, based on two assessments of life satisfaction: the Oxford Happiness Questionnaire and the Multidimensional Students' Life Satisfaction Scale. In a qualitative study, Stelnicki, Nordstokke, and Saklofske (2015) collected data from nearly 1,500 university students about their views on the personal resources that keep them from reaching their goals and help them to reach their goals. When stating barriers to succeeding, students mentioned generalized stress, low academic skills, including procrastination, and distractions as their largest barriers. Students reported that thinking about their future, persisting towards their goals, and having time management and organizational skills were the most important factors they believed helped them to achieve their goals. Additionally, Wilks and Spivey (2010) found that higher amounts of physical, mental or emotional stress related to students' education played a significant negative role in their perceived social support and ability to overcome difficulty in school. When students do not use their social supports, their education suffers and becomes less manageable. Thus, academic achievement and the ability to self-manage play a large role in the overall wellbeing of college students by increasing the opportunity to connect with happiness and goal attainment.

Diversity also plays a key role in academic success during post-secondary education. D'Lima, Winsler, and Kitsantas (2014) reported that ethnic minorities are "less likely to enroll, persist, and complete college compared to Caucasian students in the

United States" (p. 341). Additionally, the number of first generation and/or low socioeconomic status students enrolled in college has grown in the past few decades (Morales, 2014). Diverse populations have unique struggles than need to be addressed during their college experience. For example, Asian Americans are at increased risk for lower grade point averages when family conflict is a factor in their lives, which may be overlooked by college support providers (Bahrassa, Syed, Su, & Lee, 2011). Students immigrating to the United States also face great barriers to academic success. Soria and Stebleton (2013) cite poor English and mathematics skills, deficits in study behaviors and study environments and wellbeing issues as self-perceived impediments to academic achievement. Lastly, in a review of academic success factors for Latina/o students in college, Crisp, Taggart, and Nora (2015) discuss the low retention and graduation percentages for Latina/o students compared to other ethnic groups, the lack of research for this population in college settings, and academic difficulties due to cultural mismatch between their native culture and the culture of their university as some of the issues facing this population.

Many students can be assisted when educators look at the strengths of their cultural backgrounds. Dong-Il and Young-An (2015) examined 46 high-performing Korean undergraduates to determine what factors lead to their success in college. The three most important aspects self-reported by students were self-regulation and time management, note taking skills, and the ability to set and achieve mastery and performance goals. For African-American students, family support and active involvement play a large role in the academic success of students (Herndon & Moore, 2002). This factor can be difficult to manage on a college campus, however, due to laws

stipulating what information can be shared with family members of students age 18 and older. It is important for educators to recognize and adapt to these cultural issues.

First year students are overall a particularly vulnerable section of the undergraduate population. Many of these students are leaving home, family, and friends behind for the first time to face the world of harder classes, increased autonomy, and higher expectations in post-secondary education. The *paradox of failure* is defined as when "some bright, enthusiastic high school students fail once they reach college, seemingly unable to adjust to the increased demands of self-initiative and autonomy" (Perry, Hladkyj, Pekrun, & Pelletier, 2001, p. 776). These students present a particular difficulty for college preparation, as they are not recognized to be 'at-risk' and are unlikely to be flagged for preventative supports before moving to post-secondary education.

The transition to college can be mediated by many factors. Friedlander, Reid, Shupak, and Cribbie (2007) examined 115 first-year college students during their first and second semesters to determine how stress, esteem, and support affect adjustment to college. The researchers found that adjustment was improved by social support from friends, which also served as a protective factor against negative adjustment. Additionally, they found self-perceived stress and self-esteem were predictors of successful transitions using the Student Adaptation to College Questionnaire. According to Krumrei-Mancuso, Newton, Kim, and Wilcox (2013) first-semester grade point average can be predicted through academic self-efficacy, organization, goal setting, and planning behaviors, while time management, belonging to social organizations, and interest and emotional response to classes were predictive of life satisfaction for first-year

students. Furthermore, Rayle and Chung (2008) emphasize social support and the feeling of mattering as strong predictors of academic stress reduction during the first year of college. High levels of self-efficacy have also shown to be correlated with lower levels of perceived stress for first year students (Wilson & Gillies, 2005). Perry et al. (2001) revealed students who were able to successfully avoid the failure paradox were students that exerted more effort, had a stronger locus of control, exhibited less anxiety, utilized self-monitoring strategies, and were more motivated than their counterparts. Both protective factors and factors leading to adversity should be addressed with all students before their transition to post-secondary life in order to increase their psychological resilience and wellbeing.

The difficulty transitioning to college from high school becomes magnified for students with disabilities. There has been a substantial increase in the number of students with disabilities enrolling in post-secondary education, most notably students with Attention Deficit Hyperactivity Disorder (ADHD), Specific Learning Disabilities (SLD), and Autism Spectrum Disorders (ASD) (Reed, Kennett, & Edmond, 2015; Hartman, 1993). Legislation through the Individuals with Disabilities Education Improvement Act of 2004 (U.S. Department of Education, 2007) requires transition services to increase the successful transition from high school to post-secondary education or work. The legal requirement for the consideration of post-secondary goals was implemented to increase the likelihood of successful transitions to work or educational institutions for children with a disability. While each student arrives with their own set of needs, research has shown some patterns specific to students with specific disabilities. For example, Kaminski, Turnock, Rosen, and Laster (2006) surveyed 68 students diagnosed with

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ADHD that were registered with their university Office of Disabled Student Services. The top three reported obstacles to academic achievement were procrastination, deficits in organization, time management, and study skills, and pressure from peers to participate in social activities rather than study. Dietrich and Kelly (1995) found that high school students with SLD reported expectations of individualized faculty assistance if they attended college. These expectations are most often unfounded and can make the transition harder for students with unrealistic expectations. For student with ASD, many challenges await students transitioning from high school to college. The specific challenges for this community overlap with the general population and students with other disabilities, but may be more salient to students with ASD. Dente and Coles (2012) report that challenges include increased unstructured time in college, decreased accommodations and access to resources such as tutors, the loss of school-home communication, increased personal responsibility for school work, and the important challenge of being in charge of finding services, rather than the school approaching the family to give services. These obstacles must be confronted before students proceed to post-secondary education if students are to succeed.

Academic Success Skills

     Self Regulation. The expectations for self-regulation of behavior increase tremendously as student's progress through school. University students are expected to manage their social, educational, and professional behaviors, some for the first time. Self-management includes self-regulated learning, self-monitoring, and self-awareness. Cohen (2012) names the three stages of self-regulation as "forethought, performance/volitional control, and self-reflection" (p. 892). These stages require students to set goals, complete

behaviors needed to achieve those goals, and review their performance through an accurate lens in order to navigate their studies successfully. Importantly, students must take an active role in their own learning and higher-level processes such as metacognition, grit, goal setting and monitoring, and motivation are required for self-regulated learning to occur (Wolters & Hussain, 2014).

Students can often benefit from direct teaching of self-regulation skills. Using a web-based Self-Regulated Learning (SRL) training system, Haihong and Driscoll (2013) demonstrated significant changes in overall achievement, self-satisfaction, grade point average, and persistence for students who received the training compared to those who did not in a randomized control trial. They also saw a lowered orientation towards extrinsic goals in the treatment group compared to the control group, which may have important implications for motivation. Additionally, Belski and Belski (2014) found that using the Task Evaluation and Reflection Instrument for Student Self-Assessment, which requires students to examine task complexity, engage in problem-solving planning, and reflect on the accuracy of their work. Students who completed this instrument had significantly higher test scores than participants in the control group. These results suggest that self-reflection is a key component to self-regulation. Bail, Zhang, and Tachiyama (2008) studied 157 undergraduate students to demonstrate the long-term effects of an SRL training program. The students who received SRL training had higher grade point averages four semesters after completing the training than their counterparts, were more likely to graduate from college, and were significantly less likely to fail a course in the semesters following the SRL instruction. These results suggest that SRL

should be taught directly, and can have long-lasting effects on the students who receive guidance in SRL.

Self-monitoring (SM) is an important part of the SRL process. For purposes of this study, *self-monitoring* is defined as recording specific behaviors in order to determine the frequency, duration, and accuracy of one's behavior for the purpose of goal achievement. Self-monitoring has been shown to increase time studying and accuracy of work production (Mahoney, Moore, Wade, & Moura, 1973). Additionally, the use of a self-monitoring workbook with medical students demonstrated significant differences on exam scores, performance, and performance satisfaction on a calibration task when compared to their non-monitoring colleagues (Leggett, Sandars, & Burns, 2012). Mercier and Ladouceur (1983) studied self-monitoring in combination with goal setting and financial contingencies. The students who received self-monitoring and set distal goals performed better than students who did not set goals, regardless of financial contingency. These results highlight the need for direct attention to the goal setting process with SM and SRL as a whole.

Goal Setting. Goal setting behaviors are imperative to the learning process. People who set well-defined goals have increased effort towards achievement, are less distracted by non-goal activities, have greater self-management skills, are more excited to do work, and are more persistent and efficient (Morisano, Hirsh, Peterson, Pihl, & Shore, 2010). In a qualitative study using goal diaries, Travers, Morisano, and Locke (2014) found that undergraduate students tend to set academic goals in three areas: organization and time management, emotional and psychological control, and interpersonal skills. The authors also reported that students felt proximal goals were more helpful than distal

goals. The ability to reflect on goals was learned through goal diaries, lectures on goal-setting theory, and personal research on goals. This self-reflection, along with added goal accountability from social support systems and group goal setting, were also key influences to personal and academic growth, as reported by students (Travers, et al., 2014).

Many factors interact to determine what goals people set, how they set them, and how they go about achieving their goals. Kozlowski and Bell (2006) describe three elements of goal setting: frame, content, and proximity. The goal frame includes the environmental cues and situations surrounding the goal. This frame influences the goal-setters intentions to make and achieve the goal. The goal content consists of the actual goal selected. The content can either be based on performance-level or outcome-level. Performance level goals are based on the level of achievement relative to other people, while outcome level goals are more self-regulated and include the mastery of a task for the sake of mastery. Finally, proximity is the temporal distance the person is away from achieving their goal. The authors found that goal content had the greatest influence on increased self-regulation, while noting that all 3 factors had significant influence (Kozlowski & Bell, 2006).

Furthering the research on goal content, Muis, Ranellucci, Franco, and Crippen (2013) examined the effects of mastery, performance, or combined feedback on 250 undergraduate students differing on their approach to goal setting. The authors found mixed results when comparing the two approaches. While the performance approach participants had higher test anxiety compared to mastery approach students, they also had higher performances on academic evaluations. The authors believe this phenomenon is

due to student's engagement with the material. Specifically, students engaging in mastery feedback tended to study only the material they found interesting, while students engaged in performance approach feedback studied all of the material equally. Additionally, Ranellucci, Hall, and Goetz (2015) found that mastery-approaches to goals benefited undergraduate students when compared to performance-mastery goals. The authors reported that performance-based goal-setters had increased anxiety, were less interested in tasks, used less critical thinking skills, and had lower academic improvements than their mastery-approach counterparts. Furthermore, Hsieh, Sullivan, and Guerra (2007) examined undergraduate students that were either in good academic standing or on academic probation to assess the effects of goal setting on those populations. They found that students who used mastery-goal approaches had higher grade point averages and higher reports of self-efficacy than those who used performance-based approaches.

The effect of goal proximity on goal attainment has been widely researched often producing mixed results. Bandura and Schunk (1981) found that proximal goals were beneficial to children with academic deficits when learning a new mathematics task, while distal goals did not show significant effects on learning. Additionally, Bar-Eli, Hartman, and Levy-Kolker (1994) examined physical goal attainment for 15-year-old adolescents with behavioral problems. Students were assigned to one of two conditions: long-term goal or short- plus log-term goal for a one-minute sit-up task. Students in the long-term goal group had significant improvements, but the students in the combination condition made the greatest gains. However, the study lasted only 10 weeks, which is a relatively short period of time. Conversely, Howe and Poole (1992) studied the effects of long-term goal versus a condition that combined short- and long-term goals and added a

condition consisting of short-term goals only on a basketball-shooting task for tenth graders. None of the conditions proved to be more efficacious than the others. With further exploration, the authors found that most of the students were making their own short-term goals, unbeknownst to the researchers (Howe & Poole, 1992). Additionally, Boyce (1992) completed a similar study and added a do-your-best goal condition. This study demonstrated that the three goal setting conditions were superior to try-your-best, confirming the need for goal-setting, but not specific goal proximities.

Motivation. Motivation to succeed can be a tipping point for many students teetering between failure and mastery of their education. Students with low motivation for sustained attention tasks have increased task-unrelated thoughts, lowering their performance levels (Seli, Cheyne, Xu, Purdon, & Smilek, 2015). Stolk and Harari (2014) examined 114 engineering students to determine how motivation affects cognition levels in undergraduate students. They found that student motivation was correlated with elaboration skills, task value, critical thinking, and intrinsic goal orientation. Furthermore, Cerino (2014) found strong negative correlations between motivation and procrastination behaviors with medium to large effect sizes. Motivation has also been linked to behaviors such as submitting assignments and completing academic exercises (Wichadee, 2014). However, a key concern with motivation is that it is idiosyncratic with individuals being motivated by different experiences and at different times. The ability to motivate groups of students consistently using the same reinforcement can be a daunting task for educators due to the inability to control for motivating operations, setting events, or incoming personal beliefs.

