

HOPE FOR SUCCESS: EFFECTS OF AN ACADEMIC INTERVENTION  
FOR AT-RISK COLLEGE STUDENTS

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## ABSTRACT

Hope theory provides a framework for understanding individual differences in human motivation and ultimately, academic achievement. However, research on the short-term and long-term effects of educational hope interventions is limited. This multi-pronged quantitative analysis of a hope-based intervention demonstrates the combined value of hope, self-determination, and goal orientation theories as guiding frameworks for teaching college students considered at-risk for failure in the context of a study skills course. Results of pre/post questionnaire data suggest the intervention is successful in enhancing constructs related to hope and well-being such as positive affect, optimism, and adaptive coping styles. Content analysis of regular goals set by students as part of their participation in the intervention suggested mechanisms by which positive changes occur. Finally, evidence from longitudinal data analysis including student performance after course completion suggests the intervention may have positive lasting effects that could alter students' academic trajectories. Taken together, results from the three sets of data provide evidence that the intervention helps students learn strategies useful for reaching their goals. The hope—goal orientation—self-determination theory triad seems to provide a useful framework for higher education practitioners and decision-makers to discuss practical means of increasing retention and graduation rates, especially among specific populations considered at risk for failure and/or drop-out.

## DEDICATION

This dissertation is dedicated to my parents, Mike and Lynn Harris, who throughout my life have modeled and nurtured in me a love of learning, which inspired me to start this journey. Your constant support and encouragement helped me finish it.

## LIST OF ABBREVIATIONS AND SYMBOLS

<i>df</i>	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
<i>F</i>	Fisher's <i>F</i> ratio: A ration of two variances
<i>M</i>	Mean: the sum of a set of measurements divided by the number of measurements in the set
<i>SD</i>	Standard Deviation
<i>p</i>	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
<i>r</i>	Pearson product-moment correlation
$\eta^2$	Effect size
<i>z</i>	Computed value of <i>z</i> test
<	Less than
=	Equal to

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## CHAPTER 1

### INTRODUCTION

American institutions of higher education are facing a variety of challenges, including calls for stricter accountability measures, increased access, reasonable tuition rates, improved instructional quality, enhanced career development and placement services, and targeted resources to support student health, well-being, and retention. Such concerns are not necessarily new; in 1987, Chickering and Gamson documented what were, even at that time, popular critiques of higher education: apathetic students, illiterate graduates, incompetent teaching, and impersonal campuses. Their list of best practices in undergraduate education has served as a guide for improving student learning over the past few decades, but there are many indications that Americans may be growing dissatisfied with the degree to which institutions deliver on their promises to students. In spite of tremendous advances in technology and positive changes in campus cultural diversity, why, almost thirty years later, do similar critiques appear to dominate popular opinion when it comes to higher education?

What do students want most when it comes to higher education? In addition to affordability and value, students want to be engaged with content they perceive as meaningful and relevant to their lives and their futures (Hooker & Brand, 2010). In addition, they crave social support, immersive learning experiences with peers, and—not surprisingly—skills and knowledge that will provide advantages needed to “get ahead” in their chosen professions.

Assuming that career preparation is at least part of higher education’s overall mission, opinions vary about the degree to which institutions are successfully equipping students with the

knowledge and skill sets needed for today's professional workplace (Arum & Roska, 2010). There appear to be gaps between what colleges and universities teach and what many employers expect when hiring graduates (Darche & Stam, 2012). Employers rely on colleges and universities to train workers with a wide variety of skills, competencies, and dispositions in addition to basic academic skills (Hooker & Brand, 2010). However, according to the 2011 Pew Report mentioned above, only 55% of the 2,142 adults surveyed agreed that their degrees were "very useful" in preparation for their careers.

While institutions manage criticism for failing to adequately prepare graduates for professional careers, they also deal with effects of the "achievement gap" in America when it comes to entering students. Sharp differences in access to social and financial capital along lines of class and race persist in K-12 systems. As a result, though campus enrollments may be more diverse than ever, college access does not automatically equate to success for all who enroll. A large percentage of students begin college with a lack of academic preparation in one area or another. In the same Pew Report mentioned above, 58% of college presidents indicated that students are arriving on their campuses less prepared than students a decade ago (Taylor et al., 2011). Some need remedial courses in math or English, while others simply need help developing the habits needed to successfully manage college-level work. Overall, the more remediation a student needs, the more likely he or she is to drop out (Boylan, 1999).

Nationwide, retention rates remain cause for concern at most colleges and universities (Bergeron, 2013). What makes the difference between students who find ways to persist through challenges of academic life and others who are unable to make their way to the finish line of graduation? One key factor is motivation: the more motivated a student is to learn, the more willing he or she is to put forth the effort necessary to be successful.

Reporting results from a large motivation study involving 17,000 students at 49 institutions, Berrett (2012) noted that motivation varied more *within* institutions than between them, and that the most dramatic drop in engagement came after students' first year. What factors contribute to these motivational differences? Hooker and Brand (2010) report that uninteresting or irrelevant courses, along with feelings of alienation and/or lack of support, are cited as the primary reasons students drop out of high school. Not coincidentally, the same feelings tend to be cited by college students, especially in large, entry-level "core" courses and on campuses where they may feel marginalized or isolated. Regardless of ability, some students seem to struggle more than others to stay motivated. However, for entering students who are already considered behind when compared to their peers—and thus more at risk for dropping out—finding ways to stay motivated in addressing skill gaps and overcoming difficulties is even more crucial (Padgett, Johnson, & Pascarella, 2012; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996).

Transitioning to college becomes a hallmark of an already challenging set of developmental tasks for young adults. According to Chickering and Reisser (1993), developing competence, becoming autonomous, and managing emotions are among the primary tasks associated with this life stage. Psychologist Erik Erikson (1959) described the gradual integration of a cohesive sense of identity and purpose as paramount. To become successful adults, students must take on increasing amounts of responsibility in selecting goals, managing their own affairs, and learning how to think through and apply solutions for their own problems.

How do colleges and universities set out to meet students' learning and developmental needs, and how effective are these efforts? Kinzie (2012) reported that in many cases, large gaps exist in students' *expectations* about college and their *actual experiences*. This kind of gap may

exacerbate problems for individuals struggling to stay motivated. Too often, faculty and administrators pass the buck, complicating the problem and wasting time in disagreements about who should be primarily responsible for meeting students' needs and "fixing" problems associated with student success and retention. Blame gets shifted, even at times toward the students themselves. Faculty members may make assumptions about students' efforts or motives, judging them as lazy, indifferent, entitled, or beyond help (Allman, Valentine, & Valentine, 2012; Bérubé, 2002). While differences in work ethic certainly exist, some students have not developed the tools, confidence, social and academic skills, and/or knowledge of resources others may take for granted (Terenzini et al., 1996). When faculty, staff, and/or administrators are perceived as indifferent, unapproachable, or less than supportive, students are less likely to ask for help or utilize available resources, putting them at an even greater disadvantage (Padgett et al., 2012).

To direct resources where they appear to be needed most, many institutions develop specialized admissions programs designed to support students deemed at risk for failure and/or retention. Students in this category tend to be "flagged" because of low scores on college entrance exams or poor high school grades. By developing specialized, targeted resources for these students, colleges create a "safety net" to help them fulfill dreams of obtaining a college degree while also providing them as many sources of support as possible.

Promising programs created within recent years have been designed to help bridge the gap between where students *are* and where higher education leaders believe they *should be*, but more work is needed to determine best practices in this area. First-year experience programs and academic support seminars tend to be geared toward easing the transition, providing information about how to access and use campus resources, and attempting to improve students' chances for

persistence to graduation. While the expansion of such programmatic and academic opportunities certainly appears positive, there are gaps in the research when it comes to campus buy-in and the long-term impact of student success courses and programs not only in terms of retention and graduation rates, but also in terms of their impact on student well-being.

When it comes to finding substantive answers to questions about the effectiveness of student success initiatives, most existing studies evaluate results based on students' grade point averages (GPA) earned in college. Limiting the study of complex issues like student persistence and motivation by focusing primarily on GPA reduces and oversimplifies the multiple, multi-dimensional contextual issues described in the preceding paragraphs. Instead of mechanistically attempting to study educational inputs and outputs primarily via grades, standardized tests, and retention rates, could there be other measures available for measuring student learning?

Contributions from the emerging field of positive psychology suggest there may be other tools available for addressing the problems of student engagement and retention, allowing researchers to untangle threads involving complex human variables and their interactions. Positive psychology is a stream of theory and research dedicated to the study of human flourishing (Seligman & Csikszentmihalyi, 2000). Rather than studying human thought and behavior from a pathological or deficit-based perspective, scholars working in the field of positive psychology seek to understand the cognitive and emotional constructs that enable humans to thrive and overcome adversity. Findings emerging from positive psychology studies have shed new light on ways in which cognitive and emotional patterns affect student behavior and motivation.

For instance, the work of Carol Dweck (1986) highlights the influence of a learner's *mindset* on the types of goals he or she undertakes, styles of coping adopted for dealing with

setbacks and/or failure, and the likelihood of *remaining* engaged in challenging tasks even when encountering obstacles. Hope theory provides a complementary line of research underscoring ways in which individuals formulate hopeful visions for the future and use the energy generated from those visions to create *multiple pathways* for accomplishing goals (Snyder et al., 1991), including the will to persevere in spite of setbacks.

When individuals perceive themselves as capable of dealing effectively with challenges, their overall well-being tends to be high. According to Ryan, Huta, and Deci (2008), *well-being* refers not just to the absence of disease, but to the *processes* of living well. According to self-determination theory (Ryan et al.), individuals evaluate the conditions of their lives as positive and satisfying when they are engaged in processes that promote *Autonomy* (a sense of personal control), *Competence* (feeling capable of mastery), and *Relatedness* (meaningfully connected with others). When individuals maintain high levels of well-being, they are not only happier, but also better able to contribute positively to society. Thus, it seems worthwhile to consider well-being not only as a desirable condition within learning contexts, but also specifically as a measurable outcome—a practice that is not yet common in higher education.

Positive psychology principles have been used as a framework for studying and enhancing learning processes and outcomes at all levels, from K-12 to higher education. However, the availability of evidence based on tested interventions within the literature is still sparse. The current study represents an attempt to help fill this research gap by evaluating the impact of an intervention designed to enhance student hope and well-being.

The intervention uses a positive psychology framework (described in detail in Chapter 2) activated as a set of tools used to model and reinforce adaptive patterns of thinking and behavior among students. Evidence suggests that the mindset and types of goal-directed behaviors

described as objectives within the intervention (elaborated in Chapter 3) are linked to higher overall academic achievement and greater persistence in challenging tasks (Dweck, 1986; Folkman & Moskowitz, 2004). The study investigated the role of hope by analyzing students' approaches to setting academic goals, their decisions about appropriate strategies to reach those goals, and the means utilized to sustain motivation and cope with obstacles. The intervention incorporates the assumption that hope can be taught, and that in the process, students develop new interpretive frameworks for seeing and understanding the world and exercising personal control over their own circumstances (Folkman & Moskowitz, 2004; Lopez et al., 2009; Ryan et al., 2008), leading to increases in well-being, sustained engagement, and higher overall academic achievement.

## CHAPTER 2

### REVIEW OF LITERATURE

The sections that follow present a targeted summary of the literature supporting the concepts introduced in the first chapter, including further analysis of the problem and context, student needs that prompted the intervention, and the theoretical lenses used to understand students and their learning experiences. The theoretical lens used to create the hope intervention are contrasted with alternative models employed to describe motivational processes and used within existing interventions designed to boost academic success. The differences that emerge from this contrast allow a clearer view of the utility of a hope- and well-being framework for understanding motivation and creating meaningful, engaging learning experiences that not only help bridge gaps in student preparation, but also contribute to their overall flourishing.

#### **The “Problem”: Why Do Students Struggle to Stay Motivated?**

The issue of motivation is particularly relevant when studying college students as a population. The challenges of navigating the adjustment to college life tests students’ perceived limits on a regular basis, especially in the first year. Students must learn how to handle potential barriers within institutional environments while gaining and refining skills needed to successfully manage the rigor of college work. According to Daly, Witt, Martens, and Dool (1997), there are five reasons why students fail: they do not *want* to do the task(s); they have not spent enough *time* doing it; they have not had enough *help* to do it; they have not had to do it *that way* before; and/or it is *too hard*. In the following sections of this chapter, each of the five factors appears within discussions of student development, motivation, and intervention design.

When students come to campus underprepared, they often experience immediate dissonance as expectations fail to match reality. First-generation students and students from low-income backgrounds tend to report the most significant gaps between their expectations as entering students and their actual experiences (Kinzie, 2012). When entering a university environment, many are shocked to find the expectations and instructional pace to be drastically different from what they experienced in previous educational settings (Bowman, 2010; Hoffman & Webb, 2010; Hooker & Brand, 2010). In high school, many students become accustomed to teachers “spoon-feeding” material, and are able to rely on memorization as a primary study tool--perhaps never truly *learning how to learn*. Effective studying requires a set of tools and skills that take time and practice to master; according to DiPerna (2006), students considered at risk for college drop-out tend to have a narrow repertoire of study skills, and tend to use a “one-size-fits-all” approach to academic tasks.

Staying motivated in the midst of these challenges is a struggle, especially when students are simultaneously attempting to navigate what they may perceive as a convoluted network of college policies and procedures including financial aid, housing, transportation, and course advising and registration (Snyder et al., 2002; Stage, Muller, Kinzie, & Simmons, 1998). Students may feel invisible on large campuses where many entry-level courses are taught by inexperienced or part-time faculty in enormous lecture halls, and where support staff struggle to keep up with the needs and demands of students.

Student motivation may also falter when metrics of success used by faculty members are not clearly defined. Potential roadblocks occur as students struggle to interpret expectations, and faculty members may wrongly assume that students think about and approach learning in ways identical to their own. In a learning context, students are more likely to remain motivated when

they understand how faculty members assign value to elements of the educational process—when concepts, processes, and standards for evaluation are made explicit. When students and instructors are not speaking the same “language,” there are many opportunities for misunderstanding and discouragement (Bransford, Brown, & Cocking, 2000). Later portions of this chapter offer further exploration of factors affecting motivation and theoretical models used to demonstrate the interconnections among them. However, before those relationships are elaborated, the following section highlights developmental forces which likely shape the thinking and behavior of traditional-aged college students.

### **Developmental Tasks Associated with the Transition to Adulthood**

Traditional-aged college students are a unique population to study for many reasons, but especially in light of the scope and magnitude of transitions they experience. Erikson (1956) and Marcia (1966) claimed that core developmental tasks associated with this life stage related to the formation of a cohesive sense of identity, and their work continues to exert a profound influence on the ways in which late adolescence and early adulthood are studied. Processes of career exploration and reflection about one’s own unique abilities is typically nurtured in many ways within college environments. A sense of one’s own talents and capabilities serves as positive fuel in the search for personal purpose and identity (Bowers & Lopez, 2010; Lopez & Louis, 2009). Throughout the exploration process, cognition and emotion come together as interpretive frameworks individuals use to make sense of experiences and act on their environments (Dweck & Leggett, 1988). An interpretive framework thus becomes a filter or lens for deriving and interpreting meaning (Wiggins & McTighe, 2008)—not only about directions and plans for the future, but also influencing day-to-day actions, including engagement in academic tasks.

In addition to acknowledging the effects of meaning-making structures on cognition and behavior, it is also helpful to understand some “big-picture” descriptions of other developmental tasks typical of this life stage. Scholars and practitioners who study college student development draw heavily upon the work of Chickering and Reisser (1993). Chickering’s original theory (1969) defines core developmental tasks or “vectors” of typical developmental trajectories for students. Because of their direct correlations with motivation (described in a later section), three of the seven vectors are particularly relevant to the intervention: *developing competence*, *managing emotions*, and *functioning with autonomy* (Bowers & Lopez, 2010; Folkman & Moskowitz, 2004; Hoover, 2013). As mentioned in Chapter 1, institutions may expect students to demonstrate growing maturity in these areas, but there seems to be little agreement about the role(s) university officials should play in directly facilitating them (Wallace, Ropers-Huilman, & Abel, 2004). Both institutions and students may benefit from dedicated inquiry on this subject.

While Chickering’s vectors have given insights on student development for decades, students entering college in recent years appear to have slightly different patterns compared to cohorts that preceded them. Differences include greater dependence on parents, limited coping skills, and deferred decision making. Consistent observation of such trends led to identification of a new phase of development recognized by some scholars as *emerging adulthood*, differentiated from the adolescent years that preceded it and distinct from many traditional markers of adulthood (Arnett, 2000). Emerging adults tend to be less stable financially and in interpersonal relationships, and less stable in the areas of cognitive and emotional development as compared to more mature adults (Blinn-Pike, Worthy, Jonkman, & Smith 2008).

The impact of the aforementioned trends may take many forms, but one element relates directly to retention: without strong coping skills, students are less equipped to deal with

inevitable challenges of rigorous academic work and career-related decision-making, planning, and preparation. Students typically have a desire for perceived control over their own lives, but may struggle to balance freedoms with new sets of responsibilities involved with the transition into adulthood. Being away from parents for the first time means learning effective time management skills and making daily decisions that directly impact personal well-being, like managing stress and getting adequate sleep, exercise, and nutrition.

Managing one's own decisions also means responding to social pressures to engage in risky behaviors involving alcohol and sexual experimentation—behaviors which tend to have a significant impact on physical and psychological well-being (Berg, Ritschel, Swan, An, & Ahluwalia, 2011; Kern & Friedman, 2011; Schmitt, 2012). Assuming higher education officials recognize that higher student well-being means greater likelihood of student retention and achievement, it is in administrators' general best interest to act in ways that directly support student well-being. According to Kinzie (2012), it is in the first semester that students set the patterns and habits in place that will follow them through college. Thus, institutions' proactive efforts at early intervention have the potential to shape students' habits and attitudes in positive and constructive ways. The following sections explore types of academic interventions designed to support student success. First, however, an overview of applicable trends in learning and motivation theories provides a useful backdrop for understanding the designs and objectives of various intervention approaches.

### **Institutional Support Needed to Facilitate Student Development**

Assuming that institutions have some degree of responsibility for supporting student success, whether through direct intervention or methods integrated within the curriculum, the need for such support is well documented. Many entering students have poorly developed

planning and self-regulation skills; as a result, they often procrastinate in completing academic tasks and may have trouble staying focused on tasks (Alexander & Onwuegbuzie, 2007; Ferrari, O’Callaghan, & Newbegin, 2005; Klassen, Krawchuk, & Ragani, 2008; Steel, 2007).

Underestimating the time needed to do quality work on assignments is a common pitfall experienced by entering students. While tests in high school might have required only one evening of study and review, college examinations cover much more material, and students’ attempts to “cram” are often unsuccessful (Fritzsche, Rapp Young, & Hickson, 2003; Van Eerde, 2003). Even when students see these habits as problems that need to be addressed, many do not know where to start, or exert half-hearted attempts to change habits without a real plan, only to sink back into old patterns when they fail to see immediate results (Parks-Stamm, Gollwitzer, & Oettingen, 2010).

College presents a new reality: more than ever, students must take on active roles in supporting their own learning, planning and organizing their work, and using critical thinking to analyze problems and potential solutions (Rozendaal, Minnaert, & Boekaerts, 2005; Vermunt & Verloop, 1999). Their initial forays into collegiate academics are often marked by “a-ha moments” which are more likely to occur when they reflectively evaluate progress, learn from mistakes, and grow in adaptive coping approaches (Dweck, 1986; Folkman & Moskowitz, 2004; Lopez et al., 2009). But what about students for whom these skills and practices have not been modeled, or who have otherwise failed to develop them prior to entering college?

Social support is commonly recognized as a predictor of success, especially for students considered at risk (Bowers & Lopez, 2010; Richardson, Abraham, & Bond, 2012; Schwarzer & Knoll, 2007). Students who are socially isolated tend to struggle more academically, but those who have meaningful connections and regular opportunities to express feelings, set goals, and

solve problems in a supportive and caring atmosphere are better able to cope (Somers & Piliawsky, 2004; Stage et al., 1998). In one study of the effects of intensive programs like the federal TRIO program geared toward at-risk students, frequency of contact with program staff was the best predictor of retention and GPA (Wallace et al., 2004).

Chickering and Gamson (1987) proclaimed student-faculty interaction as the most important of their seven principles for good practice in undergraduate education, underscoring the value of faculty concern for helping students get through tough times. Schreiner, Noel, Anderson, and Cantwell (2011) reported that the attitudes and behaviors of faculty which contributed most positively to the experiences of at-risk students were those that offered “hope and help”—demonstrating a genuine desire to connect with students and make a difference in their lives. This meant sharing encouragement, taking time to express interest in individual students, and relating to students on their level, balancing challenge with equal amounts of support needed to understand difficult concepts.

Students also need support in the form of guidance in making decisions about the future: they often report feeling overwhelmed with the tasks of choosing a major and career path. The journey from student to professional is often marked by trials and triumphs. Students need help in discerning and activating pathways suitable for reaching their goals and in developing “productive dispositions”—which, according to Darche and Stam (2012), are most predictive of future earnings. The trouble is that most institutions do not directly teach these life skills and habits; where they are offered, they appear to be optional “add-ons” to the curriculum. If explicit links between learning and career competencies are not readily discernible or assigned *value* within an integrated, comprehensive curriculum, students are not likely to make them a priority (Wallace et al., 2004).

The above paragraphs explain college students' major developmental needs and examples of support which may assist them in navigating those challenges successfully. In an upcoming section, further attention is devoted to describing existing student success interventions and their strengths and limitations. To provide background for that discussion, the following section encompasses common sets of assumptions about learning and motivation.

### **What is Authentic Learning?**

Authentic learning equips students with tools for dealing with the complexities of contemporary life (Bransford et al., 2000) and involves organizing knowledge within meaningful frameworks (Edelson & Reiser, 2006). Over the past two decades, societal trends have led to increased attention to the ways learners acquire and use knowledge—especially as U.S. and other global economies transition rapidly from reliance on manufacturing jobs to knowledge- and service-based economies. Many problems in education can be attributed to teaching methods inherited from the Industrial Age which tend to isolate and disassociate facts and bits of knowledge from the frameworks that connect and give them meaning (Ausubel, 1960; Bransford et al., 2000; Sawyer, 2006). Outdated notions of learning as knowledge *transfer* rather than knowledge *construction* inhibit the development of flexible thinking skills needed to thrive in a knowledge economy (Bransford et al., 2000; Scardamalia & Bereiter, 2006; Wiggins & McTighe, 2008).

In learning environments geared toward knowledge *transmission*, students are often accustomed to using rote memorization and primarily engaging in “surface learning” (Hogan & Rabinowitz, 2009; Sawyer, 2006). On the other hand, construction of knowledge within meaningful conceptual frameworks—known as “deep learning”—requires greater mental effort and metacognitive skill. The thinking skills needed to promote deep learning take time and

practice to develop (Anderson, 1982; Craik & Lockhart, 1972; Shulman, 1986; Wiggins & McTighe, 2008). What induces students to put forth the kinds of effort needed to build complex conceptual knowledge? The next section provides several potential explanations.

### **Motivation: Contrasting Explanations**

Why do some students seem more motivated than others? Hansen (2013) cited evidence from a recent report suggesting that differences in ability—as measured by standardized tests scores and/or IQ—do not completely account for variance in student motivation. Even among students who seem to have average or above-average ability, marked differences can be observed in the “cognitive momentum” they demonstrate in pursuit of goals (Snyder et al., 2002). In light of this revelation, traditional characterizations of academic “at-risk” status may fail to capture large groups of students who might also be at risk for poor performance due to low motivation.

A survey of major threads of motivation research gives insight into how scholars from various viewpoints have, over time, attempted to explain the origins of motivation and variety of factors that may promote or thwart individuals’ desire and will to achieve. Major classifications of motivation theory can be understood according to their treatment of *control* and *competence* while others are grouped according to individual processes of *subjective task evaluation* and *goal orientation* (Richardson et al., 2012; Wentzel & Wigfield, 1998).