There are multiple broad types of motivation. Maurer, Allen, Gatch, Shanker, and Sturges (2013) describe three types based on self-determination theory: intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation refers to when a student is motivated because they like the feeling of accomplishment, knowing, or experiencing the task. Extrinsic motivation describes when a student is motivated by external rewards, such as punishment or guilt avoidance, getting a tangible reward, or because the task has some value. Students who are amotivated display no intrinsic or extrinsic motivation. Intrinsic motivation requires the most self-determination of the three types (Maurer et al., 2013). Eun Hee (2013) found that intrinsic motivation was a significant predictor of decreased passive procrastination, while students who used external motivators were more likely to passively procrastinate, which often leads to higher feelings of guilt and task failure. It was also found that while intrinsically motivated students are not prone to procrastination, but when they do it is through choice, i.e. active procrastination. This type of procrastination is not encouraged, but does not lead to failure. This phenomenon is due to the fact that the limited time to finish tasks serves well as a motivator for this type of procrastinator (Eun Hee, 2013). Moreover, the approach-avoidance model of motivation gives further insight into the individual differences at play in motivation. Bartels and Magun-Jackson (2009) describe approach motivation similarly to intrinsic motivation, where the student is motivated simply through achievement, and therefore approaches situations that can produce this feeling at an increased rate. In contrast, avoidance motivation is fueled by the fear of failure at a task. Students make different goals based on their motivational approach, highlighting the need for individualized goal setting based on motivation preference.

Personal motivators, beliefs, and behavioral strategies can assist students who are setting high achievement goals. In a study by Anderson, Griego, and Stevens (2010), 62 undergraduate students were recruited to run a marathon in order to study motivation and goal commitment. Through path analysis, the authors found two paths to high-level motivation. The first path involved high self-efficacy. The second path included personal motivators, specifically support from their spiritual, friend, family, and leadership community members (Anderson et al., 2010). Additionally, personal beliefs and attitudes about a students' knowledge of personal motivators and ability to use these skills can be important mediators for goal achievement (Tempelaar, Rienties, Giesbers, & Gijselaers, 2015; Wolters & Benzon, 2013). Specifically, the belief that acquiring knowledge is contingent upon the effort put forth affected students learning strategies through an increase in motivation (Sen, Yilmaz, & Yurdagül, 2014). Another effective method of motivation for students who may not be intrinsically motivated is through learning contracts. These contracts use specific behavioral goals that students agree to follow. Frank and Scharff (2013) found that using these learning contracts with undergraduate students increased behaviors known to improve academic success. Specifically, students who signed the contracts were more likely to seek professors during their office hours, make studying and educational tasks a priority, and improved their grades on tests. These results underscore the importance for self-awareness of motivation skills, beliefs, behaviors, and attitudes for students to be successful at goal completion.

Time Management. Time management is a broad term for the set of skills people use to organize their time. The ability to get to class on time, plan study blocks, and make to-do lists that are feasible are all part of time-management. Time management

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skills are integral parts of academic success across populations, as reported by students. In a qualitative study of first generation university freshman, Morales (2012) noted that unstructured time was a major challenge for new students. George, Dixon, Stansal, Gelb, and Pheri (2008) found that self-reported time management skills were one of the greatest predictors of grade point average, personal success, and total success. Moreover, medical students reported time management and learning to prioritize their study time as crucial factors of their academic success (Abdulghani, et al., 2014).

Time estimation is an example of a time management skill that is useful for students. The literature defines time estimation as a person's ability to "accurately perceive the duration of a temporal event" and includes the use of short-term or long-term memory (Prevatt, Proctor, Baker, Garrett, & Yelland, 2011). Particularly, *retrospective time estimation* occurs when people are unaware they will need to estimate the time they spent on a task while they are performing it. In addition to memory, level of arousal plays a key part in this type of estimation. When comparing college student with and without ADHD, Prevatt et al. (2011) found that students with ADHD took longer to complete tasks and had difficulty with retrospective time estimation when compared to similar students without ADHD. These students tending to significantly over-estimate the amount of time they spent on tasks. This inability to estimate tasks can lead to students under or over estimating the amount of time needed to study, read, or even transition from one class to another, leading to increased obstacles to academic success.

Another key feature of time-management is the avoidance of procrastination. Steel (2007) recognizes the many definitions of procrastination, but summarizes the concept as "postponing, delaying, or putting-off of a task or decision" (p. 66), but make

distinguishes this from deciding to avoid one of an infinite amount of tasks a person can perform at a given moment. Procrastination can lead to a decrease in wellbeing, financial loss, poor academic performance, and other detrimental situations (Steel, 2007). To combat procrastination, time-management skills may be helpful. Häfner, Oberst, and Stock (2014) examined the effects of a 4-week intervention consisting of time-management skills that included proximal goal setting, anticipating barriers to success, daily planning of activities with specified corresponding behaviors, and task length estimation. Both the treatment and control groups selected a task to complete by the fourth week. Then, the groups self-monitored the amount of time spent on the task daily. The authors found that treatment group utilized their time with equal distribution, whereas the control group waited until the last week to work on their task. Thus, time-management skills were shown to thwart procrastination (Häfner et al., 2014).

Time management skills have a positive effect on other aspects of students' lives, as well. Zampetakis, Bouranta, and Moustakis (2010) studied the relationship between time management and creativity for 186 undergraduate students in Greece. Using the Creative Personality Scale and a self-report of creativity, a total creativity score was determined, while an adapted version of the Time Management Questionnaire was used to assess time management skills. Large effect sizes were found for positive correlations between high creativity and planning behaviors, self-perceived use of long-term planning, perceived locus of control for time, and perseverance. Students who had higher scores on creativity also had higher preferences for organization (Zampetakis et al., 2010). Moreover, Häfner, Stock, Pinneker, & Ströhle (2014) researched the effects of time management on perceived stress for 177 students at a German university. The researchers

found that a 2-hour intervention focusing on goal achievement and schedule planning with an emphasis on mental rehearsal of the steps needed to achieve their goal lowered students' perceived levels of stress when compared to an active control group.

Student Support Services. Student support services play a vital role in the success of students' physical, academic, and mental wellbeing. From career services to tutoring to mental health seminars, support services are bountiful on college campuses. While students and more likely to seek academic services when they rate them as important, students report than they prefer to utilize other students as sources of academic support. First year students receive more support services compared to other students, and these services are typically done face-to-face, especially when their concerns are academic (Thompson & Mazer, 2009). The type of support provided can impact student access. Students reported than venting and motivational support were preferred over informational support, with the exception of clarification of course subject matter. Venting sessions with peers often led to seeking out other academic support services (Thompson & Mazer, 2009).

The use of support services tends to aid student success. Qualitative data provided by Maher and Macallister (2013) found that staff, students, and graduates reported having veteran faculty members teach first year students, support for students during professional experiences, and student mentoring were key elements to student retention. In a regression model of 2,745 full-time university freshmen, students who used academic advising services offered by the university had higher grade point averages for both semesters of their first year and we more likely to continue at the university when compared to students who did not utilize academic advising services (Chiteng Kot, 2014).

Moreover, Bettinger and Baker (2014) examined the effects of a coaching system on over 13,000 university students. This system was utilized over 2 semesters in a treatment and control format, and consisted of helping students define short- and long-term goals with clear behavior activities linked to long-term goals. Additionally the coach contacted students regularly through meetings, phone calls, emails, social media, and text messaging to give feedback on goal attainment and build time-management and study skills. Retention rates for students who received the coaching services were significantly higher than the control group (Bettinger & Baker, 2014).

Professor-student relationships can play an important role, as well. Students report that feeling 'known' by a professor (recognition through eye contact and knowledge about the student, providing feedback, caring and helpful behaviors) increased their motivation, participation, question asking behavior, and willingness to take academic risks in class (Rodriguez-Keyes, Schneider, & Keenan, 2013). Students who scored higher on the Supportive Learning Environment Scale were also significantly less likely to have intentions to leave university settings (Coates, 2014). Therefore, it is important for both students and faculty members to make an effort to build and develop relationships at universities.

Importantly, universities need to consider the diverse needs of students in need of support. DeFreitas and Bravo, Jr. (2012) found that faculty involvement increased academic achievement and coping in African-American and Latino university students. The authors also found evidence that females rely more heavily on emotionally based coping supports than their male counterparts. Importantly, Apprey, Preston-Grimes, Bassett, and Lewis (2014) reported on a specialized support system for African American

university students. The support program integrates peer advising, weekly tutoring and review sessions, faculty-student advising and mentoring, culturally diverse programming, and the development of Parental Advisory Associations to increase retention rates of African American students. Using this system, they have focused on closing the racial achievement gap in retention in the United States, and have seen improved grade point averages and student participation in university activities in students that have participated (Apprey, Preston-Grimes, Bassett, and Lewis, 2014).

Study Strategies. Study skills are the basic building blocks for academic success. These skills have been positively correlated with higher grade point averages and study time (Lammers, Onwuegbuzie, & Slate, 2001). Gentry (2012) notes that students need skills such as note taking, organization, effective reading strategies, lecture listening skills to integrate information heard to information learned, and test-taking skills to be successful in post-secondary education. However, only 53% of students reported always asking question in class when they were confused, 41% of students reported that they always manage their study sessions and use goal-setting behaviors, and only 44% of students reported that they always study well for tests (Gentry, 2012). These numbers show that a staggering amount of students do not use the study skills necessary to be successful.

Study skills range from shallow to deep in nature. Shallow study skills include highlighting and using flashcards. Highlighting has been shown to be beneficial for undergraduate students, especially those who are reading large amounts of text (Yue, Storm, Kornell, & Bjork, 2015). Bernacki, Byrnes, and Cromley (2012) studied highlighting as one of many strategies for success. They found that highlighting predicted

other note-taking behaviors and reviews of annotations, which promoted deeper learning than previously seen in research. Flashcards are additional study habit that may be a good starting place for students with large amounts of information to process. Wissman, Rawson, and Pyc (2012) found that 67.6% of undergraduate students report using flashcards as a study aid. They reported using flashcards for memorization purposes, most often for vocabulary. Mostly recently, students have used electronic flashcards to study information on the go. Students who used mobile devices in language learning had significantly higher performance than those who used flashcards (Azabdaftari & Mozaheb, 2012). Electronic devices with flashcards are most often connected to the Internet, which can lead to follow-up information if needed, an advantage that flashcards lack.

Deep learning strategies include, but are not limited to, practice retrieval, self-testing, and distributed practice of information. Retrieval practice involves self-testing throughout study times to increase encoding of information. Karpicke (2009) examined the effects of retrieval practice with undergraduate students and language learning. This practice showed large effects with long-term retention of new words, especially when the retrieval showed high fluency rates. Self-testing through generating questions while reading has also been shown to be an effective way to improve performance on a multiple choice exam when compared to reading and copying, reading and highlighting, and reading and taking notes (Van Blerkom, Van Blerkom, & Bertsch, 2006). Practice testing is most effective when recalling information using short answer format, rather than multiple-choice format (Dunlosky, 2013). Dunlosky (2013) suggests that students should take notes in a manner that facilitates self-testing, and suggests that flashcards can be

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used as a form of self-testing. Lastly, the author suggests students use self-testing until they can recall all needed information at least once from memory by studying unknown information more often than known information. Finally, the use of distributed practice is a tool that is effective for long-term knowledge recall. Willingham (2014) describes distributed practice as a way of studying smaller amounts of information over shorter, dispersed periods of time rather than cramming. Dunlosky (2013) also recommends distributed practice as a study strategy. Study sessions should be planned ahead of time to increased productivity. These sessions should begin with a review of previously studied material in addition to new material (Dunlosky, 2013).

Performance Feedback

The use of performance feedback has been widely used in both the educational and organizational settings to increase intervention implementation across populations (Akalin & Sucuoglu, 2015; Johnson, Rocheleau, & Tilka, 2015; Noell & Gansle, 2014; Noell et al., 2014). Downs, Downs, and Rau (2008) found that feedback increased instructor performance as well as the performance of preschool students with developmental delays. Srinivasan, Hauer, Der-Martirosian, Wilkes, and Gesundheit (2007) demonstrated the effectiveness of feedback with 280 medical students using videotaped self-assessment plus reported benchmark scores. Feedback significantly improved self-evaluation for students who received the feedback when compared to those who did not. Feedback has even been shown to reduce anxiety in undergraduates when given immediately, even when those students had amounts of test and trait anxiety prior to the study (DiBattista & Gosee, 2006).

Performance feedback incorporates many elements including, but not limited to, overall performance evaluation, component completion assessment, fidelity of implementation, and general feedback. The type of feedback that is given can be written or verbal, can be positive or negative in nature, and can occur directly following the behavior of interest or at a time distal to the event. Each of these factors can affect how the feedback is received and incorporated into later performances of the desired task.

In a study of 55 undergraduate students, Northcraft, Schmidt, and Ashford (2011) required students to perform a timed task to complete as many fictitious schedules as possible on a computer program. The researchers examined the timing, specificity, and quality on feedback on the participant's performance. Students who received specific and immediate feedback together had increased resource allocation than their counterparts who received periodic and/or vague feedback. This allocation was seen through increased time and effort on tasks that increased schedule production, rather than competing tasks that were available during the study. Both immediate timing and greater specificity increased performance, with the interaction of the two causing the greatest impact on performance (Northcraft, Schmidt, & Ashford, 2011). Additionally, Johnson (2013) studied 105 undergraduate students performing a banking task to determine the essential components of performance feedback. Students received no feedback, evaluative and objective feedback, only objective feedback, or only evaluative feedback. Objective feedback included the number of tasks completed by the participant, while evaluative feedback consisted of approving or critical statements and body language about the participant's performance. Performance feedback improved performance regardless of type by 17-30 percent. However, the combination of objective and evaluative feedback

provided the greatest mean performance of the four conditions. Evaluative and objective feedback did not differ greatly from each other when delivered alone (Johnson, 2013). Sigurdsson and Ring (2013) evaluated the effect of feedback in graph form on 108 undergraduate students. Half of the students received feedback on correct performance rates for the first half of the study and feedback on incorrect performance rates during the second half of the study. The other half of participants received the same types of feedback in the reverse order. Students showed a strong preference towards feedback on correct performance, with 84% of students preferring this type of feedback. However, the authors did not find that the type of feedback affected the performance rates on student quizzes (Sigurdsson & Ring, 2013). Lastly, Nihalani, Mayrath, and Robinson (2011) examined the use of task feedback when given to individuals or groups performing a computer-based task. Participants were undergraduate students separated by measures of computer-based competency. Students with 'expert' levels of computer experience were placed in one group, while students without computer experience were considered 'novices' and placed in a different group. When students had high prior competency levels, they performed better in the group feedback condition, while students who were considered novices performed better in the individual feedback condition. Individual feedback was found to be detrimental to students with high prior knowledge when compared to feedback given in a collaborative learning environment (Nihalani, Mayrath, & Robinson, 2011). These studies demonstrate the effectiveness of performance feedback as an intervention, while emphasizing the need to be thoughtful about the delivery of feedback.

Group Contingency

The use of group contingencies to increase treatment participation has been widely used throughout the medical, educational, and industrial/organizational communities. Litow and Pumroy (1975) defined group contingencies as "the application of operant techniques to the group behavior management of children in the classroom" (p. 341). The authors describe three contingency types: Dependent, Independent, and Interdependent Group Orientated contingencies. All three types utilize a consistent contingency for the group members; however, they differ in how the members receive reinforcement. For Dependent contingencies, certain pre-determined members of the group must perform the contingency in order for the group to receive reinforcement. This technique encourages members to help one another to achieve the goal. For Independent contingencies, reinforcement is applied on an individual performance basis for completing the group contingency. This technique is often used in special education settings, where individual goals may vastly vary between students. Lastly, the Interdependent contingency requires all group members to complete the same goal in order to have any members earn reinforcement. This technique can be used with a whole class as a group, or groups can be broken down and given their own goals. The important distinction is that every member of the group earns or does not earn reinforcement based on group performance (Litow & Pumroy, 1975).

Group contingencies are shown to be effective with both adults and children. Little, Akin-Little, and O'Neill (2015) completed a meta-analysis do determine the efficacy of group contingencies with school-aged children using all three types of group contingencies. They found an overall effect size of $d = 3.41$ in the 50 studies they

analyzed, determining that group contingencies worked well in schools to decrease problem behavior and increase academic performance. Trevino-Maack, Kamps, and Wills (2015) examined the use of independent group contingencies with an added self-management component to determine the efficacy of the intervention of increasing academic engagement and output for high school students in a remedial reading setting. Using a reversal design, students were given self-monitoring sheets to track task completion combined with a group contingency. The participants increased their academic engagement, specifically reading and answering questions, as well as their total words written when the intervention was implemented. The authors were able to demonstrate the three elements of baseline logic, strongly supporting the conclusion that the intervention was responsible for the rise in academic success.

When used with adults, group contingencies can be used to increase or decrease many types of behaviors. They are successfully used in assisting people who want to quit smoking, using both complete group goals and a mix of individual and group goal contingencies (Dallery, Meredith, Jarvis, & Nuzzo, 2015; Meredith & Dallery, 2013). Moreover, Van Patten, Irons, and Apple (2015) studied the effects of a group contingency with 20 members of a university fraternity. Participants that received reinforcement for reaching determined grade criterion had increased grade point averages at the end of the semester when compared to a yoked control group. Finally, class participation was increased using an individual-plus-group credit contingency for 167 educational psychology undergraduate students based on every member of the group participating during class. These studies demonstrate the power of group contingency to change multiple types of behaviors across populations.

Technology

      Treatment Adherence. Treatment adherence is a key issue for any self-regulated intervention. Adherence is defined as "the extent to which an individual's behavior coincides with health-related instructions or recommendations given by a healthcare provider in the context of a specific disease or disorder" (Howren, Liew, & Christensen, 2013, p. 427). The research on treatment adherence through technology has primarily relied on the medical field for participants. For example, Kamal et al. (2015) examined the use of mobile phone technology to increase medication adherence in the medical setting. The authors found Short Messaging Service (SMS) served as an effective way to increase medication adherence in stroke patients. Additionally, Stevens et al. (2008) explored the use of an electronic mail and telephone reminder system to increase participation in a web-based weight loss program. These prompts proved to be highly effective, with 97.3% of participants returning to the self-management website. Text messaging can be useful for appointment reminders, as well. Sims et al. (2012) used multiple regression analysis to compare sets of data for missed appointments in mental health clinics. In one set of data, no text message reminders were sent, while in the other set of data text message reminders were utilized. The attendance rates for therapy sessions were significantly higher in the group that received text message reminders than in the group that did not.

      However, not all research on technology shows such promise. Lillevoll, Vangberg, Griffiths, Waterloo, and Eisemann (2014) assessed the effects of an Internet-based, self-regulated mental health intervention based on Cognitive Behavioral Therapy (CBT). This intervention involved using a web-based system called MoodGYM that

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included self-directed modules and a workbook to recreate a CBT session for high school students. The study included three differing intervention groups: a personalized weekly electronic mail reminder, a standardized electronic mail weekly reminder and no electronic mail reminder, as well as a control waitlist group. The electronic mail reminder groups did not statistically differ on treatment adherence, measured as completing the module. While older students were more likely to begin the modules with electronic mail reminders, the overall effect of the reminder was not significant. Additionally, Clough and Casey (2014) examined treatment attendance for clients receiving SMS appointment reminders versus clients who did not receive these reminders. The authors found that the SMS reminders did not increase attendance for therapy appointments. Oddly, the group who received SMS reminders had a higher dropout rate than the group that did not receive reminders. The authors suggest that while technology may have a place in treatment adherence, the problem is more complex than a simple reminder message. As these technologies grow, their use in treatment adherence should be considered as a priority to increase adherence and access.

Treatment Delivery. The use of technology in treatment delivery is another growing field for technology in mental health. Andrews, Davies, and Titov (2011) found that Internet-based Cognitive Behavioral Therapy (CBT) was just as effective for patients with social phobia as face-to-face treatment. Importantly, the amount of time devoted to patient treatment delivery was decreased from 240 minutes per patient in the face-to-face group to 18 minutes per patient in the Internet-based treatment group. This decrease allows more patients to receive interventions without sacrificing treatment effectiveness. In the educational system, it is also important to have students attend classes as a mode of

academic treatment delivery. Bicard, Lott, Mills, Bicard, and Baylot-Casey (2012) examined the effectiveness of a text messaging system for at-risk student athletes who were having difficulties attending class. Utilizing a reversal design within a multiple baseline design, the authors were able to increase class attendance for all four participants by having them text an academic counselor as they entered the classroom. The baseline rate of tardiness was 10-29 minutes. At the end of the intervention, all of the students were attending classes without unexcused absences and were averaging a tardy time of 4 minutes. Lastly, treatment adherence of the therapist was examined for both telepsychiatry and same room sessions (Frueh et al., 2007). The authors found that therapist competence, adherence to therapeutic protocol, and rapport building were not different due to the use of technology for treatment delivery when used to treat clients with Post Traumatic Stress Disorder.

Learning Outcomes. The field of technology and its ability to increase learning outcomes has advanced greatly in the past few decades. Students that utilize technology, especially when it matches the technology that their professors find important, tend to get higher grades in those classes than their counterparts (Huffman & Huffman, 2012). Electronic mail can be particularly useful for distance learners, or those who are non-traditional on-campus students. Heiman (2008) found that sending e-mails from an academic advisor to a student in a distance-learning environment could be a cost-effective way to increase perceived support. Six emails consisting of a congratulatory greeting, offers of academic support, social orientation, and an exit email applauding their success in the class were sent to students in the treatment group. Students who received the e-mails reported increased satisfaction with classes, academic and social

support, and task-oriented coping skills when compared to students who did not receive the emails.

The use of cost-effective and simple technology is perhaps the most promising technological advancement for service providers. Goh, Seet, and Chen (2012) were able to use SMS text messages that utilized persuasive messages to increase student learning. These messages included reminders of due dates, encouragement, and personalized messages to students using simplified language. Importantly, the Time and Study Environment Management scale of the Motivated Strategies for Learning Questionnaires (MSLQ) was significantly lower for the control group when compared to the group that received persuasive SMS messages.

With the increase in everyday technology, however, comes the reality of technology as a distraction for students. Wei, Wang, and Klausner (2012) examined the effects of text messaging in class on undergraduate students. The authors found that students who had higher self-regulation of learning were less likely to text message during class time. Additionally, they found that students who do text message during class in fact pay less attention to the lecture, which negatively affects their learning. These results were based on self-report survey data, however, so the links were correlation in nature. Additional studies have shown that technology can deliver iatrogenic effects. Reed and Reay (2015) used the Internet Addiction Test (IAT) to examine the effects of overuse of the Internet on academic motivation. Not surprisingly, students who had problematic Internet use also showed significant decreases in intrinsic goal orientation, academic self-efficacy, and academic locus of control. Startlingly, these

decreases were significantly worse than students affected by depression, anxiety, and/or social isolation.

Development of Time and Organization Preparation System-College

The Time and Organization Preparation System-College (TOPS-C) is a newly developed system to prepare students for the rigors of post-secondary education. The concept of the TOPS-C grew from the work of Langberg (2011) and the Homework, Organization, and Planning Skills (HOPS) intervention for middle school students with Attention Deficit Hyperactivity Disorder. This system was designed to teach middle school students the skills needed to be successful in school, including time management and long-term assignment planning. Bordelon (2016) adjusted the HOPS system to a self-management program for undergraduate students. In this study, 30 undergraduate students received six weeks of training in self-management, time management and organization skills in a randomized control trial. Participants showed improvements in Concentration, Motivation, Self-Testing and Time Management based on pre- and posttest scores on the Learning and Study Strategies Inventory- Second Edition (LASSI-2). This study was limited in scope, however, due to the small sample size and limited outcome measures.

The TOPS-C was developed to continue the research of Bordelon (2016) with changes to the lesson plans and reinforcement system to address the limitations of the previous research. The TOPS-C integrates additional measures (i.e., permanent products), such as daily emails from the participants and an e-mail tracking sheet, as well as clearly defined behavioral homework each week. Additionally, the points reward system used in the Bordelon (2016) study was removed due to participant feedback. Study skills lessons

were added to address the needs of undergraduate students and lessons on goal setting and motivation were updated to reflect the current research for this population. Importantly, graphic feedback of LASSI-3rd edition scores is given to participants to at the onset of the program to increase goal specificity and direction for participants.

Purpose of the Study

The purpose of the current study was to determine the efficacy of the Time and Organization Preparation System-College (TOPS-C). The study looked to establish the TOPS-C as an effective system for teaching organization, time-management, self-regulated learning, and goal setting to an undergraduate population. For purposes of this study, *organization* was defined as the ability to use self-management skills to plan, structure, and execute goals in an effective and efficient manner. The current study compared a delayed waitlist-control group to a treatment group using the Learning and Study Strategies Inventory-Third Edition (LASSI-3) as an assessment tool.

Hypotheses

Hypothesis 1: The Treatment group will score significantly (p< .05) higher on all scales of the LASSI-3 when compared to the Delayed Waitlist Treatment group at Time Two.

Hypothesis 2: The Delayed Waitlist Treatment group will score significantly higher (p< .05) on all scales of the LASSI-3 at Time Three when compared to Time One and Time Two.

Hypothesis 3: The Treatment group will maintain or exceed their scores on all scales of the LASSI-3 at Time Three when compared to Time Two.