Motivation theories surrounding the theme of *control* generally reflect that the more perceived control an individual has in a given situation, the more motivated he or she will be to act (Ajzen, 2002; Nowicki & Strickland, 1973; Phares, 1976). The term *locus of control* (Rotter, 1954) describes the extent to which a learner not only feels in control of his or her own circumstances, but the ways in which *attributions* about performance flow from those perceptions. For instance, students with an internal locus of control are more likely to take

responsibility for their own efforts, whereas peers with external locus of control may be more likely to blame others for their failures. In general, an individual with a low sense of personal control tends to feel powerless to act on and improve personal circumstances, leading to a deterioration of effort and a condition understood as *learned helplessness* (Diener & Dweck, 1978; Diener & Dweck, 1980; Seligman, 2011).

Motivation theories centered on *competence* explain behavior in terms of *self-efficacy*—perceived capability to successfully complete the task—and related expectancies (Bandura, 1977; Bandura, 1982). Students with high self-efficacy in skill areas related to a task generally put forth more effort and are more likely to persist through obstacles. Efficacy in confronting obstacles is often referred to as *agency*—a sense of responsibility for one’s life course and confidence in one’s ability to overcome obstacles (Bandura, 1982; Bandura, 1989; Lopez et al., 2009). Agency is negatively correlated with *avoidance* and *aimlessness*—two characteristics often observed in students labeled “at risk” (Alfassi, 2004; Blinn-Pike et al., 2008; Wallace et al., 2004). In reference to the two types of motivation theories described thus far, many academic interventions which situate the development and practice of *self-regulation* as their focus and the “answer” to academic ills may rest on faulty assumptions that students *already* have a sense of personal control and confidence in their abilities to actively generate and sustain effort needed to cope with obstacles and complete tasks.

A third category of motivational theory describes effort as a response to individuals’ *subjective evaluation of tasks*: the interest, utility, value, relevance as understood by the learner. Questions a learner may ponder in assigning value might include “Why am I doing this?” or “What is the point of this activity?” (Eccles & Wigfield, 2002). As instructional purposes and

the relevance of required skills are made clearer, a student is more likely to assign positive value to the task and put forth effort to accomplish it (Bowman, 2010; Bransford et al., 2000).

A fourth group of motivation theories investigate the relationships between goals and the qualitatively different patterns of behavior elicited by contrasting *goal orientations*. Ames (1992) describes relationships between situational cues in learning contexts and patterns in learner behavior. Dweck (1986, 2006) presents evidence that learners tend to operate from one of two mindsets: a *fixed* mindset or a *growth* mindset. Students operating with a fixed (or *entity*) view of intelligence tend to think of ability as innate and carved in stone. As a result, they perceive challenging tasks as potential threats not only to their own positive self-perceptions, but also to others' positive evaluations of their abilities. Afraid of the implications of failure, they tend to avoid tasks which could result in their appearing less than competent, and their typical choice of *performance goals* often reflects an intense desire to "prove" competence in terms of outward performance (Dweck & Leggett, 1988; Elliott & Dweck, 1988).

Conversely, students operating within a growth mindset (or *incremental*) view of intelligence tend to view learning tasks as opportunities to gain competence and expand their abilities and talents; they see challenges as less threatening, and as a result, they are more likely to handle feedback adaptively, persist in challenges, and put forth greater overall effort toward mastery (Dweck, 1986). Consequently, the *mastery goals* they set tend to be geared less toward outperforming peers or gaining positive evaluations from others, and instead directed toward developing deep understanding of concepts through practice and hard work.

While all four threads of motivation theory described above are interrelated and relevant to the enacted intervention, Dweck's work related to *learning mindsets* (Dweck, 1986; Dweck, 2006; Dweck & Leggett, 1988; Elliott & Dweck, 1988) provided the most appropriate context

and theoretical complement to the other constructs in the intervention's conceptual framework and design. The following sections provide additional insights and rationale behind the design, after a general discussion of existing academic interventions and their merits and limitations.

### **Existing Student Success Models and Their Limitations**

A popular model used to teach the techniques and tools considered necessary for academic success is the *Learning and Study Strategies Inventory* (LASSI) and its ten accompanying study-skill based modules (Weinstein, Schulte, & Palmer, 1987). The ten areas included in the LASSI assessment and related electronic teaching modules include *Time Management, Attitude, Motivation, Concentration, Anxiety, Test Strategies, Information Processing, Selecting Main Ideas, Self-Testing, and Study Aids*. The LASSI is effective in some ways and mechanistic in others, emphasizing inputs and outputs with little effort given to explain why particular strategies seem to work better than others. This tends to create an environment reminiscent of outdated, assembly-line, *instruction-centered* styles of education which praise conformity and in which many students grow bored and lose interest in learning (Barr & Tagg, 1995; Sawyer, 2006; Weimer, 2002).

Just as workers in factories often become disengaged when they feel no ownership or autonomy over processes, learners often feel the same way when they do not understand what they are being asked to do, not allowed or expected to give input, or when they fail to see how pieces connect to a larger purpose (Cleary & Zimmerman, 2004; Diener & Dweck, 1980; Richardson et al., 2012; Ryan et al., 2008; Van Ryzin, Gravely, & Roseth, 2009). It is not difficult to imagine how excessively mechanistic learning contexts can reinforce rigid formulas about "right" ways to learn, and ideas about who is most capable of learning. In oversimplified, formulaic approaches to learning, what is often lost is an appreciation for the importance of the

“moving parts”: *human forces* like emotion, individual differences in coping, and overall resulting patterns of behavior and effort (Alfassi, 2004; Bransford et al., 2000; Dweck, 1986; Snyder et al., 2002).

The LASSI system had been used with the study population for several years prior to introduction of the intervention described herein. Instructors using LASSI at the research site noted that students did not find its modules engaging, and described the content as repetitive and dull. While there is evidence that the LASSI assessment serves as a useful predictor of college achievement for students admitted through standard admissions processes, several studies demonstrate that its predictive capacity does not extend to students considered “at risk” (Deming, Valeri-Gold, & Idleman, 1994; Hulick & Higginson, 1989; Ickes & Fraas, 1990; Mealey, 1988).

If personal control and agency can be thought of as *prerequisites* for self-regulation (as described in the previous section on motivation theory), then interventions which fail to acknowledge their roles as motivational catalysts may do more harm than good, compounding students’ feelings of shame, anxiety, and hopelessness. Indeed, self-regulation ought not to be promoted as an “end”; instead, if through instruction its underlying processes are made more explicit and tangible, the steps become easier to enact as “means” to more meaningful and satisfying ends: *authentic learning* and *mastery* (Collins, 2006; Ryan et al., 2008).

It appears that some existing student success course models offer valuable tools for improving cognitive processing of information, but may fail to effectively address the complex interaction of deeper “human” cognitive, metacognitive, and affective variables at work behind the scenes (Fowler & Boylan, 2010; Marchand & Gutierrez, 2012). Little if any attention is devoted to developing students’ awareness of the affective roots of mindset and behavior, or to the cultivation of intellectual virtues, character strengths, and “habits of mind” (Berrett, 2012;

Peterson & Seligman, 2004) which contribute to or constrain acquisition and practice of advanced learning strategies. Thus, in order to enable “at risk” students to flourish, additional considerations beyond basic study skills may be needed to help them *confront* and *develop tools for overcoming* significant obstacles they may encounter in their academic careers.

As mentioned earlier in the paper, emotions play a powerful role in motivation, and the ways in which we experience them directly affect our subjective well-being (Smith & Lazarus, 1990). Emotions are products of cognitive processes (Lazarus, 1982); thus, it is logical to assume that coping skills can be taught (Folkman & Moskowitz, 2004; Vance, 2001) in the context of an intervention. Learning to respond effectively to failures or setbacks reduces anxiety and other negative emotions, and also builds positive emotion and improves resilience (Bowers & Lopez, 2010; Folkman & Moskowitz, 2004).

Lopez (2013) describes a developing *growth mindset* as a catalyst, igniting processes of hopeful thinking and action. Once students begin practicing hopeful ways of thinking and coping with challenges, they are more willing to engage in the work of active, self-regulated knowledge construction (Cleary & Zimmerman, 2004). Over time, students who once operated from a fixed mindset can go from labeling themselves as failures to accepting their mistakes and redoubling efforts for a better outcome the next time (Lazarus, 1982; Smith & Lazarus, 1990). Instead of blaming teachers when they have trouble understanding material, they take greater responsibility for seeking out help and sticking with a task even when they find it difficult (Hoffman & Webb, 2010).

Upcoming sections describe how the intervention design emerged from the fusion of hope theory with Dweck’s theories related to mindset (goal orientation). Before moving to that

explanation, however, hope is situated as the selected framework for understanding variations in motivation and persistence.

### **Positive Psychology: New Insights into Motivation and Behavior**

The positive psychology movement was introduced in Chapter 1 as a wave of research dedicated to the study of human flourishing, including patterns of cognition, emotion, and behavior which promote well-being. Studies in positive psychology provide potential alternatives to existing metrics and constructs used as explanatory tools in education, including those related to motivation. Studying complex human variables and their interactions may help clarify the role of “human” elements (including those referenced earlier as often overlooked components of existing student success interventions) in learning processes and contexts.

#### **Positive psychology starts with recognizing human strengths.**

In order to situate positive psychology properly within education, it makes sense to start by describing a “strengths-based” approach to learning. Most modern societies view education as central to processes of positively shaping human character and intellect and maximizing human potential. The goal of strengths-based education is to promote optimal functioning by helping individuals identify and hone their unique talents (Bowers & Lopez, 2010; Lopez & Louis, 2009). In strengths-based education philosophy, talent refers to naturally recurring patterns of thought or ability that can be productively applied across multiple contexts (Buckingham & Clifton, 2001). When talents are developed into true strengths, this gives individuals the ability to deliver consistent, near-perfect performance in a given activity (Clifton, 2002). Students who are *aware of* and *have opportunities to do what they do best* are ultimately more engaged in their work (Csikszentmihalyi, 1990; Louis, 2011).

According to Bowers and Lopez (2010), positive emotions result from perceived success in goal pursuits. Doing what we do best also brings satisfaction, building even more positive emotional resources and galvanizing us for future hopeful action (Fredrickson, 2001; Lopez, 2013). Stores of positive emotion serve as “buffers” for dealing with challenges and obstacles, in contrast with the desire to disengage when all we see are our limitations (a common result of deficit-based models). According to Lopez and Fredrickson, buildup of negative emotion can not only hinder progress, but can also function as a set of “blindness,” limiting our perceived options for coping. Evidence from strengths-based educational interventions suggests that these approaches intensify individuals’ sense of purpose while building positive emotion, self-efficacy, and momentum—revealing new solutions, opportunities, and avenues for action (Bowers & Lopez; Lopez & Louis, 2009).

To demonstrate alignment to the principles of strengths-based education, learning environments should include measurement of students’ strengths; individualization or tailoring of methods to student needs and interests; networking with others who affirm students’ strengths; and deliberate application and intentional development of said strengths (Lopez & Louis, 2009). A strengths-based approach to education helps students discover and develop strengths while acquiring new knowledge and skills needed to think critically and solve problems. In a 2010 qualitative study, students who were best able to capitalize on their strengths utilized continual social support and feedback, referenced past successes for insights on handling future challenges, and demonstrated greater overall effort and persistence (Bowers & Lopez, 2010). Discovery, development, and application of strengths do not necessarily represent an end in themselves. In effect, mobilizing strengths can become a vehicle for accomplishing goals and a kind of “fuel”

for agency. Through teaching students how to capitalize upon them to accomplish goals they consider personally meaningful, we enable students to generate their own “brand” of success.

### **Emotions and coping.**

Human emotion plays a powerful role in human behavior, including choices we make related to learning and effort (Folkman & Moskowitz, 2004; Scheier & Carver, 1992; Watson, Clark, & Tellegen, 1988). For instance, positive emotion can provide the “spark” needed to enthusiastically pursue goals, while anxiety and other negative emotions interfere with cognitive processing (Ashcraft & Kirk, 2001). Many scholars have in various ways explored the impact of negative emotions on behavior, performance, and interpersonal relationships. Within positive psychology, much attention is given to the effects of positive emotion, adding to a collective set of understandings about the overall power of emotion in motivation and learning. While some think of positive and negative emotion as two ends of the same spectrum, evidence suggests that they are instead two separate constructs measured on independent scales (Shiner & Caspi, 2003; Watson et al., 1988).

Within learning environments, individuals experience both sets of emotions in response to cognitive interpretations of events. When a situation is appraised as stressful, Folkman and Moskowitz (2004) define *coping* as thoughts and behaviors used to manage the demands associated with a task or situation. Cognitions driving the emotional reactions can include thoughts about tasks, about our own feelings of competence or prospects of success, about peers, and many other aspects of learning. When experiencing negative emotions such as anxiety related to some perceived risk or threat, individuals can employ a variety of coping mechanisms to deal with the threat. Some styles of coping are considered more adaptive than others (Alexander & Onwuegbuzie, 2007; Folkman & Moskowitz, 2004; Lazarus, 1982). Learning

effective coping strategies “frees up” mental resources that can be devoted to advanced cognitive processes (Hogan & Rabinowitz, 2009)—producing effects similar to the removal of the proverbial “blindness” described in a previous section.

Individual differences in coping styles relate to the mindset from which we tend to operate; students operating from the *fixed* mindset tend to view setbacks and failures less adaptively, and therefore tend to cope less effectively than their peers operating from a *growth* mindset (Dweck, 1986; Dweck, 2006; Elliott & Dweck, 1988). In addition to perceiving failures as pervasive verdicts on personal ability, students with fixed mindsets often miss opportunities to learn from feedback in the same way their peers with growth mindsets choose to do. Thus, learning tools and strategies useful for effectively coping with setbacks is vital to motivation and achievement; when students learn to use these mechanisms, they incorporate views of success and failure that result in agency-inducing cognition. Related skills and patterns of behavior have direct influence on personal well-being, which is discussed in the next section.

### **Well-Being: Feeling good or building a good life?**

In the context of this study, well-being is conceptualized not only as the physical absence of disease, but in terms of individuals’ overall thriving and life satisfaction. Some traditional definitions of well-being have focused solely on affective, subjective elements (known as hedonic well-being), while others encompass an enduring view of psychological, existential elements such as personal growth, autonomy, and meaning in life, characterized as eudaimonic well-being (Ryan et al., 2008; Ryff, 1989). Rather than being focused on subjective or fleeting hedonic feelings of happiness or pleasure, the emphasis in eudaimonia is “living well”—practicing habits that contribute to a deeper, more enduring definition of life satisfaction (Diener & Seligman, 2002; Keyes, Schmotkin, & Ryff, 2002; Seligman, 2011).

Self-determination theory provides a particular framework for understanding ties between behavior and well-being (Deci & Ryan, 2000; Ryan et al., 2008). Self-determination refers to mindful, autonomous goal choice based on intrinsic motivations, set in contrast to the types of external rewards and inducements upon which other individuals may rely. The four motivational concepts associated with self-determination theory are as follows: (a) *Pursuing intrinsic goals* (i.e., learning for its own sake); (b) *Behaving in autonomous, volitional ways* versus heteronomous or controlled ways; (c) *Being mindful and acting with a sense of awareness*; and (d) *Behaving in ways that satisfy basic psychological needs for competence, relatedness, and autonomy* (Ryan et al, 2008). Learners high in self-determination practice the kind of awareness needed to sustain action, keeping in mind not only the “what” or *content* of freely-chosen goals, but also the “why”—the *purposes, needs, and values* being nurtured in the striving.

So how do individuals build self-determination? How do they come to value and “own” goals? Over the past two decades, scholars studying hope have come to view it as a new way of thinking about motivation (Lopez et al., 2009; Snyder et al., 1991; Snyder et al., 2002)—one that links cognition and emotion with behavior. According to well-being research conducted across the globe by the Gallup organization, hope is a reliable predictor of effort and engagement, which, in turn, promote well-being and achievement (Lopez, 2010; Ryff & Keyes, 1995; Seligman, 2011).

With this in mind, the study detailed in Chapter 3 is aimed at evaluating the effects of an intervention designed to support student success and well-being by *starting* with hope. In addition to promoting academic success, the intervention is designed to enhance student well-being by assisting students in solidifying a sense of purpose, building personal autonomy and mastery in learning endeavors, and finding satisfying connections and belonging in the campus

context—all central aspects of psychological well-being (Keyes et al., 2002). Individuals with high overall well-being are likely to perceive themselves as having the internal resources or capacity to persist in challenging circumstances, and hope helps activate the processes needed to do so. The following section provides further explanation of the construct of hope and the ways in which it is operationalized and studied, specifically in education.

### **Hope As Way to Connect Future “Dreams” to Present Actions**

When individuals dream about the future, those visions can often seem distant and “fuzzy.” However, when we use those ideas and the excitement generated from them to convert ideas to action, we demonstrate hope. Hope is characterized as a human strength—a three-pronged cognitive construct characterized by contingency thinking and demonstrated in one’s perceived capacity to (a) generate *goals*; (b) envision multiple routes or *pathways* for accomplishing goals; and (c) sustain energy or *agency* needed to persevere in spite of obstacles (Lopez et al., 2009; Snyder et al., 1991). Instead of being operationalized as an emotion, hope is instead understood as a complex motivational system in which emotions follow cognitions about goals (Snyder et al., 2002).

Hope is considered a *cognitive* construct because of the assessments and decisions involved in envisioning prospects within a desired future, turning those visions into concrete goals, choosing and enacting appropriate strategies, and working through inevitable obstacles. Hope theory places equal importance on the three constructs or types of cognition that occur: the “what” of goal selection and appraisal, the “how” of generating multiple pathways to a goal, and the “why” of agency—purposefully persisting and generating solutions to inevitable challenges. In this way, hope serves as a link between emotion, reason, and behavior (Lopez, 2013): all three are needed to ignite and sustain motivation.

### **What does hope look like in action?**

The influence of hope can be observed not only in its correlations with greater academic performance, but also with greater social skills, creativity, and coping and problem solving abilities (Lopez et al., 2009; Onwuegbuzie & Daley, 1999). Students who score low on the hope scale are more prone to anxiety, self-doubt, and negative “self-talk” that interferes with studying and learning processes (Michael et al., 2006; Snyder, 1999). Students with high hope tend to report having a greater sense of purpose, and are likely to set many goals. Perhaps due to their higher perceived competence, they are more likely to respond adaptively to feedback, whereas their low hope counterparts often miss opportunities to use feedback adaptively in order to improve future performance (Onwuegbuzie, 1998). If students are too overwhelmed or discouraged to attend to cues from feedback, the processes or keys to success may seem obscured, indiscernible, or completely out of reach.

Previous hope studies have revealed that students with low scores on the hope scale demonstrate characteristics of *learned helplessness*: the idea that one can do nothing to change an undesirable situation. In contrast, “high hope” individuals exhibit characteristics of what Seligman (2011) calls *learned optimism*: a way of interpreting events as temporary and changeable, reflecting an internal locus of control and an active stance toward coping and problem-solving (Reivich & Gillham, 2003). Thus, hope represents a strong link between beliefs and resulting actions: individuals with high levels of hope believe the future will be better than the present, *and* that they have the power to make it so (Lopez, 2013).

### **How is hope measured?**

Hope is recognized as hinging on contingency (“if/then”) thinking because of its emphasis on our own perceived capacities (*efficacy expectancies*) as well as *outcome*

*expectancies*, or how optimistic we feel about our chances of success (Lopez et al., 2009; Snyder et al., 1991). Snyder and his colleagues validated the original Adult Hope Scale in 1991, and since then, other versions of the scale have emerged as others became interested in the work. Critics of hope theory tend to converge around a couple of arguments: one, that hope is too “squishy” or ephemeral—that its scholarly definition differs too much from ideas about hope in the general population (Ehrenreich, 2007; Tong, Frederickson, Chang, & Lim, 2010).

The second major source of criticism originates from debates contesting the validity of hope as a stand-alone construct—that insufficient evidence exists to separate it from related constructs such as optimism and self-efficacy (Aspinwall & Leaf, 2002; Tennen, Affleck & Tennen, 2002). Whereas *self-efficacy* generally refers to one’s perceived capability in a specific area or set of tasks (Bandura, 1977), hope is thought of as a general cognitive “set” that applies across situations (Snyder et al., 1991). While hope does demonstrate positive correlations with both optimism and self-efficacy, hope predicted well-being even when controlling for self-efficacy and optimism (Kashdan et al., 2002; Snyder et al.).

When contrasted with the related construct of *optimism* (Scheier & Carver, 1985) hope is distinct in that it goes beyond general positive outcome expectancies and involves *actions undertaken* to bring about those ends. While optimism or positive thinking are often embraced as essential to any successful endeavor, scholars studying hope warn that optimism can actually *undermine* individuals’ progress if unaccompanied by realistic views of potential obstacles and hopeful plans of action for dealing with them (Lopez, 2013). Thus, hope stands out as a separate construct representing the *interaction* of efficacy & outcome expectancies—beliefs like “things will turn out well” *and* “I have the ability to achieve the desired outcome” (Snyder et al., 2002).

## **Why Include Hope in an Academic Intervention for College Students?**

In educational contexts, hope is useful for describing goal-related learning behavior and predicting the level of effort a student may exert in pursuit of a goal (Snyder et al., 1991).

Scholars studying hope have concluded that hope can be taught, and in teaching hope, we also teach students how to engage in *cognitive reappraisal*, effectively improving the quality of their choices about how to persevere toward a goal in spite of difficulties.

Hope theory was originally tested and studied in therapeutic and clinical settings as a mechanism for understanding patients' and clients' motivations for following treatment regimens and otherwise engaging in behaviors to support their own well-being. However, studies taking place over the last 15 years have demonstrated many positive applications of hope in education not only as a means of predicting and improving students' academic performance, but in enhancing their overall well-being as well. In multiple studies, hope added to the predictive power of traditional measures of student achievement, including standardized test scores, prior grades, IQ, and socioeconomic status (Lopez et al., 2009; Snyder et al., 2002). In a 6-year longitudinal study, college students with high hope were more likely to graduate, and hope predicted overall grade point averages even when controlling for entrance exam scores (Snyder et al., 2002). Students who scored low in perceived capacity to activate pathways and agency not only performed worse academically, but they also experienced more anxiety and were more likely to become discouraged and give up, as compared to their "high hope" peers.

### **"Practicing" hope.**

Several hope studies seem to suggest that hope *can* be taught; that is, when hope-building interventions are in place, classrooms can become laboratories for practicing contingency thinking and hopeful action. Instructional design that gives students appropriate levels of

autonomy and facilitates opportunities for reflection on goals and strategies for developing mastery can increase learners' engagement. Because it appears that hope is socially primed (Lopez et al., 2009), the influence of educators and peers seems to carry a powerful influence in reinforcing hopeful thinking and behavior. Snyder, who pioneered the development of hope theory, underscored the importance of building trust in the classroom, and called teachers "caring coaches" who guide students in generating cognitive routes and sustaining momentum toward goals (Ritschel, 2005).

This can happen regardless of where a student "finds" or derives hope: when asked about the sources of their own hope, some cite belief in themselves, while others point to deeply held values within the heart. Still others believe hope comes from belief in a higher power or subscribing to a set of sacred religious or spiritual beliefs. Regardless of the perceived sources, hope seems to have the same effects on effort and persistence (Lopez, 2013).

Practicing hope can help students shed ineffective study-related behaviors such as procrastination, since hope and avoidance are negatively correlated (Snyder et al., 2002). Hope actually mitigates procrastination, because it involves more realistic appraisal of challenges and leads individuals to adopt better strategies for planning and persistence (Alexander & Onwuegbuzie, 2007). In using positive reappraisal, students are actively dealing with stressors and judging them as within their realm of control. Otherwise, college students who continually feel overwhelmed are more likely to avoid or dread tasks, risking not only failing grades, but also damage to their psychological well-being.

### **Goal appraisal as part of hope interventions.**

Because the three interdependent constructs of hope are equally important within the theory, creating an intervention to raise hope should not neglect processes associated with the

selection and appraisal of goals. Goals are indeed independent of the strategies used to reach them, and yet those distinct processes must be linked. If goals are not carefully selected at the outset, the likelihood of reaching them may be reduced.

Exploring the process of goal appraisal involves asking questions that ultimately attempt to link goals to a larger sense of purpose and meaning for one's life. Goal content and orientation have been discussed in earlier sections as the "what" and the "why" of goals. Coaching students in building hope should, then, involve support in articulating goals. In this process, teachers can pick up on the underlying beliefs and metacognitive strategies that influence the development of students' plans. Armed with this knowledge, teachers can help students expand their view of available options and model the cognitive skills related to hope, making them explicit and giving feedback as students work to develop and practice them. With experience and guidance, students' strategies can become increasingly sophisticated, connecting present reality to a desired future through concrete, measurable behaviors.

### **Pathways: Strategies for accomplishing goals.**

Throughout the hope literature, the three competencies of hope—*goals*, *pathways*, and *agency*—are described as interconnected and equally important (Lopez et al., 2009; Snyder et al., 1991). Hopeful people set many goals and are able to envision *multiple* paths to a single goal. Having multiple paths available is the result of contingency thinking, so that when obstacles occur, the student is not at a dead end. Pathway generation is considered a skill that can be learned, and one that is vital to college success (Snyder et al., 2002).

### **Agency sustains energy and motivation in goal pursuits.**

No matter how thorough one's plans and pathways may be for accomplishing a particular goal, the strength to sustain one's drive and motivation is essential for enduring obstacles and

setbacks. Agency refers not only to the emotional energy that ignites and sustains hopeful action, but also to the sense of *perceived control* individuals feel over their circumstances. The greater the sense of agency, the more likely a person is to believe “I can get there from here,” and act on that belief by investing the effort needed to make goals happen (Lopez, 2013).

### **Summary**

The preceding sections described the theoretical framework used to generate the intervention used in the current study, as well as the context and ways in which student development, student learning, and motivation have been studied over the past several decades. The next chapter details the intervention itself, followed by the four research questions and methods used to study its effects in both short-term and long-term analyses.

## CHAPTER 3

### METHOD

The academic intervention described within this paper is situated within a graded, 3-credit hour college level course entitled *Introduction to Learning Strategies and Skills*—a course designed to enhance student academic performance, retention, and persistence toward graduation. This course—and courses with similar overall objectives offered at universities throughout the United States—aims to help students overcome gaps in college preparation through acquisition and practice of habits, skills, and attitudes considered vital to academic achievement. Because the intervention described here embraces ideas and concepts from positive psychology as its foremost principles and drivers of student success and well-being, its unique design needed empirical testing in order to draw reliable conclusions about its effectiveness in achieving desired outcomes. Sections of this chapter detail the following: intervention components and their interrelations; discussion of contrasts between the current intervention model and the one previously used in the course; descriptions of the study sample; and procedures used to collect and analyze data.

As the data was collected and analyzed according to methods described in this chapter, emerging patterns not only captured details of student experiences from start to finish within a single semester, but also tell a broader story of the intervention's long-lasting effects. By comparing the performance of students completing the intervention since its implementation in Spring 2012 (in terms of grade point average and progress toward graduation) with a group of similarly qualified students who did not participate in the course, it was possible to detect and

explore interpretations of observable contrasts in the experiences of the students who participated in the intervention and those who did not. The research questions used to frame the study are detailed in the sections that follow.

**Research Question 1: Do Students' Hope and Well-Being Levels Change over the Course of the Intervention?**

The first research question was designed to explore potential changes in students' hope and well-being over the course of the intervention. Changes in hope and well-being were tracked via pre- and post-administrations of a survey containing instruments relevant to the constructs and outcomes described in Chapter 2, including the Adult Hope Scale (Snyder et al., 1991); the Revised Life Orientation Test or LOT-R (Scheier, Carver, & Bridges, 1994); the Strengths Self-Efficacy Scale (Tsai, Chaichanasakul, Zhao, Flores, & Lopez, 2014); the Brief COPE Questionnaire (Carver, 1997); the Positive and Negative Affect Schedule or PANAS (Watson et al., 1988); and the Basic Psychological Needs Scale (Deci & Ryan, 2000).

**Research Question 2: If Results of Research Question 1 Suggest that Changes in Hope and Well-Being Occur, Do Some Students Appear to Benefit from the Intervention More than Others?**

After examining changes in hope and well-being, the investigator looked for evidence in the pre/post questionnaire data that suggested whether particular students or groups of students appeared to benefit more than others from the intervention (see Data Analysis section for rationale that guided decisions about which instruments to include in the questionnaire as well as the types of analyses used to understand the data). Because of the nature of the intervention, it was helpful to know whether particular subgroups of students considered “vulnerable” or at risk for failure responded more or less favorably compared to other students who enrolled in the

class. Repeated measures ANOVA were used to examine within-subjects effects from T1 to T2, and between-subjects factors such as gender, ethnicity, admit type (category of admission status to the institution), first generation student status, served the important function of revealing potentially significant differences among groups in how they responded to the intervention.

### **Research Question 3: Do Students' Goals Change or Evolve over the Course of the Intervention?**

In addition to the data collected in the pre- and post-surveys described in Research Questions 1 and 2, the investigation also included an analysis of students' goal-related cognitions and behaviors. Students participated in weekly goal-setting assignments in order to practice concepts and skills taught in class (see Appendix C for goal template). The investigator looked for patterns of change over time in the framing of each student's goals, and in the strategies planned for accomplishing them. Using an original coding rubric created for the express purpose of evaluating these goals, the investigator analyzed five goals from each student in the sample. The conceptual framework detailed in Chapter 2 guided the goal coding rubric design, which is explained in more detail in the upcoming section dedicated to *Research Question 3 Data Collection and Analysis*. To view the rubric, see Appendix D.

The rationale for coding students' goals was threefold: (a) to determine the degree to which students actually *achieved* the goals they set each week; (b) to note whether the strategies employed for reaching goals became gradually more sophisticated over the course of the semester; and (c) to consider potential links between the *content* of students' goals and plans and any changes observed in their hope scale scores from T1 to T2. Evaluating students' goals as described here offered one means of assessing the intervention's effectiveness in teaching

students to set goals which—according to the evidence presented in Chapter 2—tends to increase likelihood of goal attainment, build hope, and enhance students’ overall well-being.

#### **Research Question 4: Do Longitudinal Data Suggest that the Intervention Has Positive Long-Term Effects?**

While the first three research questions involved analysis of data collected within a single semester, the fourth and final research question was set up to explore potential long-term effects for students who participated in the intervention in previous semesters. If the intervention appears to support positive changes in hope and well-being (and if those changes are driven by adoption of new behaviors, habits, and ways of thinking), such benefits could be assumed to continue beyond completion of the course, thus potentially altering the trajectory of students’ academic paths. In order to explore these possibilities, the investigator created four groups for comparison: students who took the course prior to implementation of the hope and well-being framework (Group A); students who took the course in the hope and well-being intervention format (Group B); and two groups of students with similar academic qualifications (here, high school GPA and ACT and/or SAT exam scores) who were also considered “at risk.” The latter two groups of students include students who took a different “student success”-type course at the same institution (Group C) and students who did not take any such course (Group D).

The Office of Institutional Research and Assessment and the Office of the University Registrar provided data (with all personally identifiable information removed) on the four sets of students described above. Upon obtaining the requested information for the four groups, the investigator began comparing the student data in two key areas: (a) cumulative institutional grade point average; and (b) overall progress toward degree completion (for BEP 110 students, the number of credit hours completed since they took the course). If students who took the

course since implementation of the new model demonstrated greater achievement in one or both areas, such evidence would suggest that the intervention does indeed have lasting positive effects.

### **Summarizing contrasts: “Old” Course Model (A) vs. Current Intervention (B)**

The first major departure from the previous model involved the “recasting” of course objectives in the context of a hope and well-being framework, lending a wholly different interpretive framework for the application of relevant strategies and skills (for a listing of course objectives, see Appendix A). Weekly goal-setting activities guided students in ongoing practice of articulating personally meaningful goals, breaking them down into concrete steps or pathways, and finding ways to persist in spite of obstacles. The intervention’s second major change allowed for the rearrangement of course meetings, making room for weekly small group experiences. In these meetings, students received individualized instructor feedback and coaching to help reinforce new habits, attitudes and skills associated with course objectives. Thus, instead of focusing primarily on teaching study skills, the structure and content was reconfigured as an intervention designed to build students’ hope and well-being, with study strategies and skills situated as instrumental tools and pathways useful for maximizing the quality of one’s effort, enhancing the probability of goal attainment, and optimizing avenues for personal growth.

Activities within the intervention represent intentional design decisions selected for their value in influencing a shift in the interpretive frameworks students use to make sense of academic life and to choose actions they believe will bring about desired levels of achievement. The course goes beyond simply teaching “learning strategies” to facilitating entirely new approaches toward learning, including changes in thinking, behaviors, and habits that channel

energy and effort in productive, meaningful directions. Study strategies and tools are taught not as ends in themselves, but as means for increasing students' agency and ability to activate and utilize multiple pathways for accomplishing goals.

Hope has been described as cyclical (Lopez et al., 2009); thus, one can potentially conclude that the positive results of hopeful action lead to more hopeful thinking and action, greater overall engagement, and greater willingness to take on increasingly complex challenges. Students who consciously develop and practice the kinds of flexible thinking described above may be more likely to perceive the relevance of content in their courses and, as a result, remain motivated to learn and master the concepts and skills. Through understanding more about how the mind works and learning to choose strategies which complement those processes, students are likely to experience agency-sustaining "returns" on the effort they invest.

#### **Course instructor selection and training.**

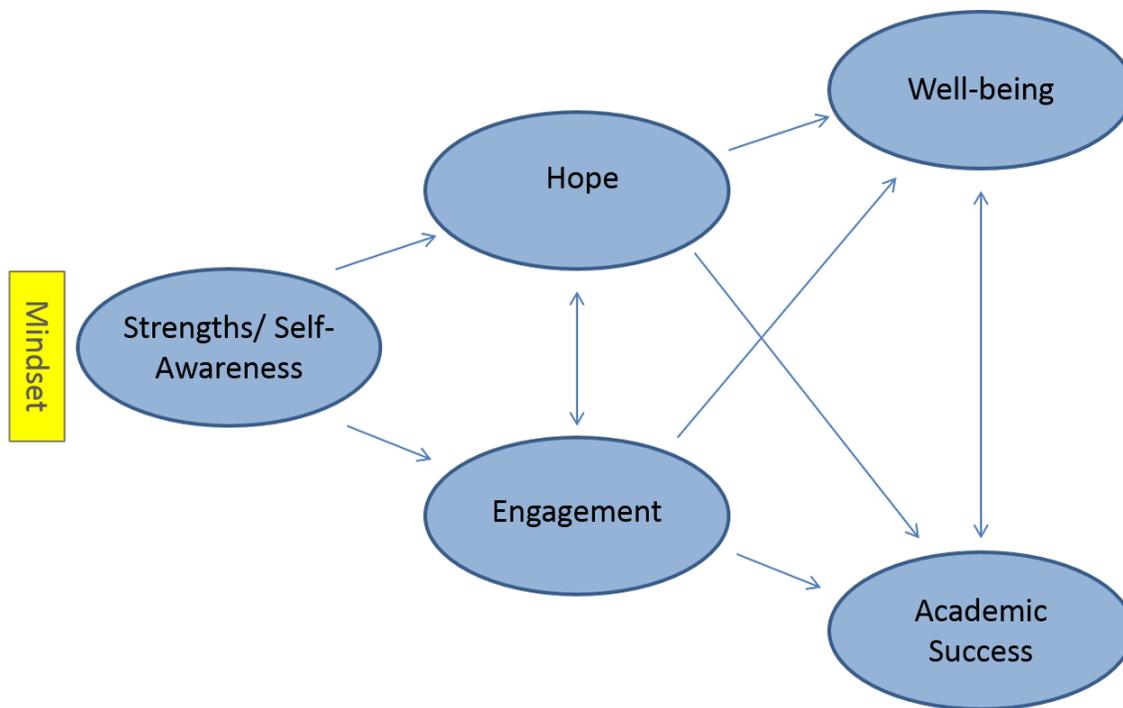
It is important to note that while care was taken to implement the intervention consistently across academic terms, students' experiences from semester to semester are similar, but not identical. After the initial semester of implementation when the model was used in two of the four course sections (a pilot in Spring 2012), the framework was extended for use across all available course sections, including four to six course sections (with 25-30 students per section) taught by as many as four different instructors each term. To promote consistency in implementation and assessment of the course curriculum, the investigator held instructor "check-in" meetings approximately twice per semester to support their work (see Appendix B for samples of instructor training materials).

Each individual selected to teach the course during the semester in which data was collected had expertise in educational psychology (including coursework in learning and

pedagogical theory as well as principles of positive psychology related to motivation and student well-being). Because of this shared knowledge, instructors were granted a degree of autonomy in determining how to meet course objectives while adhering to the core intervention components described in this chapter. In spite of the potential limitations represented by differences in individual delivery, each semester's curriculum was based on the same conceptual framework. Thus, emerging patterns in student outcomes had the potential to lead to valuable conclusions about the overall effectiveness of the intervention design.

**Procedures: Implementation of the intervention.**

Below, Figure 1 represents interactions among course components, beginning with explicit teaching about the growth mindset. Then, the model reflects the incorporation of a strengths-based approach to learning and ongoing practice (engagement) of skills and habits for improving mastery of concepts. Hope and engagement are represented as *means* by which students blend intent with action, and whereby rational thought and emotion come together to sustain motivation and effort (Lopez, 2013). Together, the components support dual mutually-reinforcing desired outcomes of academic success and enhanced personal well-being.



*Figure 1.* Conceptual Model used to illustrate intervention’s theoretical framework, with mindset as “catalyst” for hopeful cognitions and behaviors. Weekly goal exercises represent the primary measure of *Engagement*. Together, the practice of hopeful goal-setting and active engagement in strategy generation and problem-solving promote academic success and enhanced well-being. Adapted from “Making Ripples: How Hope and Well-being Promote Academic Success”, by S. J. Lopez, 2010. Copyright 2010 by Gallup, Inc.

The basis for the model above comes from the Gallup organization’s ongoing studies investigating the interrelationships among strengths, hope, engagement, well-being, and human flourishing (Lopez, 2010). Here, Figure 1 uses Gallup’s model to represent the core intervention components along with the notable addition of *mindset* (Dweck, 2006) as an activator or “switch” enabling hopeful processes of thinking and behavior. The intervention model in Figure 1 stands in contrast to Figure 2 below—a visual representation of the more linear model previously used to teach the course.



*Figure 2.* Conceptualization of design elements used in previous course model, in which course elements were arranged as a linear, input-throughput-output model—without attention to individual differences in motivation, or to the role of emotion in sustaining effort in the midst of personal and/or academic challenge.

As described in the literature review, the previous course model came across as mechanistic; it emphasized skill-building while devoting little attention to “human” aspects of motivation and learning, or to the interplay of elements: how dysfunction in one area (poor coping skills, for example) affects performance in another. Furthermore, the model presumed that students were motivated to learn, that they understood the purpose and relevance of everyday academic tasks, and that simply “teaching them how to study” would help overcome sometimes serious skill gaps which placed them at risk for failure in college.

### **Weekly goal assignments.**

Weekly goal assignments (see Appendix C for template) were the intervention’s primary vehicle for guiding student skill development in setting goals, establishing pathways to those goals, creating plans for handling inevitable obstacles, tracking overall progress, and evaluating and adjusting strategies as needed. The goal assignment incorporates attention to all three interdependent constructs of hope theory: goals, pathways, and agency. Students are taught how to set SMART (specific, measurable, attainable, relevant, and time-oriented), mastery-oriented, approach-focused goals; how to establish clear, step-by-step logical pathways for attainment of those goals; how to anticipate and cope with potential setbacks that could threaten their progress; and how to assess and make attributions about success or failure after the fact.

In addition to practicing hopeful patterns of thinking and action, a second objective of the weekly goal assignment is to reinforce three core components of psychological well-being: autonomy, competence, and relatedness (Ryan et al., 2008). Students exercise autonomy not only in selecting goals that are personally meaningful, but also in becoming directly responsible for the amount and quality of effort invested toward their achievement. Instructors give guidance to help students frame mastery goals, and give feedback intended to help students evaluate the effectiveness of strategies used to build competence. Through built-in opportunities to revise their work, students are encouraged to devote themselves to the process of developing mastery (greater levels of competence) of concepts and skills taught in the course.

The iterative nature of the goal exercises promotes ongoing reflection, enabling students to note successes and failures. They are taught to recognize which strategies were most and least effective, both for goal attainment and for dealing with setbacks and difficulties. Noting the results of their own effort in this manner helps reinforce thinking patterns associated with a growth mindset. For the purposes of the investigation, Research Question 3 was framed as a means of tracking patterns of change in students' goal formation over the course of the semester.

By Week 4 in the course, students began submitting the weekly goal exercises. Suggested usage of the goal worksheet started with initial goals framed for the week by Sunday night, followed by notes regarding progress toward the goal at the end of each week. Goal worksheets were submitted electronically as separate entries in a personal "Goal Journal" via the university's course management system. The processes used to analyze students' weekly goals are described in the *Data Collection and Analysis* section found later in this chapter.

### **Small groups provide “home base” for coaching and support.**

In addition to the generation of weekly goals, the inclusion of small-group coaching experiences stands out as a second core component distinguishing the intervention from similar courses offered elsewhere within and outside the institution. In the review of literature, quality student-faculty interaction was noted as one of the most powerful predictors of student learning and well-being (Barr & Tagg, 1995; Chickering & Gamson, 1987; Weimer, 2002), particularly for students considered “at risk.” Thus, the intervention featured 1/3 of total class time dedicated to instructor meetings with small groups of students. Each group was made up of 5 to 6 students and met four times during the semester. Students were assigned to groups based on classification (year in school) to maximize shared interests and concerns, and to decrease the risk of intimidation for first-year students. Small group experiences were designed to facilitate a sense of community and belonging characterized by candid conversations about the triumphs and struggles of academic life. Each group meeting followed a prepared agenda pertaining to overall course objectives, including active generation of pathways; feedback on goals and strategies used to reach them; and ongoing modeling, coaching, and support for development of agency.

### **Fall 2013 Sample Description**

The sample used in Research Questions 1, 2, and 3 included students enrolled in six sections of the Learning Strategies and Skills (BEP 110) course taught by four instructors during the fall term of 2013. While many of the analyses focus on students considered academically “at risk” who were required to take the course, they also include information about others who elected to take the course but did not meet traditional “at risk” criteria. Students required to enroll in the course are generally considered academically “at risk” for one of two reasons: they received conditional admission to the institution (scoring < 21 on the ACT and/or earning a high

school GPA < 3.0); or they were readmitted after an academic suspension for not meeting minimum GPA requirements (institution’s minimum requirement is based on number of hours earned).

The Fall 2013 sample included 83 students who completed both portions of the survey (T1 and T2) and completed at least seven of the 10 weekly goals that were built into the course requirements (see the Data Collection section below for rationale used to determine this “cut-point” within the data). While all six Fall 2013 course sections are included in the sample, participation across the sections was uneven, which is evident in Table 1 below.

Table 1

*Fall 2013 Instructor Group Demographics*

	Total <i>n</i>	Male	Female	Conditionally Admitted	First-generation
Instructor A	35	21	14	24	5
Instructor B	14	7	7	10	2
Instructor C	20	10	10	4	4
Instructor D	13	2	11	4	3
Total <i>n</i>	82*	40*	42	42	16

*Note.* \*Denotes missing data

The tables below provide additional demographic information about the Fall 2013 sample: Table 2 details the ethnic composition of the sample, while Table 3 describes the sample by classification or year in school. As seen in Table 2, white students made up the majority of the sample at 69.9% ( $n = 65$ ); black students represented 11.8% ( $n = 11$ ), and Asian or Asian-American students made up another 10.8% ( $n = 10$ ). Other ethnic groups represented were Native American (1.1%,  $n = 1$ ), Hispanic/Latino (1.1%,  $n = 1$ ), multi-racial (3.2%,  $n = 3$ ), and students who identified as “Other” (2.2%,  $n = 2$ ).

The ethnic composition of the sample closely corresponds to that of the institution as a whole, where in the Fall of 2011, white and black students made up 83.4% and 12.9% of the entering class, respectively. Asian students only accounted for 1.6% of that year’s entering class, but the variable grouping here (listed as “Asian/Asian-American”) may explain why that category appears to be overrepresented here compared to the overall student population. As seen in Table 3 below, first-year students represented nearly half the sample, with sophomores and juniors making up another 40%, followed by a small group of seniors (less than 10%).

Table 2

*Fall 2013 Sample Demographics—Ethnicity*

	Native American	Asian/Asia n- American	Black/Africa n-American	Hispanic / Latino	Multi- racial	Other	White
Male	1	3	5	0	1	1	30
Female	0	5	6	1	1	1	28
Total <i>n</i>	1	8	11	1	2	2	58
% of Sample	1.1%	10.8%	11.8%	1.1%	3.2%	2.2%	69.9%

Table 3

*Fall 2013 Sample Demographics—Classification (year in school)*

	Freshman	Sophomore	Junior	Senior
<i>n</i>	45	21	17	9
% of sample	48.4%	22.6%	18.3%	9.7%

## Longitudinal Sample Description

The data sets used in Research Question 4 were comprised of students enrolled at the same institution: a portion of whom completed the course in its previous format (Group A), the intervention group (Group B), a third group of students who took another student success course offered within the institution (Group C), and a fourth group who did not enroll in any kind of student success course (Group D). The dataset used to create Groups C and D contained the institution’s entire Fall 2009 and Fall 2011 entering cohorts, and included information such as high school GPA, ACT and/or SAT scores, and admit type—all useful in setting up appropriate comparisons across the various groups. Table 4 below provides a look at the demographics and sample sizes for Groups A, B, C, and D.

Table 4

### *Longitudinal Sample Demographics*

<i>n</i>	Regular Admit	Conditional Admit (Edge)	Conditional Admit (Other)	Suspended	Readmitted	Total <i>n</i>
Groups A & B	295	178	7	119	83	480
Groups C & D	11545	1287	167	1155	536	12999
Total <i>n</i>	11840	1465	174	1274	619	13479

A total of 480 students who took the course made up Groups A ( $n = 165$ ) and B ( $n = 315$ ). Of those 480, 185 had been conditionally admitted to the institution, and 83 were readmitted after an academic suspension. Those 268 students were required to take the course (or one of several similar student-success courses which are described in an upcoming section). The other 212 students elected to take the course on their own or were encouraged by an advisor to enroll. Table 5 below provides a closer look at enrollment under the “old” and “new” models during each term included in the longitudinal sample.

Table 5

*Longitudinal Sample—Enrollment numbers for each term, Groups A and B*

<i>n</i>	Group A			Group B		
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013
Sections	2	2	2	2	6	4
Freshmen	34	10	24	11	83	30
Sophomores	8	11	13	12	26	32
Juniors	0	18	11	7	19	20
Seniors	0	0	0	0	14	3
Total <i>n</i>	55	50	60	43	176	96

Table 5 details the enrollment numbers for two sections of the course during three consecutive semesters—Fall 2010, Spring 2011, and Fall 2011 (Group A). While there were more than two sections offered during each of those terms, the longitudinal sample contains only the sections taught by the primary investigator (with 25-30 students in each section) because at that time there was no unifying course curriculum model employed across course sections. In Spring 2012, the researcher piloted the new model (intervention) in two course sections (total  $n = 43$ ). Based on data collected during the pilot suggesting positive outcomes, the researcher gained support for broad-based implementation of the intervention across all course sections beginning in Fall 2012 ( $n = 176$ ) and continuing in Spring 2013 ( $n = 96$ ). Together, the groups just described make up the samples used in the A vs. B comparisons that follow in Chapter 4.