METHODS

Participants

After obtaining approval from the Louisiana State University Institutional Review Board (IRB#E9840), participants were recruited using multiple methods. These included paper flyers, emails from professors of university classes, a university-sponsored research participation system, the on-campus Center for Academic Success and the Louisiana State University First Year Experience. Potential participants emailed the researcher expressing their desire to participate, and were accepted on a first-come, first-served basis. Recruitment of participants was limited to students who were enrolled full time at Louisiana State University. The range of students per group was limited to 5-10 participants. Multiple groups were run during the same semester, due to participant interest and availability. Participants were required to utilize their email account and attend the weekly sessions to participate in the study. Students who previously participated in studies with the researcher were removed from the participant pool. Any participant who scored above the 75th percentile on seven or more subtests during the pre-test were disqualified from participating in order to prevent ceiling effects. Four participants were excluded due to high LASSI-3 pretest scores. Each participant was required to attend at least three of the four teaching lesson sessions, or attend a make-up session with the researcher in order to qualify for data analysis.

In order to determine sample size, a power analysis using the GPower software was completed. Using an alpha level of 0.05, a correlation of 0.70, the lowest end of correlations reported in the LASSI-3 Manual (Weinstein, Palmer & Acee, 2016), and a conservative effect size of 0.2, a total participant number of 42 was calculated. Forty-four participants completed pretest and posttest assessments, and twenty-five participants

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completed pretest, posttest, and follow-up assessments. One participant missed a

teaching lesson, while all other participants had 100% participation. Eleven participants

completed make up sessions. The number of make up sessions per participant ranged

from 0-2 (M = 0.48). Four participants discontinued the program, and their scores and

demographics are not included in the analysis. One participant discontinued due to a

scheduling conflict and three participants discontinued without a specific reason. Of the

four participants that discontinued, only one had attended a teaching session before

deciding to discontinue treatment. Five participants reported a diagnosis related to

educational services. Two participants reported a diagnosis of Attention Deficit

Hyperactivity Disorder, two participants reported a diagnosis of Obsessive Compulsive

Disorder, and one participant reported a diagnosis of Generalized Anxiety Disorder.

Dependent Measure

   Learning and Study Strategies Inventory- Third Edition (LASSI). All

participants completed the Learning and Study Strategies Inventory-Third Edition

(LASSI-3) to evaluate changes in academic skills before and after receiving the

intervention. The LASSI-3 is a sixty-question self-report measure that takes

approximately 10 minutes to complete. Each item consists of a statement regarding an

area of academic skill, will, or self-regulation. Participants responded to each statement

my indicating their agreement level using a 5-point Likert scale. The scale ranges from

"not at all typical of me" to "very much typical of me." The LASSI-3 consists of ten

scales: Information Processing, Selecting Main Ideas, Test Strategies, Anxiety, Attitude,

Motivation, Concentration, Self Testing, Time Management and Using Academic

Resources. Each scale has 6 corresponding statements for participants to rate. The scores

are converted to percentile ranks based on national norms. The LASSI-3 manual recommends using a cut-off range below 50th percent to represent areas of weakness, scores of 50 to 75 percent to represent areas students may need to improve their skills, and scores above the 75th percentile to represent areas of strength for students (Weinstein et al., 2016).

The first edition of the LASSI was developed in 1982 to address the growing concerns over students who were entering vocational and traditional post-secondary education without being prepared for the academic and time rigors they required. The researchers of the LASSI-1 wanted to develop a measure that provided a diagnostic measure of skill deficit while also providing prescriptive feedback on how to improve in various areas to become more successful students. The LASSI-1 item pool began with 645 items presented in a true-false format and was reduced based on correlation measurements with grade point averages, high school ranks, achievement test scores, and a control for social desirability. The measurement system then changed to the Likert scale used in the current edition, and pilot tests were completed. The LASSI-1 was distributed as a 77-item assessment with norms developed using 880 incoming freshman at a large university setting consisting of ten scales. Test-retest correlations and user validity were assessed and confirmed (Weinstein, et al., 2016).

The second edition of the LASSI was published in 2002. It removed outdated items that included odd phrasing or metaphors that were no longer frequently used. Up-to-date research on self-awareness was included. Additionally, items related to use of the Internet were added. The ten scales were retained, but each scale now had an equal number of items in the assessment, or eighty items total. Lastly, to increase the technical

adequacy of the LASSI, the authors normed the LASSI-2 using multiple types of educational institutions from different regions of the United States and only used scales which demonstrated a 0.73 or above Coefficient Alpha (Weinstein et al., 2016).

The third edition of the LASSI was published in 2016. Several changes were made to the second edition to make the LASSI easier to administer and score. The number of items was decreased to 60 total items, or six items per scale. This alteration led to a shorter time needed to complete the LASSI. Additionally, the assessment is solely Internet-based. This has led to increased scoring accuracy and while saving the administrator time. The technical adequacy of the LASSI-3 was also considered, and the current version has raised its lowest Coefficient Alpha score from 0.73 to 0.76. Importantly, a new scale entitled the Using Academic Resources Scale replaced the Study Aids Scale to incorporate new technologies students use to access assistance on post-secondary education campuses. Lastly, new norms were developed using a pool of 1, 386 students from 23 campuses and includes adult education programs as well as private and public universities (Weinstein et al., 2016).

The LASSI-3 consists of three main components of academic success: skill, will, and self-regulation. The Skill element of learning is measured through the Information Processing, Selecting Main Ideas, and Test Strategies scales. The Will element is measured through the Anxiety, Attitude, and Motivation scales. Lastly, the Self-Regulation element is measured using the Concentration, Self Testing, Time Management and Using Academic Resources scales (Weinstein et al., 2016).

The Anxiety scale measures "the interactive effects of students' thought processes, beliefs, and emotions along with how they affect academic performance"

(Weinstein et al., 2016, p. 13). This scale is important to academic success, because anxiety and negative self-thoughts cause the attention of students to be decreased and divided. Weinstein et al. (2016) describe these behaviors as "self-defeating" (p. 13) and cause students to waste their time worrying rather than engaging in productive academic tasks. When students produce low scores on this scale they are considered to have low coping skills for worries related to academic assignments and need help lowering their anxiety levels surrounding these tasks. The Coefficient Alpha for this scale is 0.87, with a mean raw score of 17.75 and a standard deviation of 6.05 (Weinstein, et al., 2016).

The Attitude scale measures "general attitudes and reasons for succeeding in school and interest in performing the tasks related to school success" (Weinstein, Palmer & Acee, 2016, p. 14). This scale is important to student success because self-regulation skills rely heavily on independent work abilities. When students are unable to generate reasons to do well in school, they are unlikely to be motivated to complete the required tasks for success. Students who score low on this scale should work on goal setting, especially when those goals are future oriented. The Coefficient Alpha for this scale is 0.76, with a mean raw score of 23.70 and a standard deviation of 4.22 (Weinstein et al., 2016).

The Concentration scale measures students' "abilities to direct and maintain their attention to school and school-related tasks, including study activities" (Weinstein et al., 2016, p. 14). The skills measured in this scale include the ability to pay attention in class and focus on studying and academic tasks, which are important skills for making priorities and learning during class and study sessions. Low scores on this scale indicate a deficit in attention and focus on current tasks. The Coefficient Alpha for this scale is

0.85, with a mean raw score of 19.21 and a standard deviation of 4.91 (Weinstein et al., 2016).

The Information Processing scale measures students' abilities to "create imaginal and verbal elaborations and organizational schemes to foster understanding and recall" (Weinstein et al., 2016, p. 15). The skills measured in this scale include making connections between already acquired and newly obtained knowledge. These skills are important to success by enhancing a students' ability to organize and maintain new knowledge. Low scores on this scale indicate that a student has difficulty organizing and conceptualizing new academic skills. The Coefficient Alpha for this scale is 0.81, with a mean raw score of 21.58 and a standard deviation of 4.32 (Weinstein, et al., 2016).

The Motivation scale measures students' ability to "accept responsibility for performing the specific tasks related to school success" (Weinstein et al., 2016, p. 16). This ability includes persistence and effort towards goal attainment, including being ready for class, completing tasks by their deadlines, and believing that academic success is attainable. These behaviors are key to academic success, because they increase student determination, work performance, and effective study habits. Students who score low on this scale may need to realign their thoughts and beliefs to gain a stronger locus of control regarding their academic success. The Coefficient Alpha for this scale is 0.77, with a mean raw score of 23.64 and a standard deviation of 3.99 (Weinstein, et al., 2016).

The Selecting Main Ideas scale measures "skills at selecting important information to concentrate on for further study in classroom, lecture, or autonomous learning situations" (Weinstein et al., 2016, p. 17). This skill set involves identifying important information from large amounts of lecture and reading material. These skills

are important to allow students to have enough study time to absorb all the material needed to be successful at academic tasks and exams. Low scores on this scale indicate a deficit in identifying details that are important to mastering classroom material. The Coefficient Alpha for this scale is 0.86, with a mean raw score of 20.67 and a standard deviation of 5.00 (Weinstein et al., 2016).

The Self Testing scale measures students' "awareness of the importance of self testing and reviewing and the degree to which they use these methods" (Weinstein et al. 2016, p. 18). These methods include reviewing and studying material in an organized manner, asking for follow-up information during reading or class time, and applying information into new ways by using general principles in different circumstances. These skills are important to academic success, because they aid students in checking-in on knowledge acquirement and examining the amount of information obtained and stored over time. Low scores on this scale suggest that students need to learn more specific methods of self-testing and the overall significance of reviewing material for comprehension. The Coefficient Alpha for this scale is 0.80, with a mean raw score of 18.03 and a standard deviation of 4.98 (Weinstein et al., 2016).

The Test Strategies scale measures "use of test-taking and test-preparation strategies" (Weinstein et al., 2016, p. 19). The strategies include, but are not limited to, knowledge about testing formats, preparing for examinations by studying using an effective approach and generating a systematic plan for studying. These skills are important to academic success, because they allow students to study material effectively through goal setting and study planning without being distracted by unfamiliar test formats. Low scores on this scale denote a deficit in study preparation skills, especially

for differing types of examinations (multiple choice vs. essays, etc.). The Coefficient Alpha for this scale is 0.77, with a mean raw score of 20.76 and a standard deviation of 4.28 (Weinstein et al., 2016).

The Time Management scale measures a students' ability to make and apply personal schedules. Specifically, students need to be able to make schedules that are achievable, which requires self-awareness of one's strengths and weaknesses. This skill is integral to academic success, because it increases personal responsibility for task completion and allows students to plan their study times in a way that is efficient and most conducive to their academic strengths. Low scores on this scale indicate that a student does not know how to create a schedule, use a schedule to their advantage, and/or handle procrastination in a successful manner. The Coefficient Alpha for this scale is 0.80, with a mean raw score of 18.01 and a standard deviation of 4.99 (Weinstein et al., 2016).

The Using Academic Resources scale measures students' "awareness, knowledge about, and use (or intended use) of informal and formal academic resources commonly available to students at 2-year and 4-year post secondary institutions" (Weinstein et al., 2016, p. 20-21). These resources include, but are not limited to, advising, career counseling, tutoring, and academic coaching. Students who are able to seek and obtain assistance are likely to succeed when faced with academic barriers that were once believed impossible to overcome alone. Low scores on this scale suggest that students are not likely to seek help due to embarrassment or lack of knowledge about resources available to them. The Coefficient Alpha for this scale is 0.76, with a mean raw score of 20.18 and a standard deviation of 4.91(Weinstein et al., 2016).

Administration and scoring for the LASSI-3 are completed through an Internet website. The online assessment produces a Student Report consisting of scale interpretation and percentile scores for each scale. Additionally, an Item Response Report can be produced to show responses to individual item responses divided by each scale. This report was used to help participants make specific behavior change goals based on their responses. Lastly, the researcher had access to an Advisor/Counselor report that summarizes raw data, percentile scores, and changes in scores for each individual item response, as well as overall scale scores.

Demographic Questionnaire. Participants completed a demographic questionnaire before beginning the study (See Appendix A). This questionnaire included questions about gender, ethnicity, age, university classification, major and minor areas of study (if applicable), grade point average, preferred electronic mail address, and any pertinent educational or physical diagnoses or exceptionalities. This information served to examine the demographic makeup of the participants to determine generalizability of results.

Materials

Time and Organization Preparation System-College (TOPS-C). The Time and Organization Preparation System-College (TOPS-C) is a six-week intervention developed to help students prepare for the rigors of post-secondary education. The intervention can be delivered in a group format or individual setting. The target audience for treatment consists of high school students who are preparing to go to post-secondary school and college students who are having difficulty with adjustment to post-secondary education. Administration of the intervention appears to take minimal training, consisting of reading

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the provided lesson plans and preparing materials for participants. Guidance counselors at schools, therapists in outpatient clinic settings, or other administrators who work closely with the target audience should be able to administer the TOPS-C. Lessons are designed to include daily goal emailing to the administrator, feedback on performance, a lesson on a specific skill, discussion about barriers to success, and homework. Lesson plans are provided for each session of the intervention (See Appendix B). Details about each lesson will be discussed further below.