### **Data Collection Processes**

#### **Research instruments used to address Research Questions 1 and 2.**

The instruments which made up the pre/post survey included the Adult Dispositional Hope Scale (Snyder et al., 1991); the Basic Psychological Needs Scale (Deci & Ryan, 2000); the Revised Life Orientation Test or LOT-R (Scheier et al., 1994); the Strengths Self-Efficacy Scale

(Tsai et al., 2014); the Brief COPE questionnaire (Carver, 1997); and the Positive and Negative Affect Schedule or PANAS (Watson et al., 1988). All instruments listed above were relatively short, making the time needed to complete each administration of the questionnaire approximately 15-20 minutes. Brief descriptions of each instrument including their basic psychometric properties are included in the following paragraphs. The combination of instruments enabled the researcher to use pre- and post-administrations of the survey to isolate effects of hope juxtaposed with patterns of change in separate but related constructs like optimism and self-efficacy.

#### ***The Adult Dispositional Hope Scale.***

The Adult Dispositional Hope Scale is designed to assess hope as a “general cognitive set” which is relatively stable across contexts and time (Snyder et al., 1991). The scale’s 12 total items are organized using a 4-point Likert-type scale, and include 4 Pathways-related items, 4 Agency-related items, and 4 distracter items. Hope scores are calculated by summing Pathways items and Agency items, and ignoring the distracters. Cronbach’s alpha for the instrument range between .74-.84 for the instrument as a whole, and test-retest reliabilities ranged from .73 ( $p < .001$ ) for an 8-week interval (Harney, 1989) to as high as .82 ( $p < .001$ ) for over 10 weeks (Yoshinobu, 1989).

#### ***The Basic Psychological Needs Scale (BPNS).***

The BPNS is designed based on the assumption that three psychological needs—Autonomy, Competence, and Relatedness—are innate and universal, and that satisfaction of these needs is essential for optimal human functioning (Deci & Ryan, 2000). Each of the three core needs has its own subscale: the Autonomy subscale is composed of seven items; Competence has six; and the Relatedness subscale has eight. Each item uses a 5-point Likert-

type scale. Scoring involves averaging the items from each subscale. Cronbach's alpha for the instrument as a whole range from .83-.89, and test-retest reliability was reported at .80 over a 4-month period.

***The Revised Life-Orientation Test.***

The LOT-R is used to measure dispositional optimism, and contains six regular items and four distracter items which are each organized using a 5-point Likert-type scale (Scheier et al., 1994). The six regular items are summed for an overall score. Cronbach's alpha for the instrument has been reported at .78, and test-retest reliability at .68 over a period of four months.

***The Strengths Self-Efficacy Scale.***

The Strengths Self-Efficacy Scale measures individuals' levels of confidence in their ability to practice and apply personal strengths (Tsai et al., 2014). Participants are asked to list five of what they consider to be their top strengths; then, in a series of 34 questions, are asked to rate their ability to act on and implement those strengths on a Likert-type scale ranging from 0 ("Not at all") to 10 ("Extremely Confident"). Cronbach's alpha was reported at .95, and test-retest reliability rate for a 3-week period was .88 ( $p < .001$ ).

***The Brief COPE.***

The Brief COPE questionnaire is designed to gauge participants' use of 14 differentiable coping reactions (Carver, 1997). Some coping methods are recognized as adaptive, while the others are considered poor alternatives. Each coping category has two dedicated items for a total of 28 items, each incorporating a 4-point Likert-type scale of potential responses. Cronbach's alpha levels reported for the Brief COPE range from .50 (*Venting*) to .90 (*Substance Use*), and test-retest reliability rates across time periods up to one year were all greater than .60, except for scales related to *Venting*, *Denial*, and *Acceptance* (all of which were reported as greater than .50)

### ***The Positive and Negative Affect Schedule (PANAS).***

The PANAS instrument is designed to yield insights about students' experiences of positive and negative emotion (Watson et al., 1988). Students are asked how they feel "right now" or over the past week using a 5-point Likert-type scale to register their experiences based on 10 positive affect descriptors and 10 negative affect descriptors. Cronbach's alpha for the negative affect items have been reported between .84-.87, and the positive affect items between .86-.90. Over an 8-week period, test-retest reliability measures ranged from .68-.71.

### **Administration of the survey.**

Data collection began with the first administration (T1) of the College Student Motivation and Well-being Questionnaire within the first two weeks of the fall semester (late August/early September 2013). Participants completed the follow-up post-survey (T2) within the final two weeks of the semester (late November/early December 2013). Both surveys were conducted online via the Qualtrics software package; students received links via email to access and complete the survey. The investigator used students' campus-wide identification (CWID) numbers to match individual participants' pre- and post-survey results. Once the T1 and T2 cases were matched for each student, the investigator replaced the CWID with a participant number, thus removing any personally identifiable information from the dataset used to complete the analyses. A master list containing participants' names and CWID numbers was kept in a separate, password-protected file in case such information was needed during the data analysis process. The same process (replacing each CWID with a participant ID number) was used to remove personally identifiable information from students' weekly goals as that data set was prepared for analysis. After being checked for completion by the student's instructor, the

participant ID replaced the student's name and was used to match the individual's goal journal entries with his or her survey results.

### **Collection of data (student goals) to address Research Question 3.**

The introductory overview of Research Question 3 described the general objectives of the goal coding portion of the study. Students completed a total of ten weekly goals as part of their participation in the course. Five of the ten goals were included for analysis in the sample, collected at identical time frames within the semester (Goal 2, Goal 4, Goal 6, Goal 8, and Goal 10). Because the goals represent a primary indicator of students' engagement levels in the course, participants who completed *fewer than seven* of the ten required goals were excluded from the sample. In some cases, students completed seven or more goals, but failed to submit a weekly goal during one of the intervals mentioned above. In those instances, the researcher used the student's goal from the previous week in its place.

The first step in assessing student goal-setting behavior was the creation of an interpretive rubric for assigning numerical codes to the variables of interest within each round of weekly goals. The coding rubric was carefully generated to align with essential components of the conceptual framework (hope, self-determination, and goal achievement theories, which are described in Chapter 2). Because the rubric was created as part of this study and had therefore not undergone any previous testing to establish its validity and reliability, the following paragraphs describe the rubric and the processes used to test its reliability.

#### ***Goal rubric sections 1 and 2: Overall rating and goal appraisal.***

The coding rubric (included in Appendix D) opens with an *Overall* score (Variable number 1) for each weekly goal submitted by a student participating in the intervention. The overall score was designed not as a sum, but rather a global view or "clinical judgment" style

rating of the plan as a whole. After the overall rating, the rubric sections directly connect to Goals, Pathways, and Agency, the three constructs considered equally important and mutually reinforcing within hope theory (Snyder et al., 1991). Though the Adult Hope Scale is made up of *Pathways* and *Agency* subscales (there is no subscale devoted to Goals, specifically), the importance of goal appraisal is well-established in previous studies (Dweck & Leggett, 1988; Elliott & Dweck, 1988) and is strongly supported in the other two “arms” of the intervention’s guiding theoretical framework (achievement goal theory: Dweck, 1986; and self-determination theory: Ryan et al., 2008).

The *Goal Rating and Goal Orientation* portion of the rubric contained four variables, each with its own Likert-type scale. The first variable—number 2 on the rubric—was simply called “Goal,” with possible ratings ranging from 0 (“*No goal stated*”) to 3 (“*Clear and measurable; can realistically be accomplished within 1 week*”). This initial variable was different from the other three goal-related variables in that once this initial *Goal* rating was assigned a score of 0, 1, 2, or 3, it became weighted through the use of a multiplier used throughout the rest of the rubric to scale the outcome. For example, as mentioned above, a *Goal* rating of “3” meant the goal was clearly defined, had a measurable “target,” and appeared to have a realistic scope based on the timeframe (one week). In these instances, a multiplier of “1” was used, which did not alter subsequent ratings. However, if a *Goal* rating of “1” or “2” was assigned (1: “*Extremely vague; impossible to measure and/or accomplish in one week*”; or 2: “*Vague or unfocused; could be difficult to measure and/or accomplish in one week*”), a multiplier of .5 (for a “1” rating) or .75 (for a “2” rating) was applied to all the variables that followed. The multipliers were employed to emphasize the notion that the ways in which goals

are initially defined (as attainable, and with clearly identifiable and measurable targets) can help or hinder our efforts to reach them.

Following the “Goal” variable, each student’s goals were evaluated in terms of the degree of emphasis placed on *Performance* (Variable 2a.1), *Mastery* (Variable 2a.2), and language that would define it as an *Avoidance* goal or *Approach* goal (Variable 2a.2). Each of these three variables were also measured using a 0-3 Likert-type numbering scale, with 0 reserved for instances in which no goal was stated, and “3” representing goals that focused heavily on *gaining competence* (Mastery), *receiving positive evaluations from others* (Performance), and stating the goal in *approach*- rather than avoidance-focused terms.

***Goal rubric section 2b: Goal thinking (pathways and agency).***

Immediately following the *Overall* and *Goal* portions of the rubric, the next section contained three variables used to evaluate student perceptions and behaviors pertaining to generation of pathways. The three variables were called “Pathways articulated” (Variable 2b.1); “Pathways: Potential Obstacles” (Variable 2b.2, hereafter referred to simply as *Obstacles*); and “Pathways: Contingencies” (Variable 2b.3, referred to in the sections that follow as *Contingencies*). Each Pathways-related variable followed a 0-3 numerical scale, and used similar descriptors intended to rate students’ levels of proficiency in each skill area (2b.1: Creating step-by-step plans suitable for accomplishing their goal; 2b.2: Anticipating potential obstacles that could serve as “roadblocks” to the intended goal; and 2b.3: Applying appropriate coping and/or problem-solving strategies for preventing or dealing directly with each obstacle.)

The final section of the coding rubric was dedicated to assessing student *Agency* (Variable 2b.4): the extent of goal attainment, as well as the effort students demonstrated in evaluating their own use of strategies implemented in pursuit of each goal. A scale of 0-6 was

used to rate agency-oriented behaviors, ranging from 0 (no report on previous week's goal included) to 6 ("*Accomplished and fully assessed*"). Ratings of "1" or "2" were assigned if a student did not accomplish the goal (with the rating of 2 reflecting some effort to assess reasons why the goal was not reached). Ratings between 3 and 5 were used in instances of partial goal attainment, with each increment used to reflect increasing levels of effort dedicated to assessment. Thus, even if a student's weekly goal was not accomplished in full, ratings enabled researchers to note the extraordinary care taken by some students to examine the internal and/or external factors which either supported or slowed down progress toward the goal. As stated in Chapter 2, the more time and effort students dedicate to understanding the roots of failures and successes (and making accurate *attributions* in this area), the more likely they are to adjust their strategies in adaptive ways for future goal endeavors.

#### **Procedures used to test inter-rater agreement.**

A fellow experienced course instructor agreed to serve as a second coder, and ultimately used the same goal coding rubric to analyze a randomly identified subset equivalent to 25% of the total sample of Fall 2013 student goals. First, however, the primary investigator and the second coder completed a "trial run," using student goals from the previous semester to try out the rubric and test levels of agreement.

Before taking on the rubric in its entirety, raters focused first on the *Overall* rating. When raters reached an acceptable level of agreement on a global scale ( $\geq .75$  using the Cohen's kappa statistic), they moved on to rate the test sample goals using the remaining rubric variables. Upon completion of test sample coding, the researcher evaluated the raters' work for consistency. At that point, the Cohen's  $\kappa$  statistic did not reflect sufficient inter-rater agreement. In a face-to-face meeting, raters discussed each instance of disagreement and identified specific

cases of differences in rubric interpretation, making necessary adjustments to provide additional clarification for the next phase. After reaching a sufficient level of inter-rater agreement using the test sample, the researcher moved on to code the entire set of student goals ( $n = 83 \times$  five goals per student), while the second coder completed the same analysis for a randomly-generated subset equivalent to 25% of the total sample ( $n = 20$  students whose participant ID numbers were drawn using a random number generator).

Coding for the Fall 2013 sample happened in two “waves” with additional resolution, retraining, and adjustments at the halfway point (inter-rater agreement before the final round of adjustments:  $\kappa = .638$ . Raters were in complete agreement in 57.3% of cases, and were within 1 an additional 34.7% of the time). The following is one example of an adjustment incorporated during the coding process: when looking for indicators of mastery, raters agreed on a set of keywords and/or key phrases such as “practice,” “edit,” “revise,” and “ask for help” as indicators of efforts dedicated to mastery and/or reinforcing new skills or habits. Following the procedures just described, comparisons of the two raters’ work reflected an acceptable level of inter-rater agreement ( $\kappa = .759$ ), at which time the researcher moved on to input and analyze patterns among the coded data. Attaining inter-rater reliability in this range not only lent credibility to the rubric itself (as an appropriate tool for classifying and interpreting students’ goals), but also to the consistency of the researcher’s analyses over time.

### **Data Analysis: Research Questions 1 and 2**

#### **Research Question 1: Examining changes in hope and well-being from T1 to T2.**

To address Research Question 1, each participant’s pre- and post-assessment data was matched using his/her CWID; then each subject was assigned a participant ID. Next, the investigator created frequency tables to record the demographic composition of the Fall 2013

sample (by gender, ethnicity, classification or year in school, and so on). Repeated measures ANOVA (using *time* as the within-subjects factor) provided means for tracking changes in hope and well-being in the Fall 2013 sample from T1 to T2. The investigator was specifically interested in discovering whether any statistically significant changes in hope and well-being were evident over time.

Because the hope scale designates items as being specifically related to *Pathways* and others to *Agency*, it was possible to look not only at *overall* Hope scores, but also at each corresponding subscale separately (using repeated measures ANOVA) to note potential changes within each construct. For instance, due to the separate cognitions and behaviors associated with each subscale, the results had the potential to suggest, for example, that students' generation of pathways could increase more significantly than their sense of agency. Such a conclusion could be valuable in making decisions and recommendations about how to enhance future iterations of the intervention. Because the intervention was designed to boost not only hope, but also well-being, the researcher used repeated measures ANOVA to assess changes over time in the three constructs measured by the Basic Psychological Needs Scale (BPNS): Autonomy, Competence, and Relatedness.

**Research Question 2: Did some students benefit more than others from the intervention?**

In the next set of steps used to examine the intervention's effects, the researcher conducted a series of repeated measures ANOVA to assess potential differences *between* groups based on *Gender*, *Ethnicity*, *Admit type*, and *First-Generation Status* for each questionnaire variable. She also sought out signs of significant change over time *within* groups, and for any potential interactions (i.e., differences in the direction of change for various groups on the same

variable over time). As those analyses were interpreted, the researcher recorded recommendations for continual improvements to the intervention, and noted areas in which particular groups appeared to respond more favorably than others.

### **Data Analysis: Research Question 3 (Weekly Goals)**

After collecting and entering the goal coding data for Research Question 3, the researcher used repeated measures ANOVA to study change over time for each of the nine rubric variables. The means and standard deviations representing changes over time for each variable (Goal 2 through Goal 10) are reported in Table 12 in Chapter 4. After noting observed patterns of change for each variable, she used repeated measures ANOVA to learn whether students seemed to grow more in *some* areas more than others, and if various *groups* in the sample appeared to benefit more than others from their engagement in the weekly goal exercises.

After studying patterns of change among various groups in the sample, the researcher combined the three *Pathways* variables to generate a *Pathways Composite* score. The sum of the *Pathways Composite* score and the *Agency* score (calculated by multiplying *Agency* ratings x 1.5 to make their weightings equal, since *Pathways* had a larger number of items and slightly different scaling) resulted in an overall *Goal-Derived Hope Score*. Unlike the *hope scale scores* studied in Research Question 2, the *Goal-Derived Hope Score* came directly from analysis of hope-related cognitions and behaviors reflected in their weekly goals. The researcher merged the data set containing the codes for the nine variables from each participant's weekly goals with the data set containing pre- and post-survey data.

Coding the weekly goals provided a means of analyzing the ways in which students engaged with BEP 110 course material. Because hope theory revolves around the generation of goals, pathways, and tools for persevering through challenges, results from the coding analysis

yielded helpful insights about the effectiveness of weekly goal practice in raising students' hope. Examining patterns of change over time also revealed clues about how students improved in their choice and utilization of strategies to support meaningful learning. By evaluating changes over time, the researcher was able to estimate the degree to which students could apply what they were learning about hope to become more effective learners.

#### **Data Analysis: Research Question 4**

To assess potential long-term effects of the intervention, the researcher used the longitudinal dataset released via the institution's registrar (records of students' grade point averages and progress toward earning degrees). To protect confidentiality, all personally identifiable information was removed before the researcher took possession of the data.

The procedures used to explore long-term effects included a comparison of students who took the course under the previous model (Group A) and in the current intervention format (Group B). The following variables were included in the analysis: overall institutional grade point average (GPA); GPA for credit hours earned since completion of the course; and number of credit hours earned since completion of the course. After the first set of analyses used to examine differences in outcomes between Groups A and B, the researcher extended the comparison to include students who enrolled at the institution around the same time, but who did not take in the course in either format.

The first step in addressing Research Question 4 was to assess differences between Groups A and B. The researcher used one-way ANOVA to compare groups for each of the three outcome variables (overall GPA, post-BEP GPA, and hours earned since course completion). After gauging differences in outcomes between Groups A and B, the researcher went on to

compare their academic performance with students who took one of the other courses (Group C) or no student success course at all (Group D).

The institution offered a few variations on the “student success” course—one is BEP 110, featured throughout this study. Group C students completed one of the courses selected for comparison (AS 101, NEW 222, HES 100, BCE 101, and FLC 101), which all had similar objectives but followed different formats. Some were graded like BEP 110, while others were classified as Pass/Fail (*Pass* has a neutral effect on GPA, and *Fail* counts as an F). Some were worth 3 credit hours and others were weighted at 1 or 2 credit hours. BEP 110 and HES 100 were the only 3-credit, graded versions of student success courses offered at the institution.

The researcher used one-way ANOVA to assess differences among Groups A, B, C, and D in overall institutional GPA, both among the sample as a whole and among conditionally admitted students in particular. To control for differences in entering characteristics, she used high school GPA and ACT scores as covariates in ANCOVA analysis and recorded differences in the adjusted means for students from each group.

#### **Combining Results from Research Questions 1-4**

After completing the rounds of analysis and interpretation just described, the researcher compiled the findings and attended to clues about how the results taken from analysis of each data set might triangulate or converge. She combined the converging areas of evidence to generate a set of conclusions about the effectiveness of the course, both as a hope intervention and as a means of supporting students’ long-term persistence and academic achievement.

## CHAPTER 4

### RESULTS

Results of each stage of data analysis are reported and interpreted in the following sections, starting with Research Question 1. Tables and figures included throughout the chapter summarize and illustrate trends revealed in the analyses. A special section at the end of the chapter features triangulation of results from each research question and data set.

#### **Research Question 1: Do Students' Hope and Well-Being Levels Change over the Course of the Intervention?**

Research Question 1 was used as the first gauge of the intervention's effectiveness. Results demonstrated that some aspects of hope and well-being (as measured by the instruments described in Chapter 3) did change, while others did not. The upcoming paragraphs contain an overview of observed changes among the sample as a whole. While hope and well-being variables made up the main focus of the study, changes in variables identified as correlates of hope and well-being in previous literature are also briefly described in the sections that follow.

##### **Changes in hope scale scores from T1 to T2.**

There were no significant changes in hope scale scores from T1 ( $M = 50.75$ ,  $SD = 6.32$ ) to T2 ( $M = 51.68$ ,  $SD = 6.44$ ) among the sample as a whole  $F(1, 74) = 1.26$ ,  $p = .265$ ;  $\eta^2 = .02$ . Of the 75 students for whom data was available, a total of 37 students (49.3%) had slightly higher hope scores at T2 than at T1; 31 (41.3%) students' scores were slightly lower at T2; and seven (9.3%) students' hope scores did not change from T1 to T2.

### **Changes in pathways and agency subscales from T1 to T2.**

The overall mean on the *Pathways* subscale did not change significantly from T1 ( $M = 25.51, SD = 3.30$ ) to T2 ( $M = 25.76, SD = 3.59$ )  $F(1, 75) = .32, p = .57; \eta^2 = .004$ . The overall sample mean for *Agency* also did not change significantly from T1 ( $M = 25.37, SD = 3.95$ ) to T2 ( $M = 25.98, SD = 3.99$ ) according to repeated measures ANOVA  $F(1, 80) = 2.02, p = .159; \eta^2 = .03$ . The researcher found that some groups tended to experience greater gains in *Pathways* and *Agency* than others; those details are reported under Research Question 2.

### **Changes in well-being.**

No significant changes were observed in students' reported levels of *Autonomy*, *Competence*, and *Relatedness*. Students' perceived *Autonomy* did not change significantly from T1 ( $M = 4.77, SD = .62$ ) to T2 ( $M = 4.77, SD = .58$ ) according to results of repeated measures ANOVA  $F(1, 80) = .19, p = .66; \eta^2 = .003$ . *Competence* scores also showed no significant change from T1 ( $M = 4.34, SD = .68$ ) to T2 ( $M = 4.22, SD = .72$ ) within the sample as a whole  $F(1, 84) = 2.12, p = .15; \eta^2 = .03$ . A third well-being variable, *Relatedness*, ties in the assumption that students who feel meaningfully connected to others will generally be more motivated to persist in challenges. Results from repeated measures ANOVA indicated no significant changes from T1 ( $M = 4.66, SD = .53$ ) to T2 ( $M, T2 = 4.71, SD = .52$ ) in *Relatedness*  $F(1, 84) = .27, p = .61; \eta^2 = .004$ .

While results indicated no significant changes in the three well-being variables among the sample as a whole, upcoming sections in Research Question 2 describe evidence of changes suggesting improvements in well-being among various groups in the sample. Before moving on to Research Question 2, the researcher used repeated measures ANOVA to assess changes over time in *Optimism*, *Strengths Self-Efficacy*, *Coping Styles*, and *Positive and Negative Affect*,

which have each been linked to hope and well-being in previous studies. The paragraphs below provide an overview of changes observed in these secondary variables across the sample.

**Changes in coping.**

Consideration of the means by which students attempt to cope with difficulties is important in the overall evaluation of an intervention designed to boost hope and well-being. The intervention is designed not only to teach strategies useful in generating pathways for accomplishing goals, but also to coach students in developing adaptive strategies for coping with personal and academic obstacles. Based on their connections to the general set of goal-directed behaviors discussed throughout the study, the researcher targeted specific items from the Brief COPE Questionnaire for analysis. Results are shown in Table 6 below.

Table 6  
*Changes in Intervention-Related Positive Coping Styles (T1-T2)*

	T1 <i>M (SD)</i>	T2 <i>M (SD)</i>
Active Coping Style	6.38 (1.33)	6.49 (1.20)
Planning Coping Style	6.21 (1.20)	6.35 (1.34)
Positive Reframing	6.14 (1.32)	6.57 (1.31)
Emotional Support	6.13 (1.51)	6.29 (1.46)
Instrumental Support	6.30 (1.49)	6.48 (1.29)

Students’ increased use of *Positive Reframing* was statistically significant, according to repeated measures ANOVA  $F(1, 84) = 6.38, p = .014; \eta^2 = .08$ . A sample item from this portion of the Brief COPE asks students to react to the statement “*I’ve been trying to see it in a different light.*” Such cognitions represent clear links to hopeful thinking and action: not only as they are operationalized on the Adult Hope Scale, but also in terms of behaviors used to deal with obstacles included in students’ weekly goal exercises (described in the upcoming section dedicated to Research Question 3).

While questionnaire data suggested positive change in students' use of several positive coping methods, it also appeared that some students redoubled their efforts to escape or avoid problems. Table 7 below reflects sample means for *Behavioral Disengagement*, *Denial*, *Self-blame*, and *Substance Abuse*—coping styles which were reported more frequently at T2 than at T1. According to results of repeated measures ANOVA, the increase in *Behavioral Disengagement* was statistically significant  $F(1, 84) = 4.35, p = .040; \eta^2 = .06$ , meaning that students were “reducing their effort to deal with stressor, even *giving up the attempt* to attain goals with which the stressor is interfering” (Carver et al., 1989, p. 269). Further details of changes in student coping patterns follow under Research Question 2.