The TOPS-C was developed from previous research completed by Bordelon (2016) that examined the effectiveness of a self-management system focused on time management and organization skills with undergraduate students. Originally based on the Homework, Organization, and Planning Skills intervention by Langberg (2011), the study by Bordelon (2016) examined the use of an organization binder and weekly assignment tracking combined with goal setting and a points-based reward system to determine if the HOPS-based intervention would work on an older participant group. After promising results were found by Bordelon (2016), the TOPS-C began development as a newly created self-management intervention. This new system adds the use of permanent products to gauge active participation in the intervention, removes the points-based system of reinforcement based on participant feedback, adds study skills as a topic of interest, and provides the participants with their LASSI scores to facilitate goal setting. Importantly, the TOPS-C program has incorporated knowledge from the Bordelon (2016) study and related practice experiences to include a check-in with each participant on their pre-test LASSI answers. This change was included after feedback from previous participants that reported they were unaware of how low their skills were when taking the

pre-test, and that the course enlightened them to how much they believed they were organized compare to the reality of their organization skills.

Each participant in the TOPS-C program received school supplies in a binder to promote organization and ease of use. These materials included a pencil case, pens, pencils, a pencil sharpener, sticky notes, colored pencils, lined paper, sticky page markers, highlighters, and index cards. Additionally, pamphlets from the university Academic Center for Success and the Career Center were provided for each student as resources. To maintain consistency of time management, each participant used both a weekly scheduling sheet and a yearlong calendar provided by the university Center for Academic Success. This also guaranteed that the participants have access to the system after the intervention finished in order to ensure sustainability of the program. Lastly, the TOPS-C included a Self-Management Plan (see Appendix C) and an Email Tracking Sheet (see Appendix D). These served as permanent products for the administrator, as well as goal tracking sheets for the participant.

To help participants develop self-management skills, a self-management system with experimenter guidance was implemented. The experimenter set one goal to ensure participant accountability and to help participants cultivate awareness and management skills, while providing participants with feedback on their performance. The Self-Management Plan included the daily goal set by the researcher for this study and a section for participants to write individualized goals concerning organization, time management, and advising/professor interactions based on their LASSI-3 scores. The plan also included a place for students to color code their schedules using a legend. Four broad tasks are included (class, study/homework, work, and meetings) and two other

sections are included for participants to specify different activities specific to their agenda. Details regarding the procedure for email check-ins were included in the plan to identify potential barriers for completing the daily email. These details included when check-in would take place, reminders for check-ins, devices used to check-in, and considerations for which goals to work towards achieving each day. Lastly, the plan provided a space for participants to write in how they would reward themselves for meeting their goals. This space was loosely defined intentionally, as participants were asked to update their plan throughout the session when they learned a new skill. These changes served as an additional method for participants to recognize their growth and ability to make plans more detailed as the intervention progressed.

The Email Tracking Sheet served as a permanent product and reminder for the student to complete the email goal daily. It provided a section for participants to track when they completed the goal for the day by making a check mark for each day it was required. The participants were required to write down their goals again in this section, making the behavior changes they were expected to strive towards more salient each day.

The TOPS-C would typically be delivered in 4 weeks when administered in a typical setting; however the current study employed a 6 week administration to include pretest and posttest weeks before and after the 4 teaching lessons. Session One generally took 45 minutes to one hour to complete. Lessons Two through Five lasted approximately 45 minutes each. An additional 15 minutes per week consisted of daily emails and homework for the intervention, averaging an hour per week. The lessons are described in this document.

The beginning of Session One consisted of an overview of the program, informed consent of participation, and a demographic questionnaire. After these tasks were completed, each participant took approximately 10 to 15 minutes to complete the LASSI-3. Next, the participants and administrator had an open discussion about self-management and goal setting. This discussion helped facilitate rapport between the participants and administrators and will began the process of self-awareness of each participant's current habits surrounding organization and time management. Each student was then given an assignment to print their LASSI-3 results and review them in order to make individualized goals during the next session.

In Lesson Two, participants received their school supplies and were introduced to the Self-Management Plan. A lesson on goal setting occurred for approximately 15 minutes. Then each student developed personalized goals using the Self-Management Plan. Each participant's individual goal management plan was openly discussed with the group, so that each student could learn from the other students and build rapport. This discussion took approximately 15 minutes. Following goal setting, the students completed the weekly planning sheet in session while the administrator was available to answer questions. Lastly, homework was assigned for the week.

Lesson Three began by reviewing the homework assignment through performance feedback about the number of days each participant emailed the administrator and the depth at which they worked towards their goal. This also included feedback on whether specific behaviors were mentioned, and if the behaviors were in line with appropriate goal proximity, as discussed in the previous session. Following performance feedback, the administrator delivered a teaching lesson on time management skills lasting

approximately 30 minutes. This lesson included techniques such as study block planning, estimating activity time length, long-term planning for tests and projects, and use of multiple reminders. An exercise on study block planning was completed, first with the teacher, then independently with feedback. Following the lesson, each participant reviewed their Self-Management Plan and made adjustments based on newly acquired information. The participants continued to email daily and added a study planning skill to their weekly planning sheets for homework.

Lesson Four started with performance feedback and a review of the homework assignment. Following performance feedback, an approximately 30-minute lesson on study skills was completed. This lesson included the use of flashcards, highlighters, and other study skills proven to be effective in research. The participants then completed an exercise in session on selecting main ideas before and after the lesson on study skill techniques. At the end of the session, changes were made to the Self-management Plan as needed, including the addition of new goals based on information learned during the teaching lesson. Behavioral homework included continuing to email the researcher daily in reference to their goal attainment.

Lesson Five began with performance feedback, followed by an approximately 30-minute lesson on motivation. This lesson included personal reinforcement of goals, the use of a group contingency to increase achievement, and using long-term goals to help provide motivation for academic success. Additionally, this lesson included an example on working backward from the beginning of post-secondary education to prepare for a career or graduate school. Specifically, topics included letters of recommendation, volunteer or internship opportunities, completing research, course sequencing, and the

consequences of social media. An exercise on emailing a professor in a professional manner was completed with feedback. After the exercise, the group decided on a group contingency goal and reinforcement for all participants meeting the goal. The last 10 minutes of the session included making adjustments to the Self-Management Plan goals based on the lesson provided and a homework assignment consisting of completing the Student Support Services worksheet, if it was not fully completed in session.

Session Six consisted of the completion of the post-test LASSI-3. The administrator was available to discuss any questions regarding the results. When the group contingency reinforcer was earned, the participants received it at this time. This session lasted approximately 20 minutes. The participants were invited to return five weeks later to complete the LASSI-3 to collect follow-up data.

Post Study Questionnaire. Social validity of the study was assessed using a post study questionnaire (See Appendix E). Participants ranked the helpfulness of the study and the likelihood of recommending the study to a friend. These rankings were made using a 5-point Likert scale that ranges from 1 (Not Very Helpful/Not Very Likely) to 5 (Very Helpful/Very Likely). Additionally, participants were asked to list the 2-3 parts of the intervention that they found to be least and most helpful to increasing their success during the study. This qualitative data was used to inform future studies of possible additions or deletions that can be made to the intervention.

Experimental Design

The current study utilized a randomized delayed treatment controlled trial design to determine the effect of the TOPS-C on participants. Each group received the independent variable, four sessions of the TOPS-C lessons, to determine the effectiveness

of the program. Participants were placed into a Treatment or Delayed Waitlist Treatment

group using random assignment without replacement. These two groups defined the

between-subjects factor. The participant scores on the Learning and Study Strategies

Inventory-Third Edition (LASSI-3) served as the dependent variable. These scores will

be measured at three time intervals, which defined the within-subjects factor. The

Treatment group completed the LASSI-3 at Time One, which served as a pre-test

assessment, Time Two, which served as a post-test assessment, and Time Three, which

served as a follow-up assessment. The Delayed Waitlist Treatment group also completed

the LASSI-3 at Time One, which served as a pre-test, Time Two, which allowed the

researcher to determine if any significant changes occurred during the required waitlist

timeframe due to confounding variables, and Time Three, which served as post-test data.

RESULTS

Analyses

Multiple statistical tests were completed to analyze the data. Descriptive statistics

were run to synthesize the population demographics of the participants. These

demographics included the frequency for gender, ethnicity, reported frequency of a

diagnosis pertaining to educational success, and current standing at the university in

terms of year (Freshman, Sophomore, Junior, Senior, or other). Additionally, the mean

age for each group is provided in Table 1 along with the frequency counts provided

above.

Table 1. Demographic Variables.

Variable	Descriptor	Treatment (n=22)	Delayed Waitlist Treatment (n=22)	Total (N=44)
Gender	Male	6 (27%)	7 (32%)	13 (30%)
	Female	16 (73%)	15 (68%)	31 (70%)
Ethnicity	Caucasian	12 (27%)	13 (30%)	25 (56.8%)
	African-American	3 (7%)	5 (11%)	8 (18.2%)
	Asian	4 (9%)	1 (2%)	5 (11.4%)
	Hispanic	2 (4.5%)	2 (4.5%)	4 (9.1%)
	Multi-Racial	1 (2%)	1 (2%)	2 (4.5%)
Age	Mean	19	19.95	19.50
	Range	18-22	18-27	18-27
Classification	Freshman	10	7	17 (38.6%)
	Sophomore	8	5	13 (29.5%)
	Junior	2	5	7 (15.9%)
	Senior	2	5	7 (15.9%)

Prior to analysis, LASSI percentile data were converted to z-scores for

comparability and analytic purposes. A series of repeated measure analysis of variances

(repeated measures ANOVA) were conducted to determine if a statically significant

difference was found between the Treatment and Delayed Waitlist Treatment groups at

Time One (pretest), Time Two (posttest), and Time Three (follow-up for Treatment only) on LASSI scale scores. Scores at Time Three were not collected from all participants due to multiple factors, including scheduling conflicts and the nature of a delayed waitlist treatment. An additional series of repeated measures ANOVAs were conducted using a multiple imputation regression model to estimate missing data values. This procedure was chosen after an n size over twenty participants was established, as recommended by Graham, Olchowski, and Gilreath (as cited in Enders, 2016).

Additionally, the within-between subject interactions were analyzed to determine if groups differed in their change across repeated measurements for each LASSI-3 scale measurement. The Wilks' Lambda measure is reported for all tests completed. Mauchly's Test of Sphericity was employed to determine if data met assumptions of the repeated measures ANOVA. A Greenhouse-Geisser correction was implemented for any statistically significant Mauchly's Test of Sphericity. Main effects of group and time are provided for completeness. However, given the nature of the hypothesis question for the current study, the main effect of time and between-subject effects are not discussed further, as these effects do not provide information to the nature of the changes made by participants in each group. Table 2 summarizes the means and standard deviations of the repeated measures ANOVA at each time for scores without the multiple imputation of data included. Effect sizes were computed and reported as Partial Eta Squared. Table 3 summarizes the means and standard deviations of the repeated measures ANOVA at each time for scores with the multiple imputation of data included.

Table 2. Means and Standard Deviations without Multiple Imputation of Data

Scale	Time[a]	Treatment M[b] (SD)	Delayed Waitlist Treatment M[b] (SD)
Anxiety	T1	-0.62 (1.12)	-0.25 (0.83)
	T2	0.79 (0.81)	-0.61 (0.88)
	T3	0.88 (0.88)	0.75 (0.58)
Attitude	T1	-0.39 (0.62)	-0.24 (1.03)
	T2	0.33 (1.14)	-0.23 (0.61)
	T3	0.18 (1.09)	0.70 (1.05)
Concentration	T1	-0.78 (1.01)	-0.44 (0.88)
	T2	0.37 (1.05)	-0.35 (0.86)
	T3	0.46 (1.20)	0.63 (0.58)
Information Processing	T1	-0.73 (1.04)	-1.00 (0.81)
	T2	0.28 (1.26)	-0.84 (0.95)
	T3	0.72 (1.05)	0.11 (1.04)
Motivation	T1	-0.03 (0.89)	0.23 (1.21)
	T2	0.63 (0.80)	0.26 (0.66)
	T3	0.72 (1.05)	1.14 (1.01)
Selecting Main Ideas	T1	-0.40 (1.13)	-0.60 (1.00)
	T2	0.78 (1.00)	-0.59 (1.32)
	T3	0.80 (0.88)	0.99 (0.65)
Self Testing	T1	-0.49 (0.75)	-0.64 (0.56)
	T2	0.41 (0.99)	-0.58 (0.78)
	T3	0.72 (1.18)	0.65 (1.15)
Time Management	T1	-0.99 (1.10)	-0.26 (0.82)
	T2	0.39 (0.94)	-0.41 (0.96)
	T3	0.37 (1.22)	0.50 (1.09)
Test Strategies	T1	-0.46 (1.02)	-0.60 (1.29)
	T2	0.82 (0.75)	-0.52 (1.06)
	T3	0.73 (0.88)	1.13 (0.56)
Using Academic Resources	T1	-0.93 (1.01)	-0.35 (0.76)
	T2	0.18 (0.92)	-0.11 (0.85)
	T3	0.35 (0.71)	0.37 (0.72)

Note. [a] T1= Time One, T2= Time Two, T3= Time Three. [b] Mean scores reported are z-scores.