Table 7

*Changes in Intervention-Related Negative Coping Styles (T1-T2)*

	T1 <i>M (SD)</i>	T2 <i>M (SD)</i>
Behavioral Disengagement	3.57 (1.39)	3.96 (1.70)
Denial	3.68 (1.53)	3.97 (1.68)
Self-Blame	4.72 (1.59)	4.76 (1.73)
Substance Use	3.27 (1.51)	3.57 (1.83)

### **Changes in optimism.**

As described in Chapter 2, optimism and hope are separate but related constructs. One of the “core beliefs” of hope is that *the future will be better than the present*. Feelings of optimism help generate energizing visions of the road ahead. Repeated measures ANOVA revealed a statistically significant increase in optimism  $F(1, 73) = 5.06, p = .027; \eta^2 = .07$  among the sample as a whole from T1 ( $M = 25.99, SD = 3.84$ ) to T2 ( $M = 27.16, SD = 3.82$ ). Analysis of changes in *Optimism* among particular groups in the sample follows under Research Question 2.

### **Changes in positive and negative affect.**

Students were experiencing significantly higher levels of positive emotion at the end of the intervention ( $M = 37.0, SD = 7.17$ ) than at T1 ( $M = 35.19, SD = 7.61$ ) according to repeated measures ANOVA results  $F(1) = 4.85, p = .031; \eta^2 = .07$ . By T2, students were more likely to report experiencing *specific* positive emotions such as *Determined, Enthusiastic, Proud, Inspired, and Strong*.

Among the sample as a whole, there were no significant changes in negative emotion from T1 ( $M = 21.66, SD = 7.58$ ) to T2 ( $M = 22.6, SD = 7.58$ ) based on results of repeated measures ANOVA  $F(1, 69) = 1.14, p = .289; \eta^2 = .02$ . An accumulation of negative affect can interfere with working memory, concentration, and the kind of cognitive processing needed to generate effective strategies for responding to challenges and setbacks. Changes in experiences of positive and negative emotion among specific groups are described in Research Question 2.

### **Changes in strengths self-efficacy.**

Self-efficacy represents the “other half” of hope, when hope is conceptualized as a combination of outcome expectancies (*Optimism*) and efficacy expectancies. Strengths Self-Efficacy scores did not change significantly from T1 ( $M = 8.09, SD = 1.77$ ) to T2 ( $M = 8.29, SD = 1.73$ ) according to repeated measures ANOVA results  $F(1, 68) = .69, p = .408; \eta^2 = .01$ .

### **Summary of Results for Research Question 1**

The above sections provide a general overview of changes over time in hope, well-being, and a set of related secondary variables among the sample as a whole from T1 to T2. Changes in hope and well-being were not statistically significant when viewed across the sample, but there were statistically significant increases in *Optimism, Positive Affect, and Positive Reframing*—three variables with previously established links to hope and well-being. Research Question 2

includes evidence that some groups of participants appeared to benefit from the intervention more than others.

**Research Question 2: Did Some Groups Benefit From the Intervention More than Others?**

Research Question 1 explored whether changes in hope and well-being were evident as students participated in the intervention. Research Question 2 was designed as a follow-up to discern potential differences in the ways students responded to the intervention. Results are organized according to effects observed within various demographic groups in the sample—starting with *Gender*, and followed by *Ethnicity*, *Admit Type*, and *First-Generation Status*.

**Research Question 2 results by gender.**

Table 8

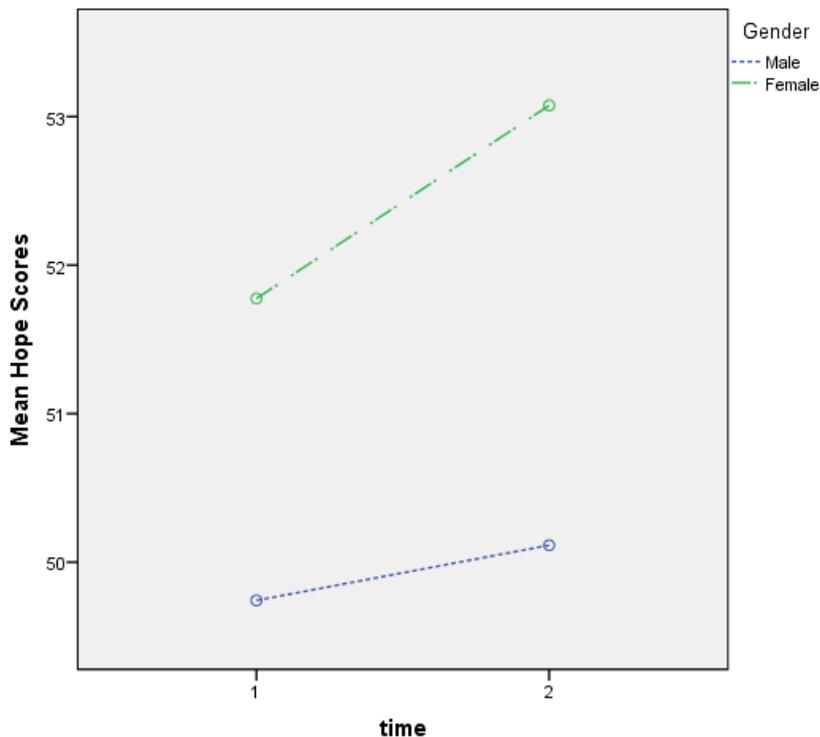
*Summary of Repeated Measures ANOVA Results by Gender, Questionnaire (T1-T2)*

Variable	Within-Subjects		Interactions		Between-Subjects	
	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$
Hope	.286	.02	.552	.01	.05	.05
Pathways	.574	.00	.953	.00	.339	.01
Agency	.173	.02	.173	.02	.016	.07
Autonomy	.640	.00	.667	.00	.399	.01
Competence	.143	.03	.596	.00	.706	.00
Relatedness	.633	.00	.602	.00	.401	.01
Optimism	.027	.07	.613	.00	.964	.00
Positive Affect	.029	.07	.497	.01	.452	.01
Negative Affect	.294	.02	.956	.00	.106	.04
Positive Reframing	.016	.08	.836	.00	.001	.14
Self-Distraction	.546	.01	.012	.08	.000	.17
Behavioral Disengagement	.053	.05	.303	.01	.013	.08
Strengths Self-Efficacy	.423	.01	.794	.00	.365	.01

***Changes in Hope Scale, Pathways Subscale, and Agency Subscale: Gender.***

Female students ( $n = 40$ ) had higher hope scores overall (T1,  $M = 51.78$ ,  $SD = 5.92$ ; T2,  $M = 53.07$ ,  $SD = 6.00$ ) compared to their male peers ( $n = 35$ ; T1,  $M = 49.74$ ,  $SD = 6.80$ ; T2,  $M = 50.11$ ,  $SD = 6.77$ )—differences which approached statistical significance, according to repeated measures ANOVA  $F(1, 74) = 3.99$ ,  $p = .050$ ;  $\eta^2 = .05$ . Although women’s mean hope scores went up slightly from T1 to T2 (shown in Figure 3 below), the increase was not statistically significant  $F(1, 73) = 1.16$ ,  $p = .286$ ;  $\eta^2 = .02$ .

**Figure 3. Change in Hope Scores by Gender**



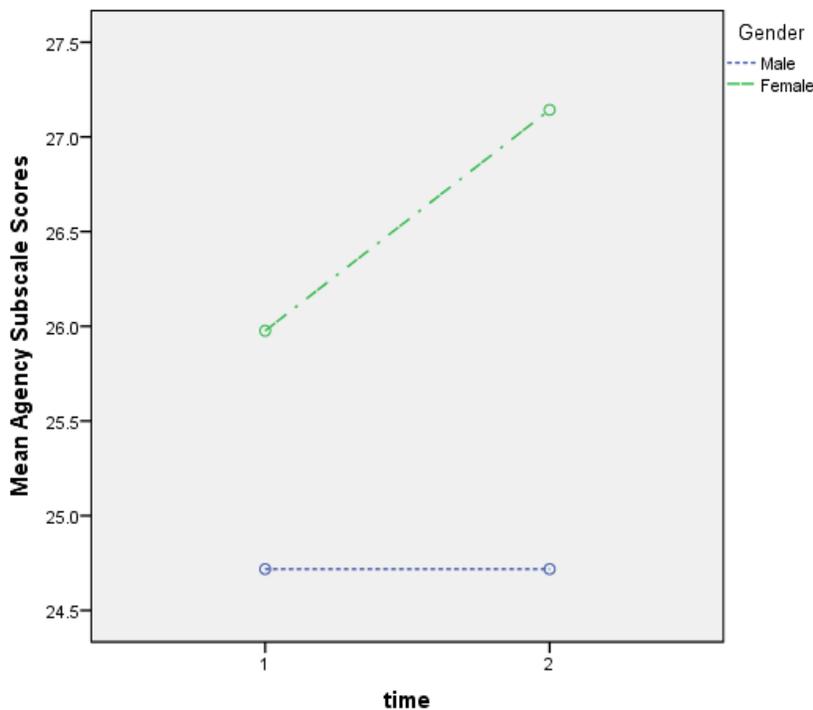
*Figure 3. Change in Hope Scale Scores by Gender from T1 to T2.*

While women had slightly higher mean scores on the *Pathways* subscale ( $n = 40$ ; T1,  $M = 25.83$ ,  $SD = 3.20$ ; T2,  $M = 26.05$ ,  $SD = 3.46$ ) than men ( $n = 36$ ; T1,  $M = 25.17$ ,  $SD = 3.41$ ; T2,  $M = 25.44$ ,  $SD = 3.75$ ), gender differences were not significant based on results of repeated

measures ANOVA  $F(1, 74) = .93, p = .339; \eta^2 = .01$ . The same set of analyses indicated no significant changes in *Pathways* subscale scores by gender  $F(1, 74) = .32, p = .574; \eta^2 = .004$ .

As seen in Figure 4 below, women ( $n = 42$ ) had significantly higher *Agency* subscale scores than their male counterparts ( $n = 39$ ) at T1 and T2  $F(1, 79) = 6.03, p = .016; \eta^2 = .07$ . Though women's mean *Agency* subscale scores increased slightly from T1 ( $M = 25.98, SD = 3.35$ ) to T2 ( $M = 27.14, SD = 3.26$ ), men's scores did not change at all (T1,  $M = 24.72, SD = 4.45$ ; T2,  $M = 24.72, SD = 4.35$ ), and repeated measures ANOVA indicated no significant change over time within gender groups  $F(1, 79) = 1.89, p = .173; \eta^2 = .02$ .

**Figure 4. Changes in Agency Subscale Scores by Gender**



*Figure 4. Changes in Agency Subscale Scores by Gender from T1 to T2.*

***Changes in Positive Affect: Gender.***

As shown in Figure 5 below, men ( $n = 32$ ; T1,  $M = 34.25, SD = 6.71$ ; T2,  $M = 36.66, SD = 7.11$ ) and women ( $n = 36$ ; T1,  $M = 36.03, SD = 8.34$ ; T2,  $M = 37.31, SD = 7.32$ ) reported

significantly higher levels of positive emotion by the end of the intervention  $F(1, 66) = 4.97, p = .029; \eta^2 = .07$ . Based on conclusions drawn from previous research, the rise in *Positive Affect* suggests that students of both genders may be better prepared to cope with challenges as a result of their participation in the intervention.

**Figure 5. Changes in Positive Affect by Gender**

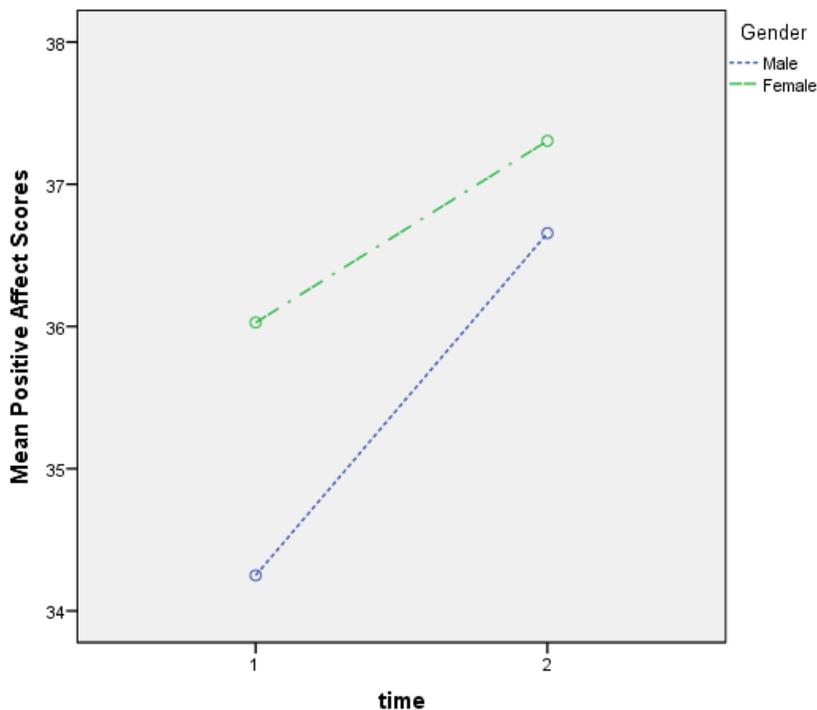


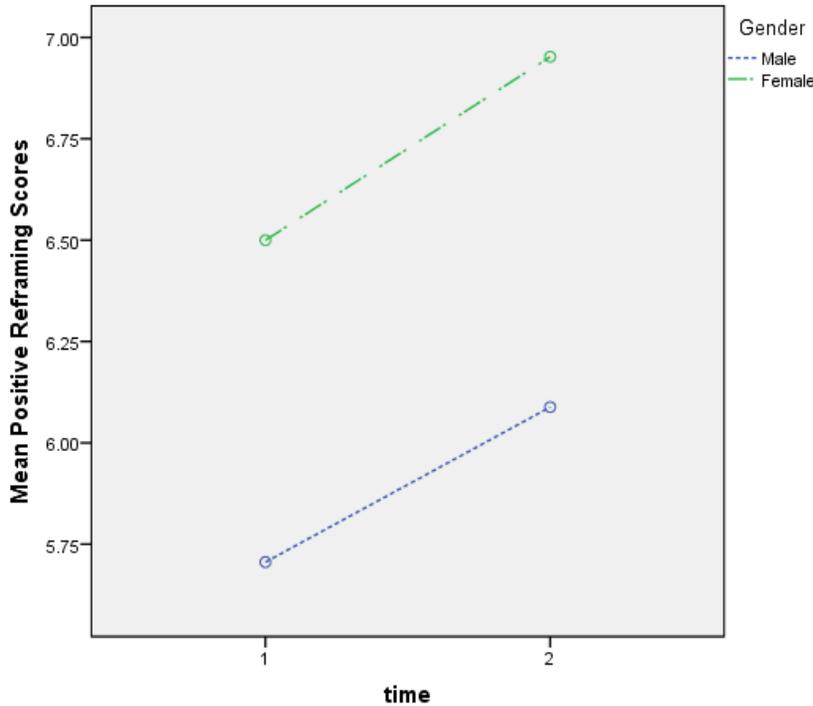
Figure 5. Changes in Positive Affect by Gender from T1 to T2.

***Changes in Positive Reframing: Gender.***

As seen in Figure 6 below, there were significant differences between gender groups in their overall use of the *Positive Reframing* coping style  $F(1, 74) = 12.34, p = .001; \eta^2 = .14$ . However, in spite of gender differences, men ( $n = 34$ ) and women ( $n = 42$ ) each demonstrated significant increases in *Positive Reframing* over time  $F(1, 74) = 6.12, p = .016; \eta^2 = .08$ . Men’s mean scores went from 5.71 at T1 ( $SD = 1.12$ ) to 6.09 at T2 ( $SD = 1.42$ ), while women’s mean scores increased from 6.50 at T1 ( $SD = 1.38$ ) to 6.95 at T2 ( $SD = 1.08$ ). Changes in *Positive*

*Reframing* suggest that the intervention may play a role in helping men and women come up with new, adaptive ways of thinking about the challenges they face.

**Figure 6. Changes in Positive Reframing Coping Style by Gender**



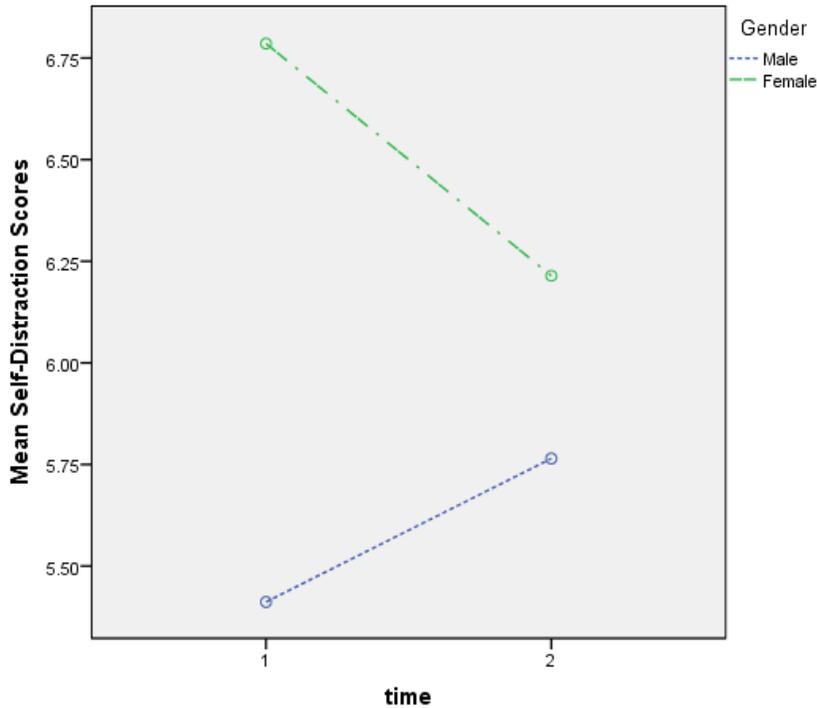
*Figure 6.* Changes in the Positive Reframing Coping Style by *Gender* from T1 to T2.

***Changes in Self-Distraction: Gender.***

The *Self-Distraction* coping style is linked to poor outcomes because in using it, students rely on escape or avoidance instead of dealing directly with difficulties. An item taken from this portion of the Brief COPE asks students how often they “do something to think about (the problem) less,” such as watching TV or sleeping. Women ( $n = 42$ ) used fewer *Self-Distraction* behaviors by the end of the intervention (T1,  $M = 6.79$ ,  $SD = 1.30$ ; T2,  $M = 6.21$ ,  $SD = 1.22$ ), while men ( $n = 34$ ) reported *more* frequent use of self-distraction over time (T1,  $M = 5.41$ ,  $SD = 1.35$ ; T2,  $M = 5.76$ ,  $SD = 1.28$ ). According to repeated measures ANOVA, the gender interaction (which is shown in Figure 7 below) was statistically significant  $F(1, 74) = 6.60$ ,  $p =$

.012;  $\eta^2 = .08$ . Additional research may be needed to better understand and mitigate students' tendencies to engage in self-distraction as a means of coping.

**Figure 7. Changes in Self-Distraction by Gender**



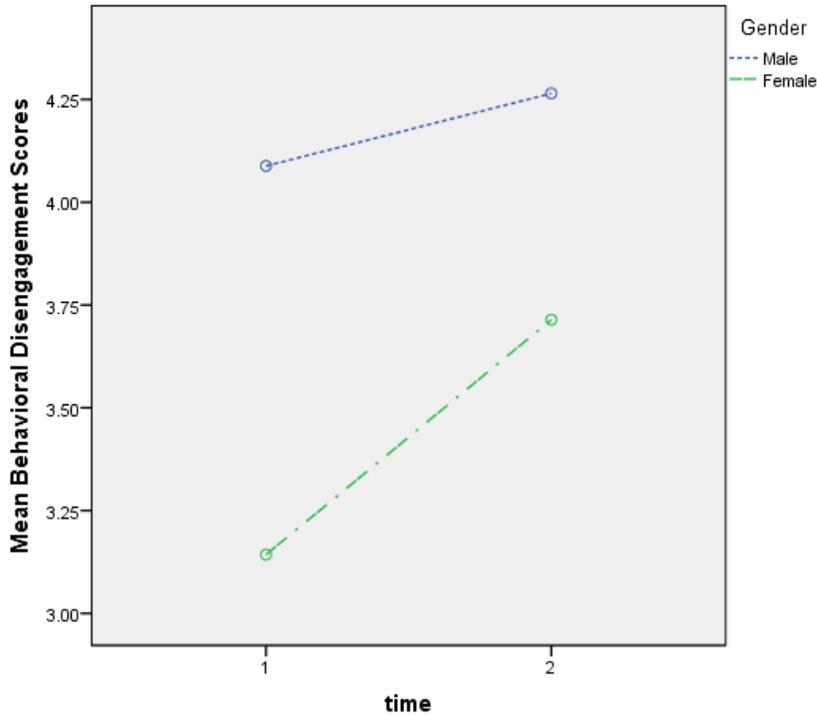
*Figure 7. Changes in the Self-Distraction Coping Style by Gender from T1 to T2.*

***Changes in Behavioral Disengagement: Gender.***

As seen in Figure 8 below, male ( $n = 34$ ) and female ( $n = 42$ ) students were both more likely to report signs of *Behavioral Disengagement* by T2—changes which approached statistical significance, according to repeated measures ANOVA  $F(1, 74) = 3.87, p = .053; \eta^2 = .05$ . Men's mean scores went from 4.09 at T1 ( $SD = 1.42$ ) to 4.26 at T2 ( $SD = 1.69$ ), while women went from a mean of 3.14 at T1 ( $SD = 1.22$ ) to 3.71 at T2 ( $SD = 1.69$ ). Though students of both genders appeared more behaviorally disengaged over time, men were significantly more likely to report the use of this coping style overall  $F(1, 74) = 6.52, p = .013; \eta^2 = .08$ . The rise in

*Behavioral Disengagement* could signal a need for additional coping support during the last few weeks of an academic semester, when stress levels may be especially high.

**Figure 8. Changes in Behavioral Disengagement by Gender**



*Figure 8.* Changes in the Behavioral Disengagement Coping Style by *Gender* from T1 to T2.

The analyses reported above revealed statistically significant changes in *Positive Affect*, *Optimism*, and *Positive Reframing* within gender groups over time. Patterns of *Behavioral Disengagement* and *Self-Distraction* suggest that male students may not be receiving the same benefits as their female counterparts from this type of intervention. For additional relevant gender-related discussion, see Research Question 3 and conclusions in Chapter 5.

## Research Question 2 results by ethnicity.

Table 9

*Summary of Repeated Measures ANOVA Results by Ethnic Group, Questionnaire (T1-T2)*

Variable	Within-Subjects		Interactions		Between-Subjects	
	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$
Hope	.262	.02	.793	.00	.167	.03
Pathways	.550	.01	.835	.00	.593	.00
Agency	.139	.03	.624	.00	.068	.04
Autonomy	.960	.00	.359	.01	.004	.11
Competence	.196	.02	.975	.00	.474	.01
Relatedness	.591	.00	.863	.00	.346	.01
Optimism	.070	.05	.541	.01	.367	.01
Positive Affect	.018	.08	.314	.02	.020	.08
Negative Affect	.572	.01	.358	.01	.118	.04
Positive Reframing	.032	.06	.775	.00	.121	.03
Instrumental Support	.075	.04	.019	.08	.596	.00
Behavioral Disengagement	.189	.02	.086	.04	.537	.01
Strengths Self-Efficacy	.401	.01	.829	.00	.556	.01

### ***Changes in Optimism: Ethnicity.***

Regardless of ethnic group, students were, on average, more optimistic by T2. Though optimism scores for *white students* went up by a slightly higher margin (T1,  $M = 26.10$ ,  $SD = 3.70$ ; T2,  $M = 27.49$ ,  $SD = 3.72$ ) than scores for *students of color* (T1,  $M = 25.74$ ,  $SD = 4.21$ ; T2,  $M = 26.43$ ,  $SD = 4.03$ ), the main effect for change over time within ethnic groups only approached statistical significance  $F(1, 72) = 3.39$ ,  $p = .070$ ;  $\eta^2 = .05$ .