Table 3. Means and Standard Deviations with Multiple Imputation of Data.

Scale	Time[a]	Treatment M[b] (SD)	Delayed Waitlist Treatment M[b] (SD)
Anxiety	T1	-0.65 (1.03)	-0.27 (1.04)
	T2	0.69 (0.89)	-0.36 (0.85)
	T3	0.87 (0.73)	0.76 (0.43)
Attitude	T1	-0.47 (0.73)	-0.36 (0.86)
	T2	0.40 (1.18)	-0.35 (0.76)
	T3	0.29 (1.07)	0.33 (0.92)
Concentration	T1	-0.81 (0.87)	-0.70 (1.00)
	T2	0.41 (0.98)	-0.52 (0.99)
	T3	0.56 (1.03)	0.32 (0.71)
Information Processing	T1	-0.49 (0.98)	-0.65 (1.18)
	T2	0.42 (1.14)	-0.11 (1.06)
	T3	0.81 (0.87)	0.44 (0.93)
Motivation	T1	-0.33 (0.94)	-0.38 (1.21)
	T2	0.63 (0.84)	-0.21 (0.88)
	T3	0.75 (0.88)	0.71 (0.83)
Selecting Main Ideas	T1	-0.41 (1.03)	-0.46 (1.02)
	T2	0.74 (0.99)	-0.34 (1.08)
	T3	0.84 (0.73)	0.93 (0.49)
Self Testing	T1	-0.60 (0.71)	-0.56 (0.70)
	T2	0.47 (0.89)	-0.50 (0.88)
	T3	0.86 (1.03)	0.47 (0.98)
Time Management	T1	-1.32 (1.06)	-0.64 (1.07)
	T2	0.53 (0.92)	-0.44 (1.03)
	T3	0.45 (1.03)	0.29 (0.89)
Test Strategies	T1	-0.64 (1.07)	-0.58 (1.18)
	T2	0.75 (0.71)	-0.31 (0.95)
	T3	0.81 (0.73)	0.96 (0.39)
Using Academic Resources	T1	-0.90 (1.01)	-0.76 (0.91)
	T2	0.19 (1.12)	-0.24 (0.79)
	T3	0.37 (0.70)	0.25 (0.55)

Note. [a] T1= Time One, T2= Time Two, T3= Time Three. [b] Mean scores reported are z-scores.

LASSI. Prior to treatment, all participants completed the LASSI. Scores were

reported to participants as percentiles. Percentile scores were converted to z-scores by the

investigator for analysis. Twenty-five participants completed the LASSI-3 at all three measurement points.

A one way repeated measures ANOVA was performed to compared the effect of treatment on LASSI scale scores at pretest, posttest, and follow-up for each of the 10 LASSI scales. The data reported are based on the Wilks' Lambda statistic. Table 4 summarizes the F statistic, significance, and effect size of the LASSI scale scores. Additionally, Mauchly's Test of Sphericity was performed during each repeated measures ANOVA and a Greenhouse-Geisser correction was implemented for significant Mauchly's tests ($p < .05$). After computing the repeated measures ANOVA, missing data were assigned values using multiple imputation. To complete this imputation, a linear regression analysis was performed using Time One and Time Two scores as the predictor variables and Time Three scores as the criterion variable. Regressions were run for each scale and produced a constant for each scale. Based on the obtained constants and coefficients, missing values during Time Three were imputated for those cases. Table 5 summarizes the F statistic, significance, and effect size of LASSI scale scores including data imputation for missing values.

Prior to data imputation, significant interaction effects were found on the Anxiety scale, $F (2, 22) = 19.80$, $p < .05$, the Attitude scale, $F (2, 22) = 6.16$, $p < .05$, the Selecting Main Ideas scale, $F (2, 22) = 6.45$, $p < .05$, and the Time Management scale, $F (2, 22) = 8.84$, $p < .05$. Using a Greenhouse-Geisser correction due to a violation of the assumption of sphericity, significant interaction effects were also found for the Concentration scale, $F (1.56, 22) = 4.63$, $p < .05$, the Self Testing scale, $F (1.43, 22) = 3.84$, $p < .05$, and the Test Strategies scale, $F (1.51, 22) = 8.11$, $p < .05$. No significant effects were found on the

Information Processing scale, $F (2, 22) = 0.53$, p > .05, the Motivation scale, $F (2, 22) =$ 2.25, p > .05, or the Using Academic Resources scale, $F (2, 22) = 2.35$, p > .05.

After the imputation of missing values, significant interaction effects were found on the Anxiety scale, $F (2, 41) = 17.76$, p < .05, the Motivation Scale, $F (2, 41) = 6.11$, p < .05, and the Selecting Main Ideas scale, $F (2, 41) = 8.77$, p < .05. Using a Greenhouse-Geisser correction due to a violation of the assumption of sphericity, significant interaction effects were also found for the Attitude scale, $F (1.63, 41) = 7.10$, p < .05, the Concentration scale, $F (1.59, 41) = 9.30$, p < .05, the Self Testing scale, $F (1.38, 41) =$ 7.69, p < .05, the Test Strategies scale, $F (1.58, 41) = 9.08$, p < .05, and the Time Management scale, $F (1.73, 41) = 13.27$, p < .05. No significant effects were found for the Information Processing scale, $F (2, 41) = .64$, p > .05 and the Using Academic Resources, $F (1.70, 41) = 2.53$, p > .05, which required a Greenhouse-Geisser correction.

Post Study Questionnaire. In order to determine social validity and inform future research, participants were asked to complete a post study questionnaire regarding their perceived helpfulness of the study and how likely they were to recommend the study to a friend. Additionally, participants were asked to list 2-3 elements of the study they found least and most helpful as qualitative data. Using a 5-point Likert scale, participants rating of perceived helpfulness of the study ranged from 1 (not very helpful) to 5 (very helpful, with a mean rating of 3.77. Participant responses to their likelihood of recommending he study to a friend ranged from 3 (somewhat likely) to 5 (very likely), with a mean rating of 4.31.

Table 4. Learning and Study Strategies Inventory (LASSI) Scale Scores without Multiple Imputation of Data

Scale	Source	F^a	P	Partial η^2
Anxiety	Between Subjects: Group	1.28	0.29	0.05
	Within-Subjects: Time	15.06	<0.001*	0.58
	Within-Subjects: Time by Group	19.80	<0.001*	0.64
Attitude	Between Subjects: Group	0.01	0.92	0.00
	Within-Subjects: Time	7.59	0.003*	0.41
	Within-Subjects: Time by Group	6.16	0.008*	0.36
Concentration**	Between Subjects: Group	0.04	0.91	0.00
	Within-Subjects: Time	19.02	<0.001*	0.58
	Within-Subjects: Time by Group	4.63	0.02*	0.17
Information Processing	Between Subjects: Group	2.96	0.25	0.06
	Within-Subjects: Time	15.01	<0.001*	0.58
	Within-Subjects: Time by Group	0.53	0.60	0.05
Motivation	Between Subjects: Group	0.13	0.72	0.36
	Within-Subjects: Time	4.71	0.02*	0.30
	Within-Subjects: Time by Group	2.25	0.13	0.17
Selecting Main Ideas	Between Subjects: Group	1.96	0.33	0.04
	Within-Subjects: Time	20.99	<0.001*	0.66
	Within-Subjects: Time by Group	6.45	0.006*	0.37
Self Testing**	Between Subjects: Group	1.55	0.23	0.06
	Within-Subjects: Time	24.07	<0.001*	0.51
	Within-Subjects: Time by Group	3.94	0.04*	0.15
Time Management	Between Subjects: Group	0.00	0.96	0.00
	Within-Subjects: Time	7.74	0.003*	0.41
	Within-Subjects: Time by Group	8.84	0.002*	0.45
Test Strategies**	Between Subjects: Group	1.60	0.22	0.06
	Within-Subjects: Time	21.92	<0.001*	0.49
	Within-Subjects: Time by Group	8.11	0.003*	0.26
Using Academic Resources	Between Subjects: Group	0.15	0.55	0.02
	Within-Subjects: Time	12.49	<0.001*	0.53
	Within-Subjects: Time by Group	2.35	0.12	0.18

^{a} Based on repeated measures analysis of variance (RMANOVA) with group (treatment vs. control) as the between subjects factor, and time as within-subjects factor. * Significant at $p<0.05$. **Data reported with a Greenhouse-Geisser correction.

Table 5. Learning and Study Strategies Inventory (LASSI) Scale Scores with Multiple Imputation of Data.

Scale	Source	F^a	P	Partial η^2
Anxiety	Between Subjects: Group	1.55	0.22	0.04
	Within-Subjects: Time	36.01	<0.001*	0.64
	Within-Subjects: Time by Group	17.76	<0.001*	0.46
Attitude**	Between Subjects: Group	0.71	0.41	0.02
	Within-Subjects: Time	16.37	<0.001*	0.28
	Within-Subjects: Time by Group	7.10	0.003*	0.15
Concentration**	Between Subjects: Group	2.10	0.16	0.05
	Within-Subjects: Time	47.91	<0.001*	0.53
	Within-Subjects: Time by Group	9.30	0.001*	0.18
Information Processing	Between Subjects: Group	1.79	0.19	0.04
	Within-Subjects: Time	35.46	<0.001*	0.634
	Within-Subjects: Time by Group	0.635	0.54	0.03
Motivation	Between Subjects: Group	2.02	0.16	0.06
	Within-Subjects: Time	20.37	<0.001*	0.50
	Within-Subjects: Time by Group	6.11	0.005*	0.23
Selecting Main Ideas	Between Subjects: Group	2.45	0.13	0.06
	Within-Subjects: Time	45.95	<0.001*	0.69
	Within-Subjects: Time by Group	8.77	0.001*	0.30
Self Testing**	Between Subjects: Group	4.03	0.05	0.09
	Within-Subjects: Time	47.35	<0.001*	0.53
	Within-Subjects: Time by Group	7.69	0.004*	0.16
Time Management**	Between Subjects: Group	0.38	0.54	0.01
	Within-Subjects: Time	38.64	<0.001*	0.48
	Within-Subjects: Time by Group	13.27	<0.001*	0.24
Test Strategies**	Between Subjects: Group	2.29	0.14	0.05
	Within-Subjects: Time	44.79	<0.001*	0.52
	Within-Subjects: Time by Group	9.08	0.001*	0.18
Using Academic Resources**	Between Subjects: Group	0.41	0.53	0.01
	Within-Subjects: Time	41.73	<0.001*	0.50
	Within-Subjects: Time by Group	2.53	0.10	0.06

[a] Based on repeated measures analysis of variance (RMANOVA) with group (treatment vs. control) as the between subjects factor, time as within-subjects factor, and multiple imputation of data performed. * Significant at p<0.05. **Data reported with a Greenhouse-Geisser correction.

DISCUSSION

The purpose of the current study was to establish the effectiveness of the Time and Organization Preparation System-College (TOPS-C). The study hypothesized that undergraduate students who received the TOPS-C intervention would score significantly higher on all scales of the Learning and Study Strategies Inventory- Third Edition (LASSI-3) when compared to a delayed waitlist treatment group. Additionally, it was hypothesized that participants would maintain or exceed their posttest scores at a 6-week follow-up measurement. Results of the study revealed statistically significant differences for pretest and posttest scores on seven of ten scale scores before the imputation of missing data and eight of ten scores after the imputation of missing data values. Effect sizes and the pattern of statistically significant results were strikingly similar when data were analyzed with and without imputation. Mean scores on the follow-up assessment also increased for most scales of the LASSI-3 when compared to posttest scores for the treatment group.

Scores on the LASSI-3 showed statistically significant improvements with medium to large effect sizes on the Anxiety (partial $\eta^2 = 0.64$), Attitude (partial $\eta^2 = 0.36$), Concentration (partial $\eta^2 = 0.17$), Selecting Main Ideas (partial $\eta^2 = 0.37$), Self Testing (partial $\eta^2 = 0.15$), Time Management (partial $\eta^2 = 0.45$), and Test Strategies (partial $\eta^2 = 0.26$) scales before data imputation occurred. Additionally, the Motivation (partial $\eta^2 = 0.17$) and Using Academic Resources (partial $\eta^2 = 0.18$) scales produced medium effect sizes, even though they did not yield significant results. The Information Processing scale (partial $\eta^2 = .05$) was not significant and had a small effect size. After data imputation was completed, the Motivation scale was also found to be statistically

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significant. The mean scores for all scale score results trended in a therapeutic direction, regardless of significance. These results suggest that the TOPS-C was an effective intervention for most areas assessed in the LASSI-3, with the exception of Information Processing. These results are not surprising, however, as Information Processing was not a task directly targeted by the intervention. The fact that Information Processing was not targeted and did not change for the participants is important, however. This result demonstrates a relationship between targeted skills in each lesson and a rise in LASSI-3 scores, which increases the ability of the researcher to identify TOPS-C as the agent of change for the participants, rather than a confounding variable. While no significant interaction effect was found, the Information Processing scale did result in a main effect of time. This indicates that therapeutic trend for the skill of processing information was possibly due to the effects of time alone. These results are similar to the Using Academic Resources scale results, which had a significant main effect of time without a significant interaction effect. However, the Using Academic Resources scale was approaching significance (p = .10) after data imputation was performed, while the Information processing scale did not approach significance (p = .54) after data imputation.