### ***Changes in Positive Affect: Ethnicity.***

Regardless of ethnicity, students reported experiencing more positive emotion at the end of the intervention. Repeated measures ANOVA revealed that on the whole, students of color reported experiencing significantly lower levels of positive emotion than their white peers  $F(1,$

66) = 5.68,  $p = .020$ ;  $\eta^2 = .08$ . In spite of the differences between ethnic groups, changes in Positive Affect within those groups over time were also statistically significant  $F(1, 66) = 5.88, p = .018$ ;  $\eta^2 = .08$ . As seen in Figure 9 below, *white students* ( $n = 48$ ) went from a mean score of 36.65 at T1 ( $SD = 7.18$ ) to 37.92 at T2 ( $SD = 6.77$ ), and *students of color* ( $n = 20$ ) also showed a boost in Positive Affect, going from a mean of 31.70 at T1 ( $SD = 7.66$ ) to 34.80 at T2 ( $SD = 7.80$ ). Repeated measures ANOVA indicated no significant *Time x Ethnic Group* interaction  $F(1, 66) = 1.03, p = .314$ ;  $\eta^2 = .02$ .

**Figure 9. Changes in Positive Affect by Ethnic Group**

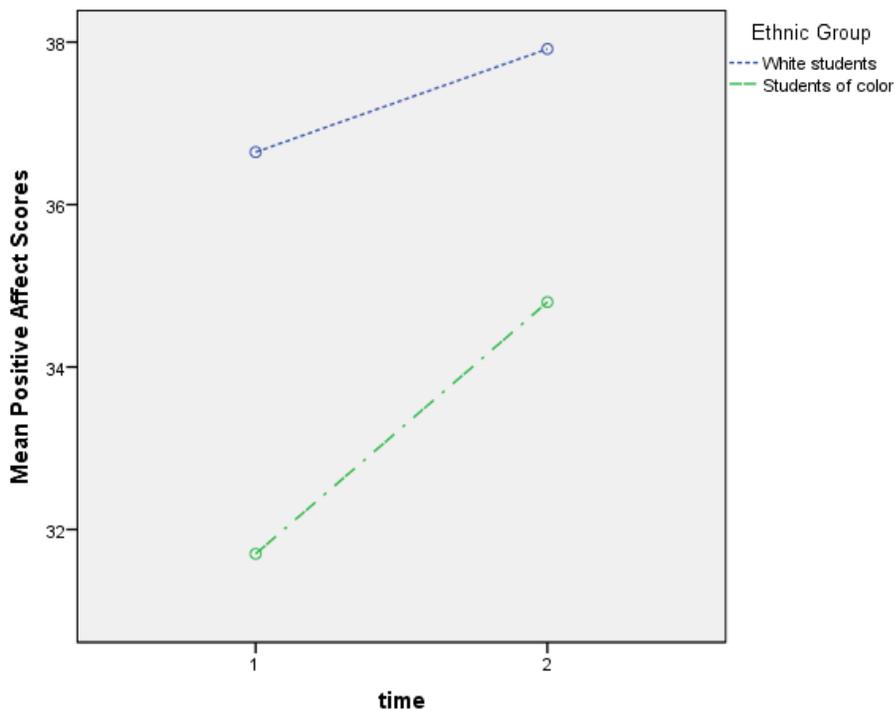


Figure 9. Changes in Positive Affect by *Ethnic Group* from T1 to T2.

***Changes in Positive Reframing and Instrumental Support coping styles: Ethnicity.***

White students ( $n = 53$ ; T1,  $M = 6.00, SD = 1.37$ ; T2,  $M = 6.45, SD = 1.38$ ) and students of color ( $n = 23$ ; T1,  $M = 6.48, SD = 1.16$ ; T2,  $M = 6.83, SD = 1.11$ ) each reported significantly

greater use of *Positive Reframing* by the end of the intervention, according to results of repeated measures ANOVA  $F(1, 74) = 4.81, p = .032; \eta^2 = .06$ .

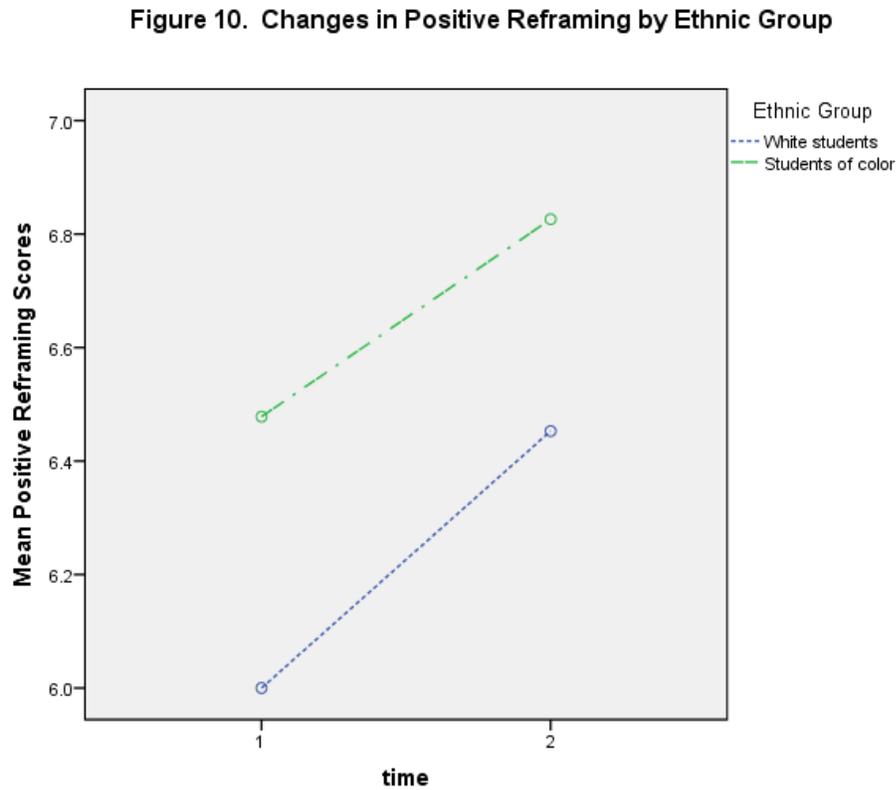


Figure 10. Changes in the Positive Reframing Coping Style by Ethnic Group from T1 to T2.

When assessing changes in students' use of the *Instrumental Support* coping style, the researcher noted that by T2, students of color ( $n = 21$ ) were more likely to get help when needed (T1,  $M = 5.81, SD = 1.66$ ; T2,  $M = 6.76, SD = 1.26$ ). On the other hand, as seen in Figure 11 below, their white peers reported being slightly *less* likely to do so at T2 ( $M = 6.37, SD = 1.30$ ) than at T1 ( $M = 6.50, SD = 1.38$ ). Repeated measures ANOVA showed that both the main effect for change within groups  $F(1, 74) = 5.26, p = .024; \eta^2 = .06$  and the *Time x Ethnic Group* interaction were statistically significant  $F(1, 74) = 6.94, p = .01; \eta^2 = .08$ . The evidence of positive changes in seeking Instrumental Support among students of color suggests that the intervention may help normalize the need to ask for help in achieving goals.

Figure 11. Changes in Instrumental Support by Ethnic Group

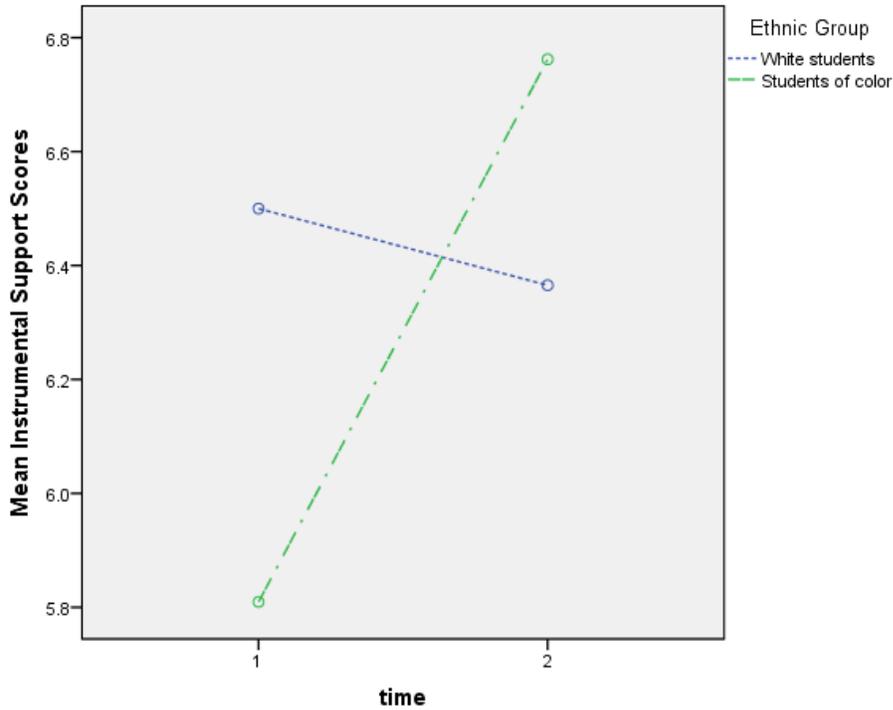


Figure 11. Changes in the Instrumental Support Coping Style by Ethnic Group from T1 to T2.

***Changes in Behavioral Disengagement: Ethnicity.***

When the researcher assessed differences in *Behavioral Disengagement*, a *Time x Ethnicity* interaction approached statistical significance  $F(1, 74) = 3.03, p = .086; \eta^2 = .04$ . White students ( $n = 53$ ) in the sample reported *greater* usage of Behavioral Disengagement at T2 ( $M = 4.13, SD = 1.82$ ) than at T1 ( $M = 3.52, SD = 1.29$ ). However, students of color ( $n = 23$ ) reported *lower* levels of Behavioral Disengagement at T2 ( $M = 3.58, SD = 1.38$ ) than at T1 ( $M = 3.67, SD = 1.61$ ), suggesting that the intervention may help students of color identify and utilize strategies needed to sustain effort over time.

The analyses described above were used to understand patterns of change by ethnicity. Results revealed significant main effects for changes in *Positive Affect* and *Positive Reframing*, each of which directly correspond to intervention objectives. Other changes such as those

observed in *Instrumental Support* and *Behavioral Disengagement* suggest that students of color may derive unique benefits from the intervention. For more discussion about ethnicity-related effects of the intervention, see Research Question 3 and conclusions in Chapter 5.

**Research Question 2 results by admit type.**

Table 10

*Summary of Repeated Measures ANOVA Results by Admit Type, Questionnaire (T1-T2)*

Variable	Within-Subjects		Interactions		Between-Subjects	
	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$
Hope	.237	.02	.291	.02	.516	.01
Pathways	.547	.01	.441	.01	.748	.00
Agency	.153	.03	.475	.01	.246	.02
Autonomy	.665	.00	.635	.00	.122	.03
Competence	.154	.03	.482	.01	.421	.01
Relatedness	.601	.00	.546	.01	.468	.01
Optimism	.027	.07	.247	.02	.781	.00
Positive Affect	.033	.07	.075	.05	.243	.02
Negative Affect	.296	.02	.920	.00	.455	.01
Behavioral Disengagement	.042	.06	.934	.00	.039	.06
Strengths Self-Efficacy	.406	.01	.577	.01	.692	.00

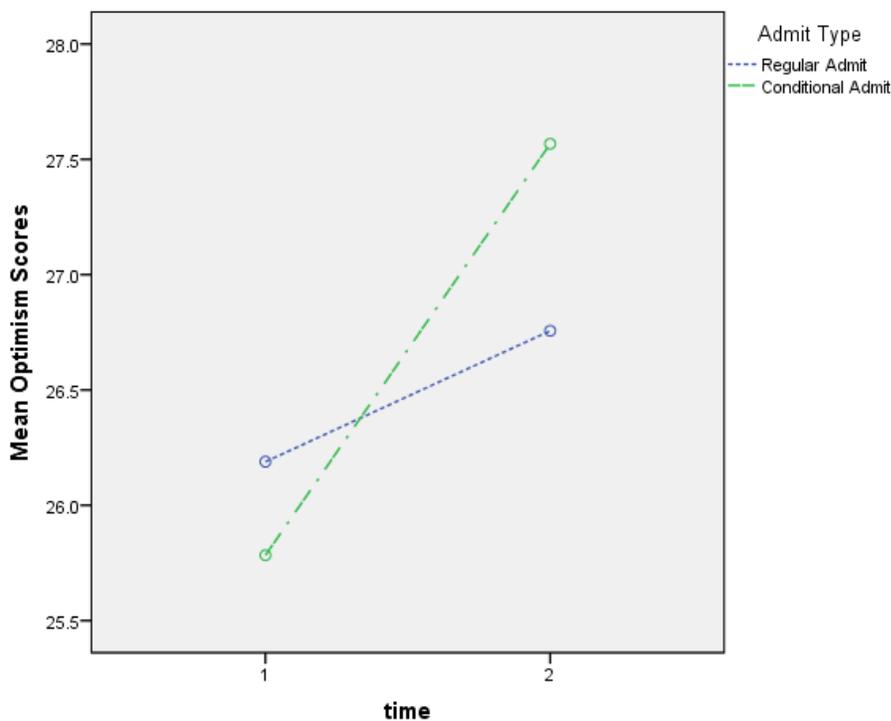
***Changes in Hope Scale Scores: Admit type.***

Repeated measures ANOVA indicated no significant change in hope scores based on *Admit type*  $F(1, 73) = 1.42, p = .237; \eta^2 = .02$ . *Regularly admitted* students' ( $n = 35$ ) mean hope scores went from 49.94 at T1 ( $SD = 6.15$ ) to 51.69 at T2 ( $SD = 6.32$ ), and *conditionally admitted* students' ( $n = 40$ ) mean hope scores went from 51.60 at T1 ( $SD = 6.56$ ) to 51.70 at T2 ( $SD = 6.73$ ).

***Changes in Optimism: Admit type.***

Lopez (2013) described optimism as “half” of hope; therefore, gains in optimism should contribute to increases in hopeful cognitions and actions over time. As seen in Figure 12 below, participants were significantly more optimistic by the end of the intervention, regardless of their entering admission status  $F(1, 72) = 5.09, p = .027; \eta^2 = .07$ . Optimism scores for *regularly admitted* students ( $n = 37$ ) increased from T1 ( $M = 26.17, SD = 3.82$ ) to T2 ( $M = 26.76, SD = 3.07$ ), and *conditionally admitted* students ( $n = 37$ ) also showed signs of growing optimism from T1 ( $M = 25.78, SD = 3.90$ ) to T2 ( $M = 27.57, SD = 4.46$ ).

**Figure 12. Changes in Optimism Scores by Admit Type**



*Figure 12.* Changes in Optimism by Admit Type from T1 to T2.

***Changes in Positive Affect: Admit type.***

Students reported higher levels of Positive Affect at T2 regardless of admit type. Changes within admit type groups were statistically significant, according to results of repeated

measures ANOVA  $F(1, 66) = 4.77, p = .033; \eta^2 = .07$ . Students who received *regular admission* ( $n = 35$ ) reported increased levels of positive emotion from T1 ( $M = 33.57, SD = 7.56$ ) to T2 ( $M = 36.80, SD = 7.47$ ), along with their peers who were admitted *conditionally* ( $n = 33$ ; T1,  $M = 36.91, SD = 7.40$ ; T2,  $M = 37.21, SD = 6.96$ ). While both groups were experiencing more positive emotion by the intervention's end, the magnitude of change was greater among *regular admit* students. A *Time x Admit type* interaction approaching statistical significance  $F(1, 66) = 3.27, p = .075; \eta^2 = .05$  suggests that additional steps may be needed to assist *conditionally admitted* students in building and sustaining positive emotion.

**Figure 13. Changes in Positive Affect by Admit Type**

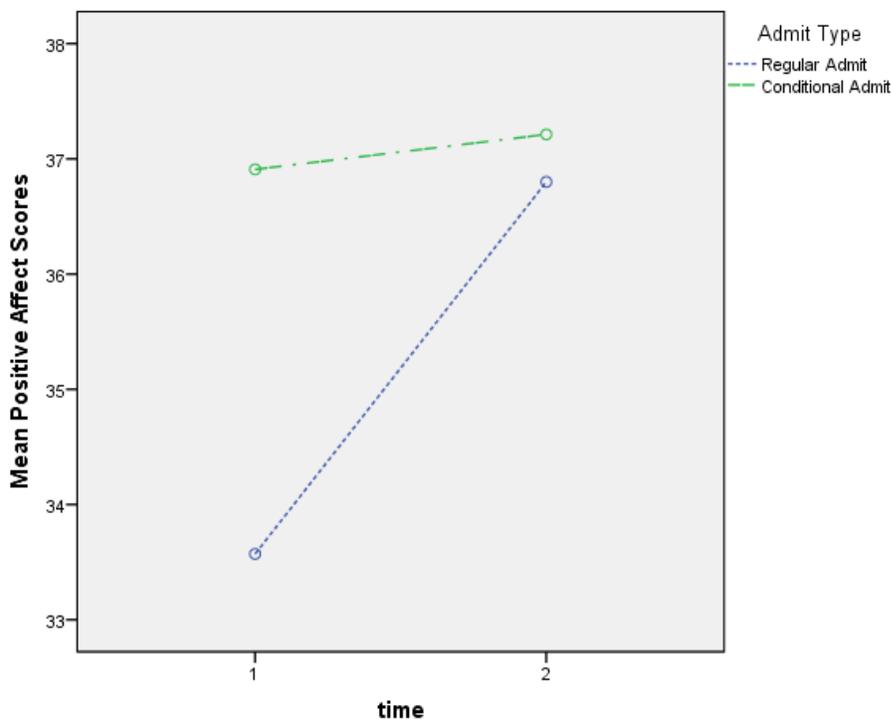


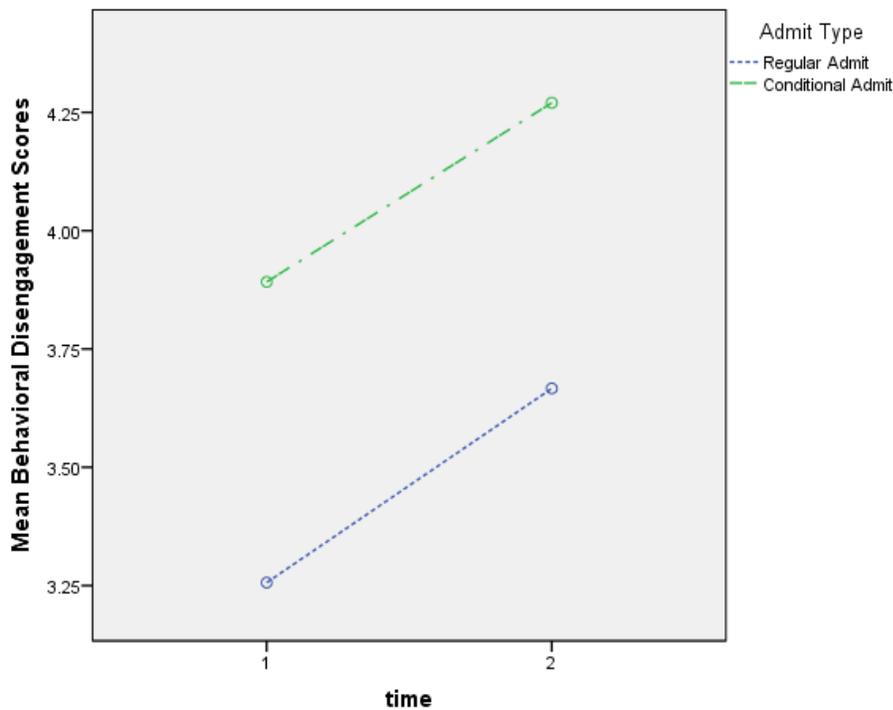
Figure 13. Changes in Positive Affect by Admit Type from T1 to T2.

***Changes in Behavioral Disengagement: Admit type.***

As seen in Figure 14 below, signs of *Behavioral Disengagement* were significantly more evident among students in each admit type group by T2  $F(1, 74) = 4.28, p = .042; \eta^2 = .06$ .

While both groups were choosing to disengage more often by the end of the semester, *conditionally admitted* students ( $n = 37$ ; T1,  $M = 3.89$ ,  $SD = 1.56$ ; T2,  $M = 4.27$ ,  $SD = 1.82$ ) were significantly more likely to use this coping style overall  $F(1, 74) = 4.40$ ,  $p = .039$ ;  $\eta^2 = .06$  compared to their peers who received *regular admission* ( $n = 39$ ; T1,  $M = 3.26$ ,  $SD = 1.14$ ; T2,  $M = 3.67$ ,  $SD = 1.55$ ). In light of these findings, it may be helpful to devote special attention to helping students cope near the end of the semester when stress levels may be especially high.

**Figure 14. Changes in Behavioral Disengagement by Admit Type**



*Figure 14.* Changes in the Behavioral Disengagement Coping Style by Admit Type from T1-T2.

The results above suggest that while conditionally admitted students were significantly more *Optimistic* by the end of the intervention, they did not show the same increases in *Positive Affect* as their peers. In addition, compared to their peers, students with conditional admission status were more likely to use the *Behavioral Disengagement* coping style, even reporting a greater likelihood to do so by the end of the intervention. These and other considerations related

to students with special admission status are taken up in Research Questions 3 and 4, and in the Conclusions section of Chapter 5.

**Research Question 2 results by first-generation status.**

Table 11

*Summary of Repeated Measures ANOVA Results by First-Generation Status, Questionnaire (T1-T2)*

Variable	Within-Subjects		Interactions		Between-Subjects	
	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$	<i>p</i>	$\eta^2$
Hope	.070	.04	.136	.03	.002	.13
Pathways	.235	.02	.245	.02	.029	.06
Agency	.053	.05	.181	.02	.003	.11
Autonomy	.553	.01	.148	.03	.740	.00
Competence	.410	.01	.685	.00	.124	.03
Relatedness	.211	.02	.185	.03	.012	.09
Optimism	.008	.09	.125	.03	.220	.02
Positive Affect	.004	.12	.051	.06	.050	.06
Negative Affect	.456	.01	.027	.07	.297	.02
Behavioral Disengagement	.370	.01	.370	.01	.362	.01
Strengths Self-Efficacy	.217	.02	.350	.01	.252	.02

***Changes in Optimism: First-generation status.***

First-generation students were significantly more optimistic by T2, according to results of repeated measures ANOVA  $F(1, 72) = 7.41, p = .008; \eta^2 = .09$ . As seen in Figure 15 below, Optimism scores for *first-generation students* ( $n = 12$ ) increased from a mean of 26.08 at T1 ( $SD = 4.34$ ) to 29.08 at T2 ( $SD = 5.60$ ), while their non-first generation peers ( $n = 62$ ) averaged gains of less than one point over the same period. Results suggest that students who are the first in their families to attend college become increasingly likely to *expect* good outcomes as a result of their participation in the intervention.

Figure 15. Changes in Optimism by First-Generation Status

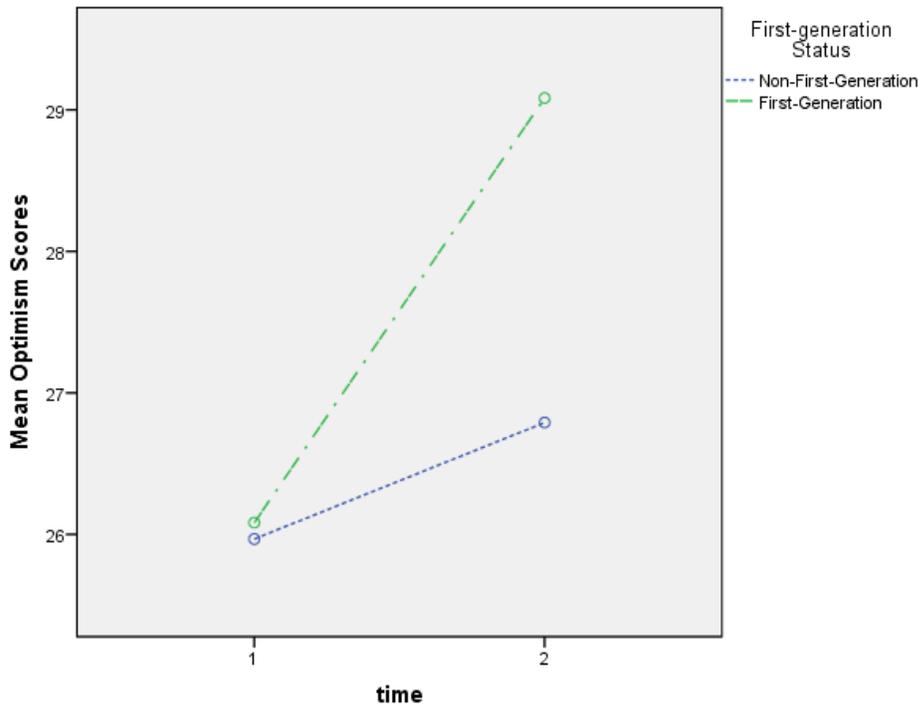


Figure 15. Changes in Optimism Scores by First-Generation Status from T1 to T2.

***Changes in Positive Affect: First-generation status.***

Students who were *not first-generation* ( $n = 57$ ) reported higher levels of positive affect overall compared to their *first-generation* peers, a group difference that approached statistical significance according to repeated measures ANOVA  $F(1, 66) = 4.00, p = .050; \eta^2 = .06$ . A *Time x First-generation status* interaction (evident in Figure 16 below) approached statistical significance  $F(1, 66) = 3.97, p = .051; \eta^2 = .06$ . While they started out significantly lower in Positive Affect than their peers, *first-generation* students ( $n = 11$ ) reported significantly more positive emotion at T2 than at T1  $F(1, 66) = 9.02, p = .004; \eta^2 = .12$ . The significant rise in levels of positive emotion among *first generation students* (T1,  $M = 29.82, SD = 6.90$ ; T2,  $M = 35.27, SD = 7.93$ ) suggests that the intervention may help them build and maintain a well of positive emotion from which they can draw strength for coping with challenges.

Figure 16. Changes in Positive Affect by First-Generation Status

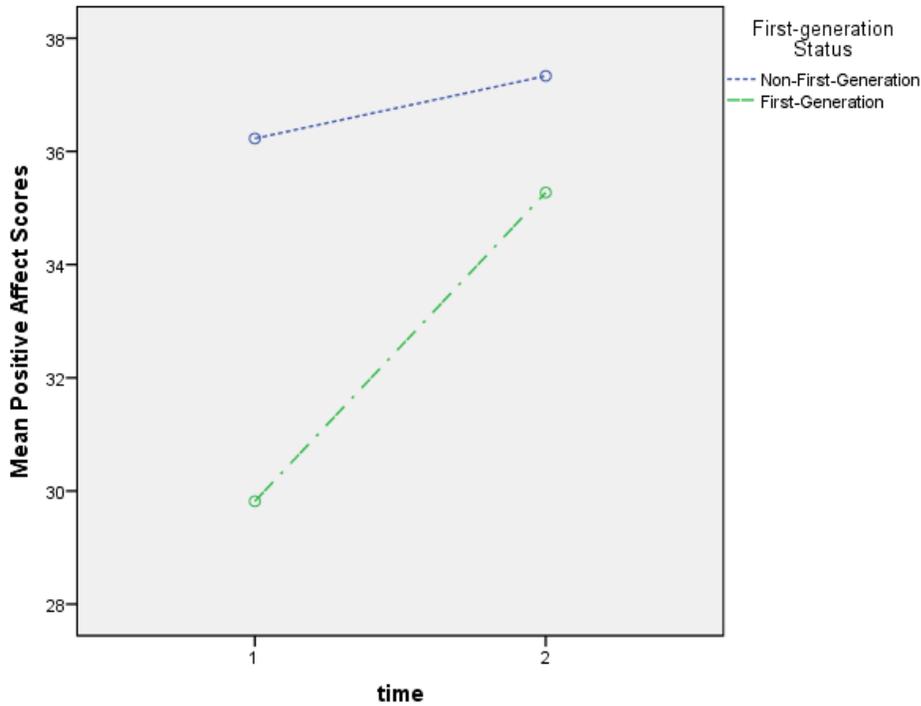


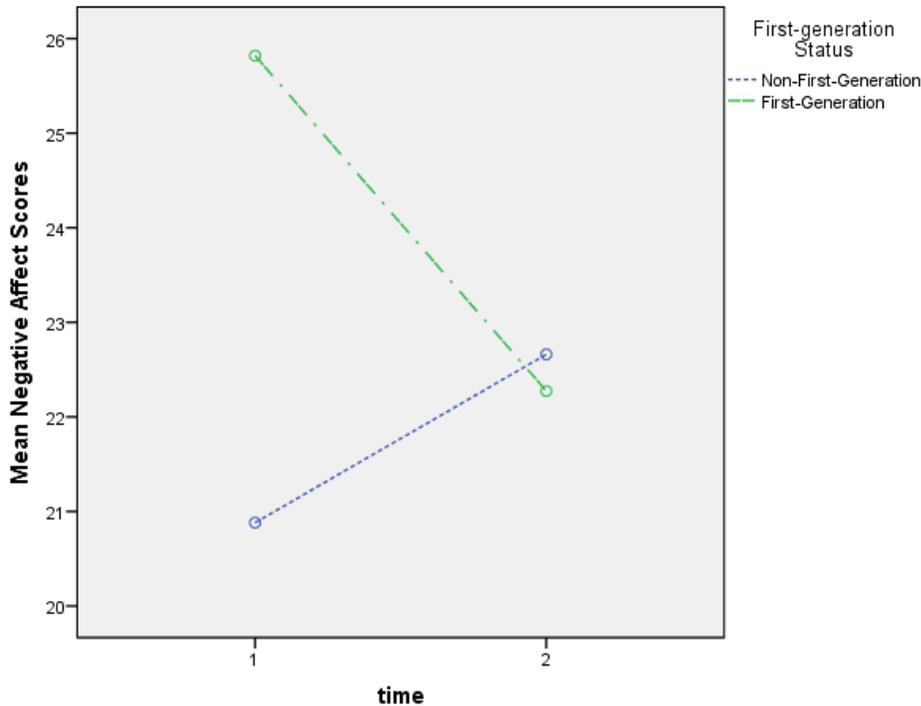
Figure 16. Changes in Positive Affect Scores by First-Generation Status from T1 to T2.

***Changes in Negative Affect: First-generation.***

The intervention's apparent benefits for *first-generation* students were also evident in the analysis of change in Negative Affect from T1 to T2. Repeated measures ANOVA revealed a significant *Time x First-Generation status* interaction  $F(1, 68) = 5.11, p = .027; \eta^2 = .07$  (seen in Figure 17 below). *First-generation* students ( $n = 11$ ) started out with relatively high levels of negative affect (T1,  $M = 25.82, SD = 10.21$ ), but those levels dropped by T2 ( $M = 22.27, SD = 9.02$ ). On the other hand, their *non-first generation* counterparts ( $n = 59$ ) showed an opposite trend, reporting slightly higher levels of negative affect from T1 ( $M = 20.88, SD = 6.77$ ) to T2 ( $M = 22.66, SD = 7.37$ ). While it is impossible to conclude from this data that the course is *responsible* for the observed decrease in Negative Affect among first-generation students, results

suggest they may have learned some strategies useful for coping with negative emotions during this time period.

**Figure 17. Changes in Negative Affect by First-Generation Status**



*Figure 17.* Changes in Negative Affect by First-Generation Status from T1 to T2.

Changes observed in the questionnaire data among first-generation students included significant increases in *Optimism* and *Positive Affect*, combined with significant decreases in their reported experiences of *Negative Affect* by the time they completed the intervention. Because of close links between students' outlook and emotions with their coping and motivation, results suggest that the intervention may play a role in helping students face their academic challenges with greater resolve and efficacy.

### **Summary of Results for Research Question 2**

Several indications in the results reported above are consistent with the view that particular groups appear to benefit more than others from the intervention, including specific

populations often considered at risk for failure in college. For example, students of color reported higher levels of *Positive Affect* and greater use of *Instrumental Support* by the end of the intervention. Conditionally admitted students and first-generation students were significantly more *Optimistic* by T2, and students who were the first in their families to attend college also reported significantly higher *Positive Affect* and lower *Negative Affect* by the time they completed the intervention. In Research Question 3, the researcher analyzed changes in students' *goals* to understand how their cognitions and behaviors might have evolved as a result of their participation in the intervention.

### **Research Question 3: Do Students' Goals Change or Evolve during the Intervention?**

The third research question represents the researcher's efforts to track patterns in students' goal-setting behavior over time. Question included whether students' goals indicate change or shifts in thinking and/or behavior, and if so, *how* those changes were manifested. Based on the theoretical framework presented in Chapter 2, the researcher hypothesized that as a result of participating in the intervention, students would demonstrate usage of increasingly sophisticated strategies, both in their generation of *pathways* and in demonstrating *agency* or persistence in spite of challenges (Lopez, 2013; Lopez et al., 2009; Snyder et al., 2002).

The following sections describe results of Research Question 3 data analysis in three phases: an overview of changes observable in students' goals over time, followed by an examination of changes for each of the nine goal-related variables—first *among the sample as a whole*, then by *demographic* (following the same general pattern as the demographic comparisons in Research Question 2). Table 12 below contains a summary of means and standard deviations for the nine variables used to evaluate student goal submissions ( $n = 83 \times$  five goals per student). For some variables, there appeared to be a mid-semester “slump”; for

others, codes assigned to students' goals through mid-semester suggest signs of learning and progress, followed by what appeared to be a drop-off at the end—possibly a result of feeling overwhelmed at the end of the term. The *Overall* ratings seemed less vulnerable to those factors.

Table 12

*Fall 2013 Sample—Goal Coding Results (Goal 2 – Goal 10)*

Variable from Coding Rubric	Goal 2 <i>M (SD)</i>	Goal 4 <i>M (SD)</i>	Goal 6 <i>M (SD)</i>	Goal 8 <i>M (SD)</i>	Goal 10 <i>M (SD)</i>
Overall (scale: 0-5)	3.22 (.94)	3.54 (.89)	3.58 (.89)	3.51 (.83)	3.58 (.86)
Goal (scale: 0-3)	2.43 (.65)	2.64 (.55)	2.37 (.71)	2.49 (.63)	2.51 (.61)
Mastery (scale: 0-3)	1.34 (.56)	1.31 (.58)	1.37 (.78)	1.33 (.71)	1.22 (.69)
Performance (scale: 0-3)	1.34 (.91)	1.15 (.83)	.99 (.76)	1.07 (.81)	1.07 (.81)
Approach/Avoid (scale: 0-3)	2.84 (.52)	2.92 (.39)	2.80 (.59)	2.89 (.47)	2.91 (.36)
Pathways* (scale: 0-3)	1.71 (.76)	1.84 (.86)	1.87 (.85)	1.83 (.83)	1.73 (.88)
Obstacles (scale: 0-3)	1.52 (.90)	1.71 (.94)	1.81 (.93)	1.75 (.86)	1.62 (.93)
Contingencies (scale: 0-3)	1.69 (.84)	1.78 (.84)	2.05 (.83)	1.96 (.78)	2.01 (.83)
Agency (scale: 0-6)	3.8 (1.61)	3.83 (1.46)	3.58 (1.57)	3.71 (1.37)	3.61 (1.57)

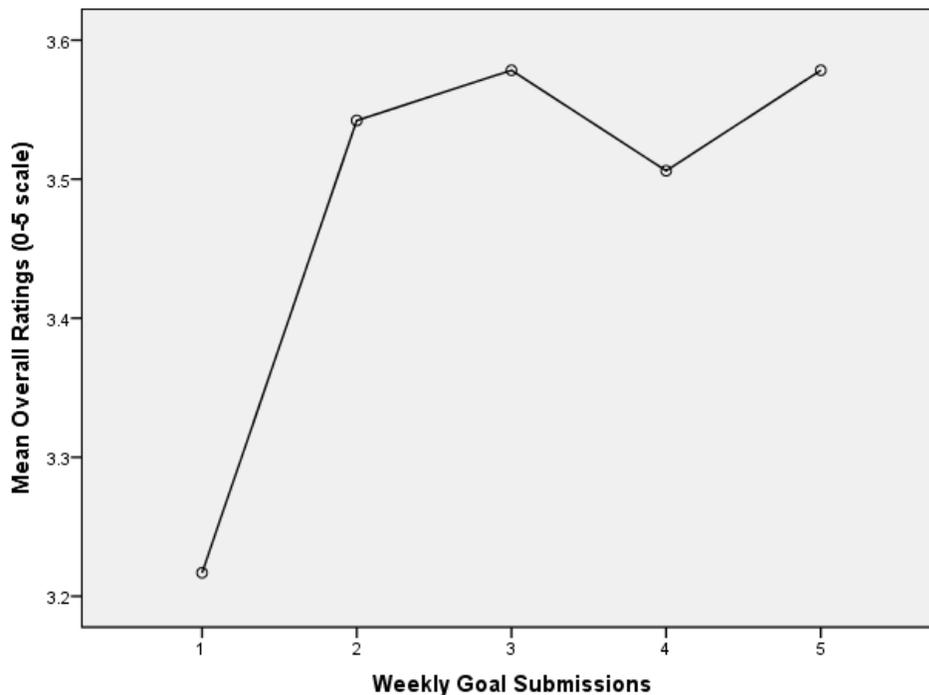
*Note.* Pathways, Obstacles, & Contingencies all belong to the “Pathways” section of the rubric, and are used together to calculate the Pathways composite score.

### **Changes in the Overall (global) goal rating from Goal 2 to Goal 10.**

The *Overall* rating served not as a sum, but as a global “clinical judgment” of a student’s weekly goal/plan. Among the sample as a whole, changes in *Overall* ratings over time were statistically significant using the lower-bound criterion to adjust for violation of sphericity assumptions  $F(4, 328) = 4.35, p = .040; \eta^2 = .05$ . After receiving early instruction on goal orientation and coaching in the creation and implementation of workable pathways and effective

methods of coping with setbacks, students seemed to apply those strategies within their goals (demonstrated by the jump in Overall ratings in Figure 18 below). Their goals were framed more succinctly and with more clearly defined targets. The steps listed as pathways to goal attainment included specific actions and behaviors needed to advance toward the goal. There was increasing evidence of students' ability to identify potential obstacles and come up with practical strategies for preventing and/or directly addressing them. Pairwise comparisons revealed that differences between Overall ratings at Goal 2 ( $M = 3.22$ ,  $SD = .94$ ) and each subsequent point of data collection (Goal 4,  $M = 3.54$ ,  $SD = .89$ ; Goal 6,  $M = 3.58$ ,  $SD = .89$ ; Goal 8,  $M = 3.51$ ,  $SD = .83$ ; Goal 10,  $M = 3.58$ ,  $SD = .86$ ) were statistically significant ( $p < .05$ ). Beyond Goal 2, no other comparisons were statistically significant.

**Figure 18. Changes in Overall Goal Ratings**



*Figure 18. Changes in Overall Ratings from Students' Weekly Goals.*

### **Changes in goal appraisal scores from Goal 2 to Goal 10.**

While the *Overall* rating served as a global, clinical-judgment style evaluation of a student's weekly goal, the other eight variables pertained to specific *parts* of a student's plan, including the framing of the goal itself. The "*Goal*" variable represents the clarity used to frame the goal itself, including the likelihood of attaining it within the specified timeframe (one week). The researcher used repeated measures ANOVA to study change over time among the sample as a whole for the *Goal* variable. Changes from Goal 2 to Goal 10 (which are shown in Figure 19 below) were statistically significant  $F(4, 328) = 2.76, p = .028; \eta^2 = .03$ .

Post-hoc pairwise comparisons revealed that the jump in mean *Goal* scores from Goal 2 ( $M = 2.43, SD = .65$ ) to Goal 4 ( $M = 2.64, SD = .55$ ) was statistically significant ( $p < .05$ ), and the drop from Goal 4 to Goal 6 ( $M = 2.37, SD = .71$ ) was also statistically significant ( $p < .01$ ). While students did seem to rebound from the apparent slump at Goal 8 and Goal 10, none of the other pairwise comparisons were statistically significant. While the early jump in Goal ratings (Goal 2 to Goal 4) could represent an improvement in skills related to goal-setting, the subsequent ratings indicated that participants did not consistently apply those skills in the formation of their goals.

Figure 19. Changes in "Goal" Ratings

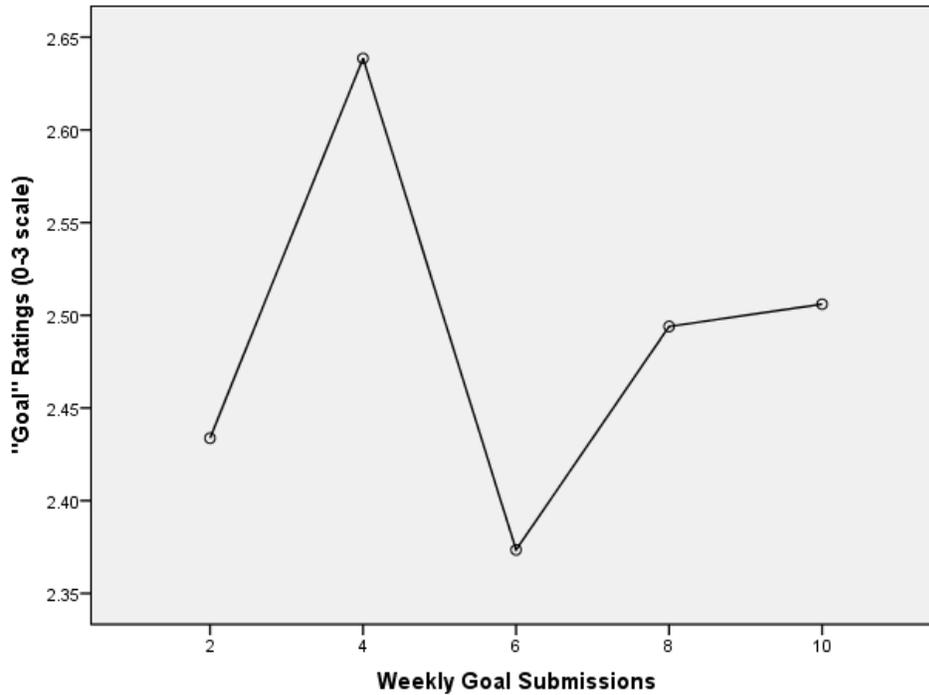


Figure 19. Changes in Goal Ratings from Students' Weekly Goals.

#### **Changes in students' use of Mastery and Performance goals.**

Elliott and Dweck (1988) reported that a *performance goal orientation* (being preoccupied with grades and/or evaluations of one's work) combined with *low perceived ability* often leads to strategy deterioration. With that in mind, the researcher sought to discover whether the intervention seemed to help students break or avoid this pattern altogether. By the end of the term, students were framing significantly fewer goals in terms of *Performance* (e.g., grades or other forms of external evaluation), according to results of repeated measures ANOVA  $F(4, 328) = 2.83, p = .025; \eta^2 = .03$ . Some students' goals included attention to both mastery *and* performance. While students' final goals received slightly lower ratings for their emphasis on mastering concepts and skills, changes in *Mastery* ratings over time were not statistically significant  $F(4, 328) = .73, p = .570; \eta^2 = .01$ .

Figure 20. Changes in Performance Goal Ratings

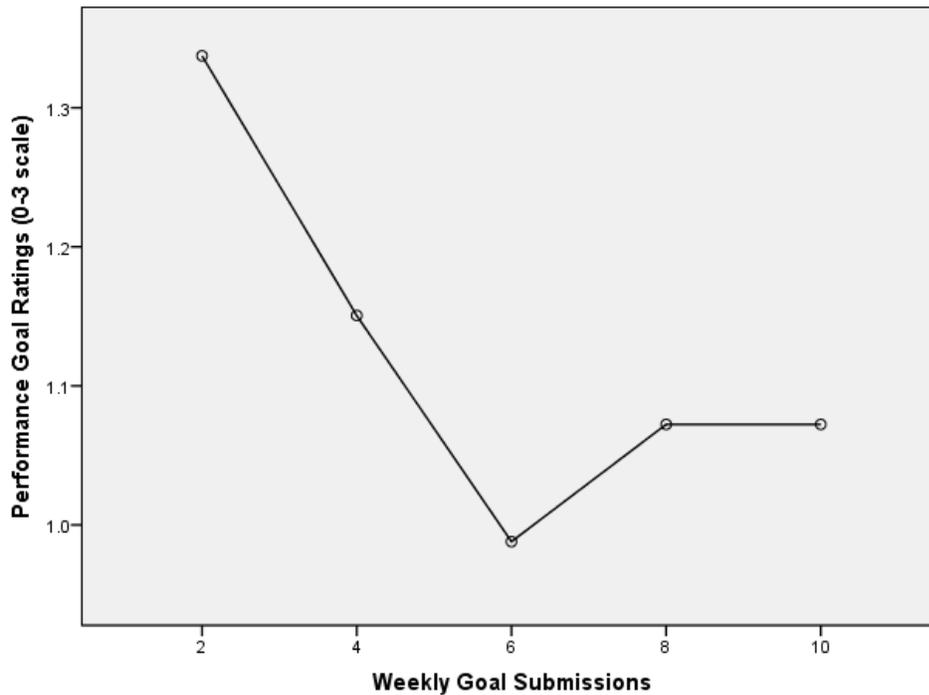


Figure 20. Changes in Performance Ratings from Students' Weekly Goals.

### Changes in students' use of Approach vs. Avoidance goals.

Students' use of approach and avoidance goals was scored on a continuum, with the high end of the scale representing "pure" approach goals, and the low end used to denote goals dedicated to avoiding particular behaviors or undesirable outcomes. The raters used a "2" rating for cases in which students incorporated approach- and avoidance-focused components into the same goal. If this study were to be replicated, the researcher would recommend evaluating *Approach* and *Avoidance* goals using two scales rather than on a single continuum in order to isolate their impact as distinct variables. As seen in Figure 21 below, while students' goals fluctuated in their emphasis on *Approach* vs. *Avoidance*, changes over time were not statistically significant  $F(4, 328) = .96, p = .432; \eta^2 = .01$ .

Figure 21. Changes in Approach vs. Avoidance Focused Goals

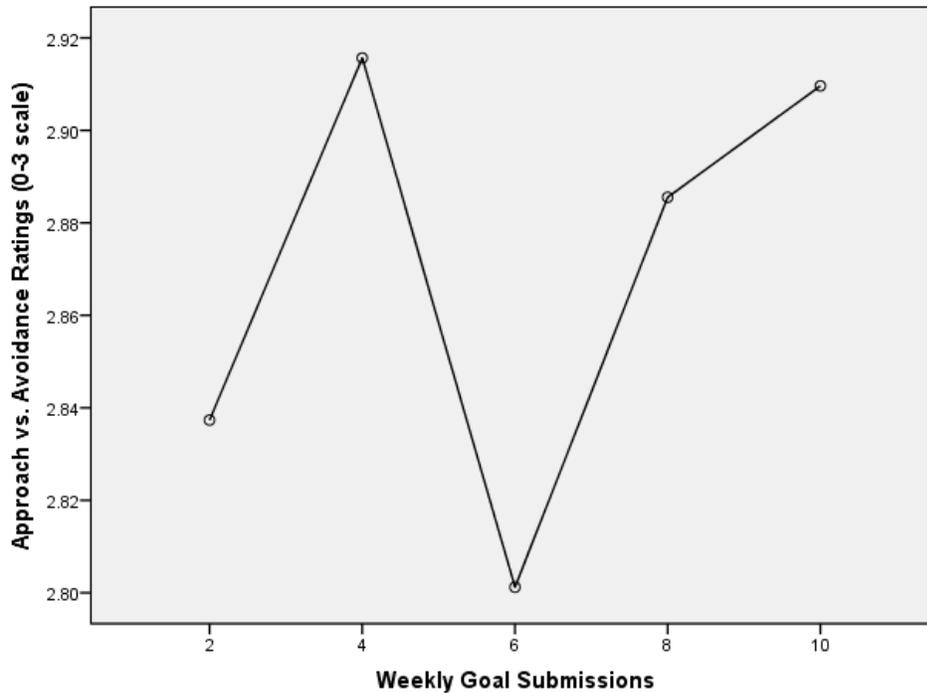


Figure 21. Changes in Approach vs. Avoidance Ratings from Students' Weekly Goals.