Importantly, students were able to make gains in most areas that placed them on par, or above, typical undergraduates. The LASSI-3 manual defines a weakness in an area as a score of 50 percent or below, while scores in the range of 50 to 75 percent are areas that may need improvement, and scores above the 75th percentile are areas of strength compared to a normative group of university students (Weinstein et al., 2016). At pretest (Time One for the Treatment group and Time Two for the Delayed Waitlist Treatment group), an average of 66.8 percent of scores were categorized at weaknesses, 21.8 percent

of scores were categorized as needs work, and 11.8 of scores were categorized as strengths on the LASSI-3. However, at Time Three (follow-up for the Treatment group, and posttest for the Delayed Waitlist Treatment group), only 21.3 percent of scores were categorized as weaknesses, while 24.1 percent were categorized as needs improvement and 54.7 percent were categorized as strengths. These improvements demonstrate that the TOPS-C program is likely to improve scores in a meaningful way for undergraduate students.

In regards to social validity, the post study questionnaire revealed the majority of participants found the treatment package helpful and would recommend it to a friend. Subjectively, students also noted what they considered to be least and most helpful to their success. This feedback revealed patterns that contributed to the success of the program for the participant. Participants often felt that sending an email update daily was too often. Additionally, they indicated that they already knew or were proficient at certain topics and did not require all of the sessions to make progress. In contrast, most students reported that the specificity of the study skills and blocks, updating goals weekly, and planning a schedule at the beginning of the week contributed to their success.

The results of the current study showed that the TOPS-C is a viable intervention to help prevent the *paradox of failure* phenomenon, in which smart and capable high school students fail in college due to a lack of preparedness for the autonomous demands of postsecondary education (Perry, Hladkyj, Pekrun, & Pelletier, 2001). The program is easy to administer, requires little preparation time before each session, and can be administered in a group format to reach a wide audience of students at one time. The results of this study are consistent with previous research on the HOPS program, which

influenced the initial development of the TOPS-C program (Langberg, 2011; Langberg, J. M., Epstein, J.N., Becker, S.P. Girio-Herrera, & Vaughn, A.J. (2012). HOPS was developed to teach middle school students organizational skills, and has been shown to increase ratings of planning, homework completion, and the active use of organizational skills in middle school students with Attention Deficit Hyperactivity Disorder (Langberg, 2011). Bordelon (2016) found that similar teaching sessions also resulted in significant increases in Concentration, Motivation, Self-Testing, and Time Management when taught to undergraduate students. The current study expanded this research by including a teaching lesson on study skills and increasing the amount and type of feedback used during the intervention.

Effect sizes for significant results ranged from medium to large, indicating substantial treatment gains. Interestingly, the effect size reported on the Anxiety scale was exceptionally large (partial $\eta^2 = 0.64$). According to Perry et al. (2001), a decrease in anxiety, along with an increase in motivation and self-monitoring, are key components to avoiding the *paradox of failure*. Culler and Holahan (1980) found that undergraduates with high scores on the Test Anxiety Scale had lower grade point averages and inferior study skills than their counterparts. Additionally, von der Embse and Hasson (2012), up to 15 percent of variability in test scores can be accounted for by test anxiety in high school students, indicating that a decrease in anxiety could significantly impact student's scores on college entry exams and other high-stakes tests. While anxiety was not a specific teaching lesson, it was mentioned throughout the intervention as a byproduct of being organized and prepared. The results of the current study indicate that educationally related anxiety could be reduced through a treatment package that does not target anxiety

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directly. These findings could have a significant impact on the approach of treatment used to reduce test anxiety in both school and clinical settings.

The results of the current study also suggest that the improvements made by participants can be significant to their overall academic success. Time management skills have been shown to decrease procrastination a key component to achievement in school (Häfner et al., 2014). The TOPS-C intervention used focused on goal setting as a primary treatment component. Morisano et al. (2010) found that the act of setting behaviorally defined goals increases a number of skills that are important to academic success, such as self-management, effort, and persistence. Study skills and self-regulated learning training are positively correlated with higher grade point averages in university students (Bail, Zhang, & Tachiyama, 2008; Lammers, Onwuegbuzie, & Slate, 2001). Bail, Zhang, & Tachiyama (2008) specifically noted that teaching self-regulated learning directly to students, including reviewing performance of goal-driven behaviors, led to higher retention in university students and decreased the likelihood of failing a class. The current study directly taught self-regulation skills with weekly feedback at teaching sessions using goal-based behavior as the outcome measure.

Self-reflection was emphasized throughout the course as a tool for increasing success inside and outside of school. Flynn and MacLeod (2015) found that student happiness is strongly predicted by academic success, making the skills learned in the TOPS-C valuable in a multitude of ways. Additionally, university students who received coaching in the form of goal setting while contacting a "coach" through technology (phone, email, text messages, social media) were more likely to stay enrolled at their university than their counterparts (Bettinger & Baker, 2014). The current study took this

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research further by using only one form of technology (email) combined with 4 weekly meetings. While longitudinal data on retention rates were not collected in the current study, the same skill concepts were covered. By combining several key components to educational success into a small, feasible, group-based package, the TOPS-C provides typical students with the tools needed to succeed in a university setting.

Limitations

The current study had several limitations that should be considered. Primarily, not every participant completed the LASSI-3 at all three time measurements. Due to the missing data, a multiple imputation procedure was performed to estimate Time Three data points for participants in the delayed treatment control group who chose not to proceed with treatment or were not available for follow-up assessments due to scheduling conflicts.

An additional limitation is this study's reliance on a self-report measure. Although the LASSI-3 has substantive psychometric data supporting its validity the addition of a direct measure of participant behavior in one or more relevant domains would have strengthened the study.

Additionally, several repeated measures ANOVA tests had a significant outcome on the Mauchly's test of sphericity. These scores were corrected using a Greenhouse-Geisser procedure, but the outcome of the Mauchly's test should be considered, as a significant Mauchly's test could indicate an inflated F ratio.

Lastly, the population of participants was limited in scope and diversity of participants. Specifically, participants were pooled from one university setting in the southeastern region of the United States. The majority of the participants were Caucasian,

female, and/or freshman at the university. These population parameters should be

considered when determining the generalizability of the study results.

Future Directions

The results of the study were an encouraging beginning to the study of the TOPS-

C program. This study contributed to the base of knowledge on study skills, time

management, self-management, and what factors aid undergraduate students to succeed

in the educational domain. Additionally, this study introduced a promising new

prevention method for students who lack the organizational and study skills to succeed in

a university setting. Replication of the current study would strengthen the validity of the

TOPS-C as an effective, long-term solution that can be easily used in a high school or

university setting. Beyond replication, future research should focus on longitudinal

outcomes for students and the generalizability of the TOPS-C to diverse populations.

Additionally, participants indicated that they might have been proficient at topics before

the program, such as motivation. Future research should study if only receiving the topics

indicated by pretest LASSI-3 scores would be sufficient for progress. Lastly, the TOPS-C

demonstrated the ability to decrease anxiety surrounding educational issues. These results

are promising as a possible treatment for test and school related anxiety in undergraduate

students, and should be explored in the future.

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APPENDIX A: DEMOGRAPHIC QUESTIONNAIRE

Directions: Please complete the following information.

Today's Date:

Student Information:

Name:

Sex:

Race/Ethnicity:

Age:

Classification/Year in College:

Major/Minor:

Diagnosis or Exceptionality (ADHD, etc., if applicable):

Cumulative GPA:

Email Address:

TOPS-C Lesson Plans

Session One: Paperwork and Pretest

<u>Materials Needed:</u>
Consent form, Demographic Questionnaire, LASSI-3 login information

<u>Agenda:</u>
- Review the study and with participants
    - o Participation Required for Research Credit
- Get informed consent
- Fill out demographic questionnaire and LASSI pre-test
- Quick preview TOPS-C:
    - o 4 topics for lessons: Goal Setting, Time Management, Study Strategies, and Motivation
    - o General outline of session agendas
    - o The main point is for the participants to learn more about themselves and be able to change their own behavior in the future, not only educationally, but in other areas of life.
- Open discussion for session:
    - o What is self-management:
        - ▪ What kind of organizational tools are you using now?
    - o Importance of goal setting:
        - ▪ What are your goals for the semester?
        - ▪ Do you have long-term goals? (Example: Graduate school or employment?)
        - ▪ Think about goals during the next week

<u>Exercise:</u>
Rapport Building: Each participant shares their name, year in school, major, and a fun personal fact. The teacher can also share information about himself or herself to build rapport.

<u>Homework:</u>
Print LASSI test results and review it to make goals. Bring in copies of syllabus and personal schedule next session.

Teaching Lesson One: Goal Setting

<u>Materials Needed:</u>
Binder with school supplies, Self Management Plan, Weekly Schedule, Semester Schedule

Agenda:
- Check homework
- Give out Binders and review paperwork
- Open discussion to lesson: What are your goals for school, life, etc.?
- Goal Setting Lesson:
  - Small, obtainable goals; one large main goal
  - Learning/Mastery Approach goals over Performance goals
  - Assigned Learning Goals
    - Each participant will start with 3 goals, plus the Daily Goal of emailing the teacher. A goal should be made for each section of learning: Organization, Time Management, and Advising/Professor Interaction
    - Some participants may be able to identify a goal for organization, time management, or professor interactions, but many will not be able to do this.
    - If a person has more than one goal in a section, such as time management, but no goal for organization, they can start with those two goals. More goals will develop, as the program proceeds, but this lesson should encourage the participant to think about their behavior and come up with goals through noticing patterns of behavior. Many participants will be unable to come up with goals this early. Ask them to notice their behaviors for the next week and think about goals for next week.
    - Sample goals for participants without goals are:
      - I will check my daily schedule every morning by 8 a.m.
      - I will go to a professor's office hour once per week.
      - I will make my schedule for the week on my weekly sheet by 8 p.m. on Sunday nights.
  - Proximity of Goals: should be close in time; "Don't make the goal to graduate. What are the behaviors you need to do each day to get there?"
  - Accountability through others: find someone to check on you
- Fill out Self Management Plan:
  - 3 goals based on LASSI results plus Daily Goal given to all students
  - Each person states their goals and the group helps them adjust to include specific dates, times, places to maximize success

Exercise:
Fill out weekly schedule together and put in all syllabus dates on the long-term schedule

Homework:
  - Track goals by emailing researcher each day (Daily Goal)

Teaching Lesson Two: Time Management

Materials Needed: White board and markers

Agenda:
- Review homework:
    - Performance feedback on number of days participants emailed and the steps they took towards goals
- Time Management Lesson:
    - Study block planning
        - Time, Place, Method, Materials*
            - Look at study blocks as amount of work to accomplish, not amount of time to fill. For example, "Study Chapter 4" instead of "Study for an hour"
            - List all 4 elements in each study block beforehand
        - Reviewing before and after class
            - Emphasize that every study block should start with a short review
        - Finding a trustworthy person in your class to check-in with for missed notes or assignments before you need them
    - Estimating length of time for activities
        - Actual Schedule versus Ideal Schedule*
            - When your schedule changes, make a note. Use these notes to adjust the time needed to study later for those tasks.
            - Reminder to look for patterns of behavior.
    - Long-term project/test studying planning:
        - Putting in all assignments into long term calendar
        - Breaking down assignments with individual deadlines*
            - Count backwards based on amount of information needed to learn for tests, or amount of writing to complete for assignments
            - Teacher practices this on the white board and asks for student feedback on procedure throughout
        - Reviewing information from previous study session should be scheduled for around one fourth of the time it took to study it during the assigned study block for that material

    - Reminders:
        - Sticky notes, phone alarms, setting multiple reminders: what works for you?
- Self-Management Plan:
    - Make adjustments to plan based on success rate and barriers to success
    - Add goals based on Lesson 3 information

<u>Exercise:</u>
Make a study block schedule for a test 4 weeks from now on four chapters when all of the chapters are of equal difficulty. This is done together with the teacher on a white board. During this exercise, the teacher should have the participants make guesses at how to do it. Next, the participants fill out a study schedule for a test 4 weeks from now on 4 chapters when chapters 2 and 4 are more difficult/have more material to cover.

<u>Homework:</u>
- o Track goals by emailing researcher each day (Daily Goal)
- o Add Time, Place, Methods, and Materials to weekly schedule

Teaching Lesson Three: Study Strategies

<u>Materials Needed:</u> Highlighters (red, yellow, and green), Flashcards, 2 pages copied from any textbook that includes a figure
<u>Agenda:</u>
- Review homework:
  - o Performance feedback on number of days participants emailed and the steps they took towards goals
  - o Read the emails and review for strengths and weaknesses
- Open discussion into session by asking participants about their habits:
  - o Do you know where you like to study?
    - If not, try new places to study (loud, quiet, with people around, etc.)*
  - o What kind of techniques do you use to study now?
- Complete exercise
- Study Strategies Lesson:
  Ordered from shallow to deep learning: Practice each with participants as you teach
  - o Flashcards/Flashcard Apps for your phone*
    - Write definition on one side, word on other; Say word out loud, flip and read definition out loud, then read word out loud and repeat definition without reading
  - o Highlighting*
    - A first step to studying or to make notes from readings
    - Use multiple colors: green for known, yellow for unsure, red for unknown material*
  - o Peer Assisted Learning
    - Work with other students to make sure you have all of the material from a class if you missed.
    - Do not get sucked into group "study sessions" with friends that do not study during this time. This technique should be used after you have a good grasp on the material.
    - Bringing your practice quiz to teach others the material is a good way to review. If you know the material well enough to put it in different words and teach it, you have truly learned the material.

- o Graphic Organizers*
  - ▪ Draw a sample on the board based on the textbook exercise used.
  - ▪ Emphasize this technique as useful for comparing and contrasting material. Cover up some parts of the graphic organizer to show how you can test yourself this way. For example, the main topics of the graph could be different wars fought in history, with details below. The participants can practice comparing and contrasting different wars by covering up the details for one or both topics.
- o Making your own quizzes and tests*
  - ▪ Do this as you go through the material the first time to space the task out
  - ▪ Procedure: Type up blank test and print out 3 copies. Make a test key the first time to make sure the correct information is learned the first time and in its complete form. Study for the amount of time allowed based on long-term planning schedule. Take exam again without the key, then compare to the key, highlighting using the 3 colors by their meaning from above. Study red and yellow more than green, which is for planned review time. Update colors as you study. Before the actual graded exam, take the blank test again.
- o Retrieval practice*
  - ▪ Choose one short fact per day that you are having trouble remembering from your practice test. Stop yourself 3-5 times per day at random times and recall the fact. Continue with new facts as you remember material.
- o Distributed practice*
  - ▪ Do not cram. Space out your study blocks to study each day with a short review.
- o General tips:
  - ▪ Don't re-read textbooks as studying. Rather, take notes the first time and use the notes to study.
  - ▪ Try different things at different times during the learning process. Not every technique works for everyone, but you might be able to use a piece of each to help facilitate your learning. It is just as important to know what does not work for you as it is to know what does work for you.
  - ▪ If you have trouble getting started use the '5 and 2 method.' This means that you set a time for 5 minutes and that is all you are required to study, and then you can take a 2 minute break. Extend the time you study as you get going.
  - ▪ Use easier material at first to build momentum, and then move to harder material.
  - ▪ The day before a test should always be a review day on your study schedule. This ensures that you will not cram for a test.

Exercise:
Selecting Main Ideas: Before the lesson begins, give a photocopied page of a textbook that has a figure included to participants. Give the directions, "I am going to give you a test on this material. You have 5 minutes to take notes. You can use your notes on the test, but you cannot look at the page. Go." Rather than testing them, ask them what strategies they used to try and take notes on new material in a short time. Use this as an opening to the lesson. Main takeaways should be to look for bold words, read the descriptions next to the figure (don't ignore figures when reading), and to summarize information for important ideas. Repeat the exercise after the lesson and discuss any changes they made to their strategies based on the lesson.

Homework:
- o Track goals by emailing researcher each day (Daily Goal)
- o Try multiple methods to see what works for the participant at each stage of learning new material
- o Add or change goals based on Lesson 3 information

Teaching Lesson Four: Motivation

Materials Needed:
Email Tracking sheet; red, yellow, and green markers; Student Support Services sheet

Agenda:
- Review homework:
  - o Performance feedback on number of days participants emailed and the steps they took towards goals

Email Tracking sheet:
- Graphic feedback*
  - o Give everyone the Email Tracking sheet and a red, yellow, and green marker. Tell them which day they emailed on time (green), emailed late (yellow), or did not email (red).
  - o Look for patterns: was it always difficult to email after the weekend? How can you change your behavior based on data?
- Open discussion into the lesson:
  - o How many new study techniques did you try? How did it go?
  - o Hand out candy/small treats as they answer to introduce motivation and reinforce sharing behavior
- Motivation Lesson:
  - o Personal reinforcement for goal completion is important
  - o Intrinsic versus Extrinsic Motivation: Know Yourself and Procrastination Type
    - How many of you procrastinate? Everyone should raise his or her hand. This is a trait of humans.
    - Review difference between intrinsic and extrinsic motivation
    - Ask students to identify their type. They may be a bit of both types.

- If you are extrinsic, you know that procrastination can be detrimental. Use this information to keep it under control.
  - Personal motivators: family, friends, community members
    - Identify your person/people and make sure they know your goals*
  - Learning Contracts
    - Make a contract with your personal motivator with specific goals*
  - Effort:
    - Discussion on how your effort impacts your success
    - Have you ever felt like it did not matter how hard you studied in a class, because you felt like it would not help you pass?
    - If these thoughts come up, you are more likely to fail. Stop these thoughts when you recognize them and remind yourself of the goals you have achieved and make more small, obtainable goals to get motivated.
  - Long-term Career Goals as Motivation:
    - Letters of Recommendation
      - Give recommender your resume and highlight what you want them to say
      - Make it easy for them by filling out the envelope and stamping it
      - Link this back to the original goal of going to office hours once per week
    - Volunteer Opportunities
      - Gives you the chance to try out different areas of interest, add to your resume, and network
    - Research Team Participation
    - Course Sequencing
      - Make an appointment with your advisor*
    - Social Media Consequences
      - Rule of thumb: if you would be embarrassed to be asked about it in a job interview, do not post it.
    - Get a sample application to a graduate school/job wanted and work backwards to fill out the questions*
      - Example: Each application requires an essay on research experience, so start looking at research opportunities before you need to apply
  - Group Contingency
    - Accountability: Finding another person you trust to keep you on track
    - Set Group Goal and Reinforcer
      - If everyone emails with their goal by 8 pm, the entire group gets (group picked reinforcer). If one person does not, the entire group loses (group picked reinforcer).
      - How did that make you feel to hear that? Nervous or excited? Did not care? Noticing these feelings helps you

determine if a group contingency would be a helpful motivational tool for you in the future.
- Student Support Services Worksheet (see end of lesson plans)
    - o It is easier to have this information in one place. For example, when you have a financial aide crisis or your classes are purged, you will be stressed and this will help you know who to contact immediately.
- Discuss Group Termination
    - o Find a new person to email for accountability after the study and eventually just managing yourself
    - o Questions/Concerns
    - o Did the group goal work for you? What have you learned about yourself?
- Self-Management Plan:
    - o Make adjustments to plan based on success rate and barriers to success
    - o Add or change goals based on Lesson 4 information

Exercise:
Pretend that you received a bad grade on Moodle and you don't agree with the grade you received. Write an email to the professor addressing the issue.
- Make sure there is proper letter writing format
- Text is difficult to decipher; it may come off rude when you do not mean to be.
- Think about how you would like an email worded to you. What wording would make you more likely to help someone?

Homework:
- o Track goals by emailing researcher each day (Daily Goal)
- o Add or change goals based on Lesson 4 information
- o Complete Student Support Services worksheet

Session Six: Posttest
Materials Needed: LASSI-3 login information, group reinforcer
- Take LASSI Posttest
- Receive Group Reinforcer, if applicable

*These tips are suggested as new goals added to the goal sheet weekly. Goals should be continuously monitored by participants for opportunities to try new goals and/or increase goal difficulty.

General Notes:
Remember to MIM: (Make It Meaningful). The teacher should always be soliciting involvement from the participants. Ask questions about the lessons throughout the sessions before you teach and reinforce participation. Encourage students to self-reflect, bring up personal examples of times these topics were difficult or easy for them in the past and during the course, and to learn more about themselves through the process by putting genuine effort into the program. Remind the students that goals should be personal and change with success and/or failure. Emphasize that this course is for their improvement.

Try putting the agenda on the white board before they show up. This should include a direction at the beginning, such as "sign in and grab a paper from the front." This simple direction following can bring up needed discussions for following directions during tests and classes, is a simple way to reinforce productive behaviors in participants, and encourages good habits.

Students should put any phone reminder alarms in their phone during the session to ensure it is completed.

Students will not always meet their goals, but encourage the effort towards meeting the goal. The teacher should utilize reinforcement for small changes in behavior throughout each session. As participants get to know each other, encourage them to reinforce each other and themselves. Try to follow up verbal praise with, "So, how did you reinforce yourself?" to emphasize the importance of this skill.
Do spot checks of the participant binders to ensure they are completing their weekly schedules correctly.

STUDENT SUPPORT SERVICES WORKSHEET

Where on campus can I go to for academic advising?

Name:

Email:

Phone Number:

Address:

How they make appointments (online, over phone, etc.):

Where on campus can I go for career advise?

Name:

Email:

Phone Number:

Address:

How they make appointments (online, over phone, etc.):

Where on campus can I go for tutoring or study help?

Name:

Email:

Phone Number:

Address:

How they make appointments (online, over phone, etc.):

Where on campus can I find out about internships, joining a research project, or volunteer opportunities in my major field of study?

APPENDIX C: SELF-MANAGEMENT PLAN

<u>TOPS-C Self-Management Plan</u>

<u>Goals:</u>

<u>Daily Goal:</u>
I will work towards at least one goal and email <u>lsuorganizationstudy@gmail.com</u> by 8 pm with the name of the goal and one detail about how I worked towards accomplishing my goal.

<u>Organization:</u>

<u>Time management:</u>

<u>Advising/Professor Interaction:</u>

<u>My Schedule's Color Code Legend:</u>

Class	Work	Other (Specify):
Study/Homework	Meetings	Other (Specify):

<u>Check-In Details:</u>

When will I email?

How will I remember to email?

What device will I use to email?

How and when will I decide which goal to work towards each day?

<u>How will I reward myself each day?</u>

APPENDIX D: EMAIL TRACKING SHEET

TOPS-C Email Tracking Sheet

Make a check mark each day after emailing lsuorganizationstudy@gmail.com.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
Week 2					
Week 3					
Week 4					
Week 5					

Goals:

Daily Goal:
I will work towards at least one goal and email lsuorganizationstudy@gmail.com by 8 pm with the name of the goal and one detail about how I worked towards accomplishing my goal.

Organization:

Time management:

Advising/Professor Interaction:

APPENDIX E: POST-STUDY QUESTIONNAIRE

TOPS-C Post-Study Questionnaire   Participant # _____

1. How would you rate the helpfulness of this study in terms of helping with your

   daily life?

   | 1 | 2 | 3 | 4 | 5 |
   Not very helpful   Very Helpful

2. How likely would you be to recommend this study to a friend?

   | 1 | 2 | 3 | 4 | 5 |
   Not very likely   Very Likely

3. List 2-3 things that were learned that were least helpful to increasing your success
   during the study.

   1.

   2.

   3.

4. List 2-3 things that you learned that increased your success during the study.

   1.

   2.

   3.

APPENDIX F: IRB APPROVAL FORM

ACTION ON EXEMPTION APPROVAL REQUEST
TO: Ashley Bordelon
Psychology
FROM: Dennis Landin
Chair, Institutional Review Board
DATE: March 15, 2016
RE: IRB# E9840
TITLE: A Preliminary Examination of the Time and Organization Preparation System-College (TOPS-C) with Undergraduate Students
New Protocol/Modification/Continuation: New Protocol
Review Date: 3/15/2016
Approved X Disapproved_____
Approval Date: 3/15/2016 Approval Expiration Date: 3/14/2019
Exemption Category/Paragraph: 1
Signed Consent Waived?: No
Re-review frequency: (three years unless otherwise stated)
LSU Proposal Number (if applicable):
Protocol Matches Scope of Work in Grant proposal: (if applicable)
By: Dennis Landin, Chairman
PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:
1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.
*All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

VITA

Ashley Elizabeth Bordelon, a Louisiana native, received her bachelor's in science degree at Louisiana State University in 2004. She attended Southeastern Louisiana University, where she received her master's in education in 2006 in school counseling. She worked as a behavioral therapist in Newton, Massachusetts for six years before returning to graduate school at Louisiana State University. Under the mentorship of Dr. George H. Noell Jr., she completed her Master of Arts degree in psychology in 2016. She completed a doctoral internship at the Kennedy Krieger Institute at Johns Hopkins School of Medicine in Baltimore, Maryland. Ashley completed a doctoral internship at the Kennedy Krieger Institute at Johns Hopkins School of Medicine in Baltimore, Maryland in July 2018. Ashley has accepted a post-doctoral fellowship position at the Kennedy Krieger Institute's Neuro-Behavioral Unit Outpatient Clinic in Columbia, Maryland beginning September 2018. She anticipates graduating with her Doctor of Philosophy degree in psychology in August 2018.