**Change in the “Pathways” goal variable from Goal 2 to Goal 10.**

While the *Pathways* variable described earlier in this chapter referred to changes in the *Pathways* portion of the Adult Hope Scale, the current section describes changes observed in the pathways generated as strategies for reaching weekly goals. The researcher used repeated measures ANOVA to study changes over time, and found a statistically significant curvilinear pattern seen in Figure 22 below  $F(1, 82) = 4.31, p = .041; \eta^2 = .05$ . By noting the time period during which students' effort levels tended to decline, special efforts can be taken in the future to help reenergize students in the formation of effective pathways near the end of the semester.

Figure 22. Changes in Pathways Ratings

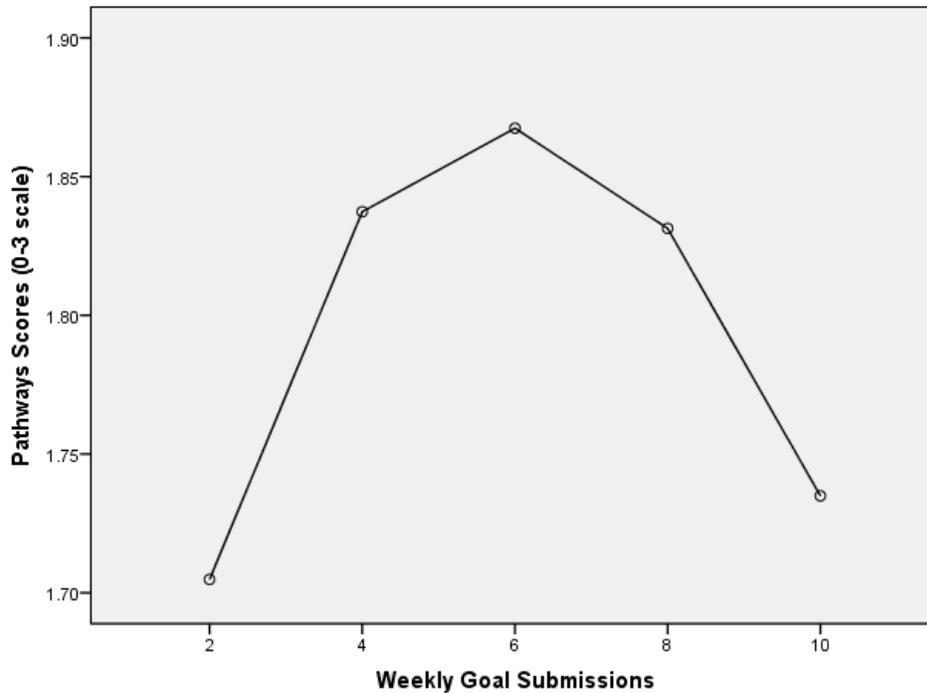


Figure 22. Changes in Pathways Ratings from Students' Weekly Goals.

**Changes in “Obstacles” goal variable from Goal 2 to Goal 10.**

After *Pathways*, the next portion of the rubric evaluated students' efforts in identifying potential obstacles to goal attainment. In the context of hope theory, anticipating obstacles is a necessary step because it not only acknowledges the inevitability of roadblocks, but also incorporates effortful consideration of options for preventing or reducing their negative effects. Among the overall sample, trends over time closely resembled the patterns reported for *Pathways* above. According to results from repeated measures ANOVA, the curvilinear pattern shown in Figure 23 below was statistically significant  $F(1, 82) = 7.87, p = .006, \eta^2 = .09$ . Pairwise comparisons revealed that students' *Obstacles* ratings at Goal 6 were significantly higher than at Goal 2 ( $p < .05$ ), and the drop-off from Goal 6 to Goal 10 approached statistical

significance ( $p = .085$ ), suggesting that students may need additional support to remain vigilant about potential obstacles as they near the end of an academic semester.

**Figure 23. Changes in Obstacles Ratings**

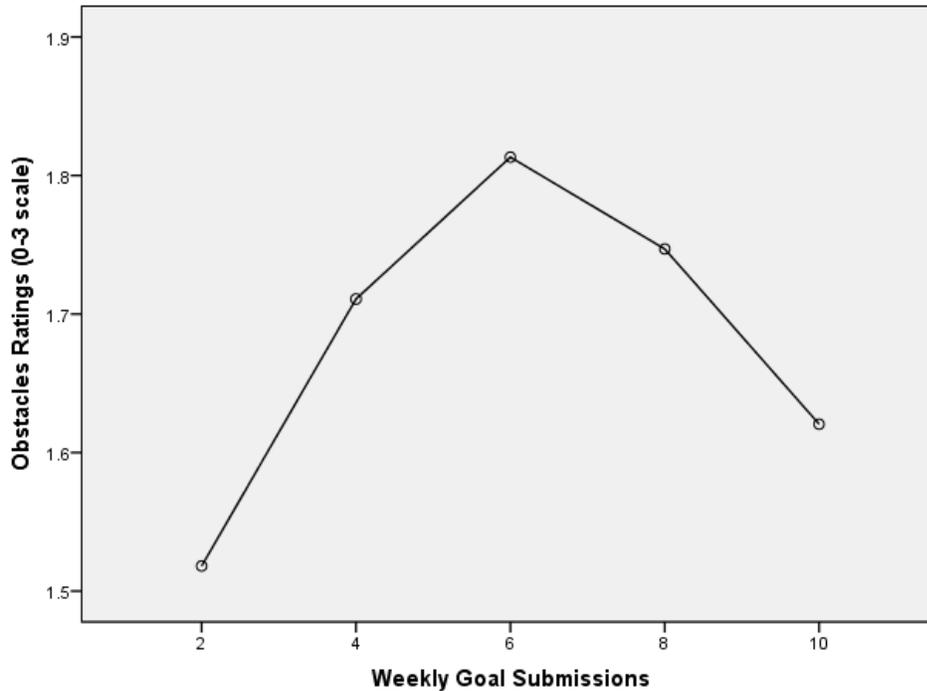


Figure 23. Changes in Obstacles Ratings from Students' Weekly Goals.

#### **Changes in “Contingencies” goal variable from Goal 2 to Goal 10.**

The *Contingencies* variable appeared next on the goal coding rubric and was used to rate students' strategies for addressing the specific obstacles identified in the preceding step. Among the sample as a whole, positive changes over time in *Contingencies* ratings were statistically significant  $F(4, 328) = 4.37, p = .002; \eta^2 = .05$ . As Figure 23 below demonstrates, participants demonstrated increasing evidence of effective *contingency thinking* (creating appropriate means of addressing anticipated setbacks) over the course of the intervention. With effective contingency plans in place, students are more likely to successfully overcome obstacles and therefore achieve more of the goals they set.

Figure 24. Changes in Contingencies Ratings

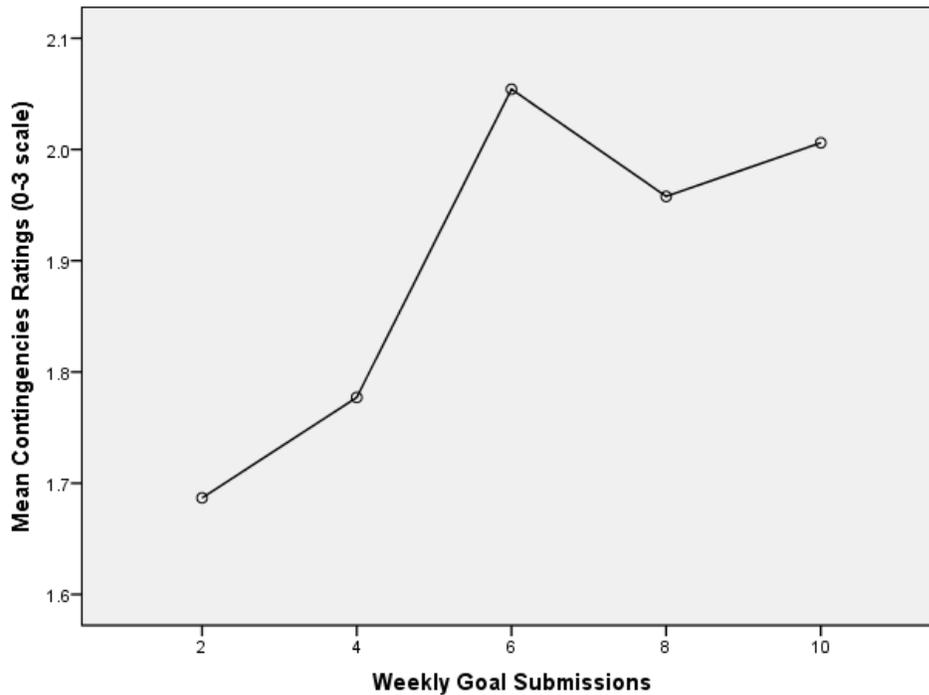


Figure 24. Changes in Contingencies Ratings from Students' Weekly Goals.

#### Changes in the “Agency” goal variable from Goal 2 to Goal 10.

While contingency thinking is related to the *Pathways* portion of the Adult Hope Scale, successful deployment of strategies used to recover from setbacks enables the “forward feeding cycle” of hope, thereby reinforcing *Agency*. Among the sample as a whole, changes over time in students' *Agency* ratings were not statistically significant  $F(4, 328) = .60, p = .664; \eta^2 = .01$ .

To better understand trends in *Agency* (shown in Figure 25 below), the researcher analyzed its correlations with the *types* of goals students set. She found that *Agency* was significantly and positively correlated with the use of *Mastery* goals in Goal 6  $r(81) = .24, p < .05$ , and with the use of *Approach*-focused goals in Goal 2  $r(81) = .28, p < .05$ , at T4  $r(81) = .30, p < .01$  and Goal 10  $r(81) = .25, p < .05$ . Thus, it appears that the more clearly students framed goals as *positive* targets, the more likely they were to exhibit the persistence needed to get there.

Figure 25. Changes in Agency Ratings

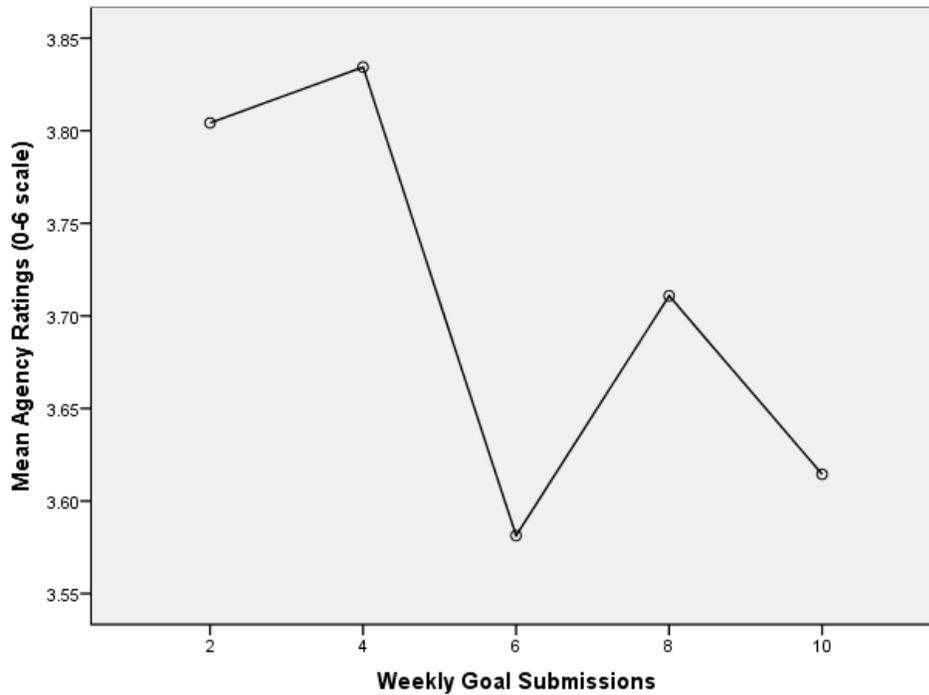


Figure 25. Changes in Agency Ratings from Students' Weekly Goals.

In addition to the partial explanations for variance in *Agency* based on the ways in which students framed their goals, differences in *Agency* could also be explained to some extent by the evidence of students' efforts to identify and create plans for addressing obstacles. Results of correlation analyses revealed statistically significant correlations between *Agency* goal ratings and the *Obstacles* variable in Goal 2  $r(81) = .41, p < .01$ , Goal 4  $r(81) = .35, p < .01$ , and Goal 6  $r(81) = .29, p < .01$ . *Agency* and *Contingencies* ratings showed similar significant positive correlations at Goal 2  $r(81) = .27, p < .05$ , Goal 4  $r(81) = .34, p < .01$ , Goal 6  $r(81) = .22, p < .05$ , and Goal 8  $r(81) = .22, p < .05$ . Hence it appears that the more effort students devoted to anticipating and planning for potential setbacks, the more likely they were to demonstrate high *Agency*.

Students' levels of perceived *Autonomy* also seemed to make a difference in *Agency*—a trend not only noted by the researcher throughout the coding process (e.g., signs of *external locus of control* in students' goals), but specifically in a significant, positive correlation between *Autonomy* and *Agency* at Goal 6  $r(81) = .24, p < .05$ . Students with a stronger sense of personal control were more likely to take responsibility for their efforts, regardless of the degree to which the goals were accomplished. While changes in *Agency* ratings among the sample as a whole were not statistically significant (and the range in values is narrow), the preceding paragraphs give some insight about sources of variance among the sample as a whole. Upcoming sections describe unique patterns of change in *Agency* among various groups of participants.

#### **Changes in Pathways Composite scores from Goal 2 to Goal 10.**

The Pathways Composite score combined students' ratings for *Pathways*, *Obstacles*, and *Contingencies* within each goal. Repeated measures ANOVA indicated changes in Pathways Composite scores over time were statistically significant  $F(4, 328) = 3.89, p = .004; \eta^2 = .05$ , and the curvilinear pattern shown in Figure 26 below was also statistically significant  $F(1, 82) = 11.51, p = .001; \eta^2 = .12$ . Pairwise comparisons revealed that Pathways Composite scores for Goal 4 ( $p < .05$ ), Goal 6 ( $p < .01$ ), and Goal 8 ( $p < .01$ ) were significantly higher than the mean score for Goal 2. The mean differences from Goal 2 to Goal 10 approached statistical significance ( $p = .072$ ). In spite of a drop in Pathways Composite scores from Goal 6 to Goal 10 that approached statistical significance ( $p = .081$ ), students' goals showed significant evidence of growth in their ability to effectively generate and utilize pathways by the end of the intervention.

Figure 26. Changes in Pathways Composite Scores

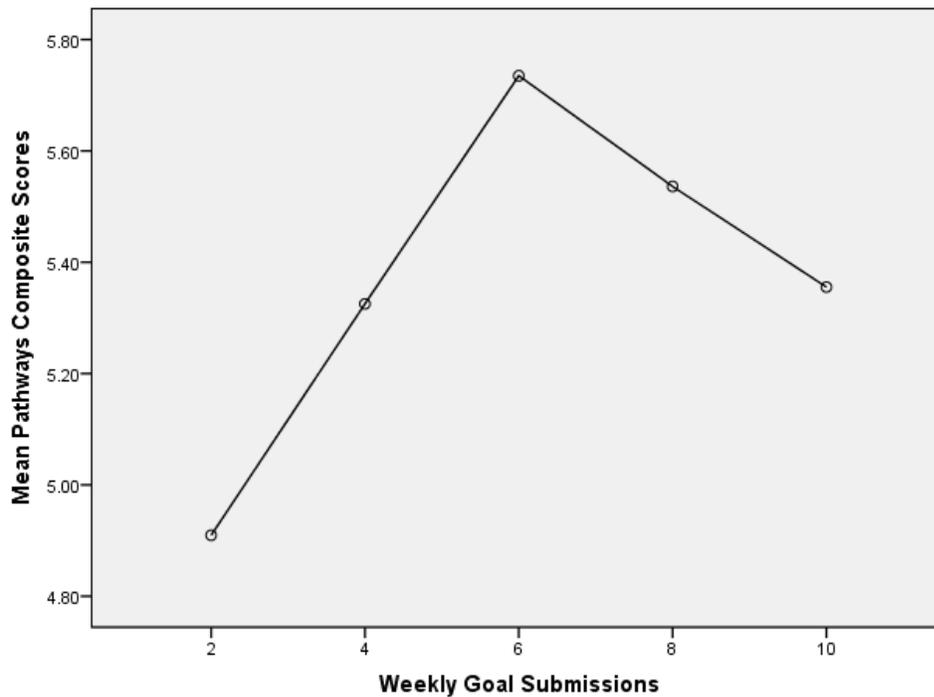


Figure 26. Changes in Pathways Composite Scores from Students' Weekly Goals.

**Using the goal rubric to calculate hope scores.**

The rubric used to code students' weekly goals was designed to serve as a tool for studying change over time in the *content* of students' goals, specifically in terms of change in the use of cognitions and behaviors related to the tenets of hope theory. The researcher calculated the *Pathways Composite* score as a sum of the rubric's three Pathways-related variables (*Pathways, Obstacles, and Contingencies*). Then, also using the coding rubric, the researcher calculated a goal-related *Agency* score by multiplying individual Agency ratings by 1.5 (to create equal weighting with the *Pathways Composite* score). She then combined the *Pathways Composite* and *Agency* calculated scores to come up with a goal-derived *Hope* score, and tracked its changes over time. Table 13 below contains a summary of the means and standard deviations for goal-derived *Pathways, Agency, and Hope* scores from T1 through T5.

Table 13

*Fall 2013 Sample—Changes in Goal-Derived Pathways\*, Agency, and Hope Scores*

	Goal 2 <i>M</i> ( <i>SD</i> )	Goal 4 <i>M</i> ( <i>SD</i> )	Goal 6 <i>M</i> ( <i>SD</i> )	Goal 8 <i>M</i> ( <i>SD</i> )	Goal 10 <i>M</i> ( <i>SD</i> )
Pathways	4.9 (1.79)	5.33 (2.0)	5.73 (2.09)	5.54 (2.0)	5.36 (1.99)
Agency	3.8 (1.61)	3.83 (1.46)	3.58 (1.57)	3.71 (1.37)	3.61 (1.57)
Hope	10.6 (3.60)	11.08 (3.50)	11.1 (3.67)	11.1 (3.13)	10.78 (3.16)

\*Composite score (vs. individual Pathways variable) used here

### **Changes in goal-derived hope scores from Goal 2 to Goal 10.**

Changes in hope scores derived from students' goals over time were not statistically significant among the sample as a whole  $F(4, 328) = .63, p = .642; \eta^2 = .01$ , and while scores appeared to follow a curvilinear pattern, it was also not statistically significant  $F(1, 82) = 2.61, p = .110, \eta^2 = .03$ . Though the rating system used to evaluate students' goals was designed to follow the tenets of hope theory, there were weak correlations between students' hope scale scores from the pre/post questionnaire and the hope scores derived from their goals, as seen in Table 14 below. The only significant correlation in hope scores from the two sources was at Goal 4, when the goal-derived hope scores had a moderate but statistically significant correlation with hope scale scores at T2  $r(81) = .335, p < .01$ .

Table 14

*Correlations: Hope Scale Scores (T1/T2) and Hope Scores derived from Students' Goals*

	Hope Scale Score (T1)	Hope Scale Score (T2)
Goal 2 Hope Score	-.023	.213
Goal 4 Hope Score	-.003	.335*
Goal 6 Hope Score	-.079	.060
Goal 8 Hope Score	.027	.179
Goal 10 Hope Score	-.016	.075

Note. \* $p < .05$ . \*\* $p < .01$ .

## **Changes in Students' Goals over Time: Group Comparisons**

After analyzing changes in students' goals on a broad scale, the researcher used a series of repeated measures ANOVA to study patterns of change in goal-related variables among various groups in the sample. The following sections contain interpretations of those effects, organized in a similar fashion to results by demographic group in Research Question 2—starting with *Gender*, followed by *Ethnicity*, *Admit Type*, and *First-Generation Status*.

### **Changes in goal behaviors based on gender.**

#### ***Overall goal rating: Gender.***

The apparent differences in women's ( $n = 42$ ) and men's ( $n = 41$ ) *Overall* ratings seen in Figure 27 below were not statistically significant, according to repeated measures ANOVA  $F(1, 82) = 1.72, p = .193; \eta^2 = .02$ . Change within gender groups was statistically significant when using the lower-bound statistic after sphericity assumptions were violated  $F(4, 324) = 4.25, p = .042; \eta^2 = .05$ . Both men and women received higher Overall ratings for their goals as they moved through the intervention.

Figure 27. Changes in Overall Ratings by Gender

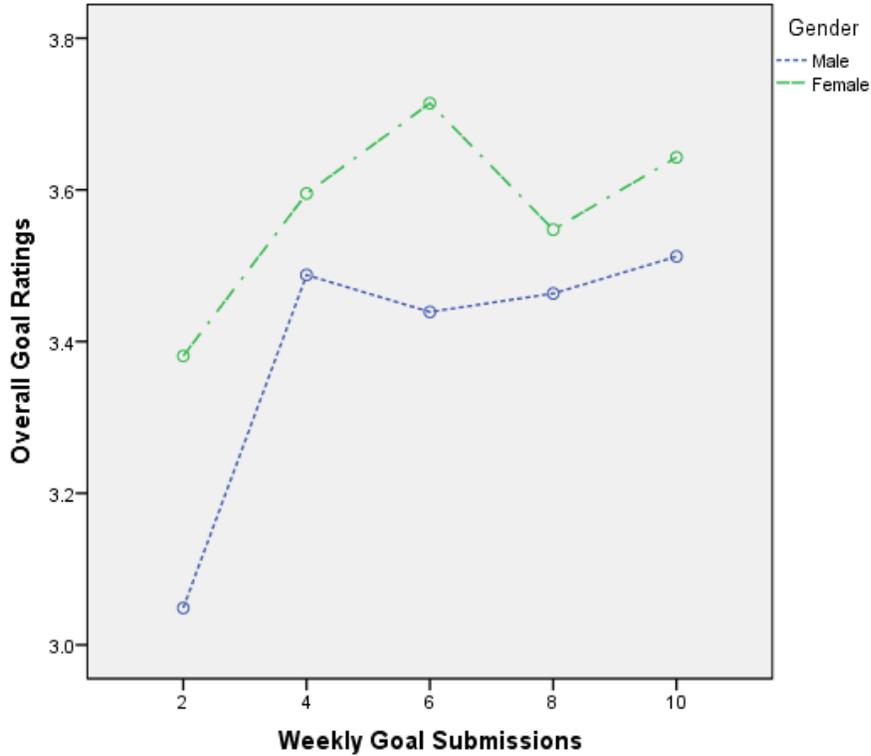


Figure 27. Changes in Overall Ratings from Students' Weekly Goals by Gender.

***Changes in Goal appraisal scores: Gender.***

Both men ( $n = 41$ ) and women ( $n = 42$ ) showed some improvement in the framing of their goals. According to results of repeated measures ANOVA, gender differences were not significant  $F(1, 82) = 2.41, p = .125; \eta^2 = .03$ , but changes within gender groups were statistically significant  $F(4, 324) = 2.83, p = .025; \eta^2 = .03$ . A *Time x Gender* interaction (seen in Figure 28 below) approached statistical significance  $F(4, 324) = 2.02, p = .092; \eta^2 = .02$ . It is not immediately apparent why the evidence of care taken by students in framing their goals seems inconsistent across time. See Chapter 5 for recommendations for future research that may be helpful in elucidating these findings.

Figure 28. Changes in "Goal" Ratings by Gender

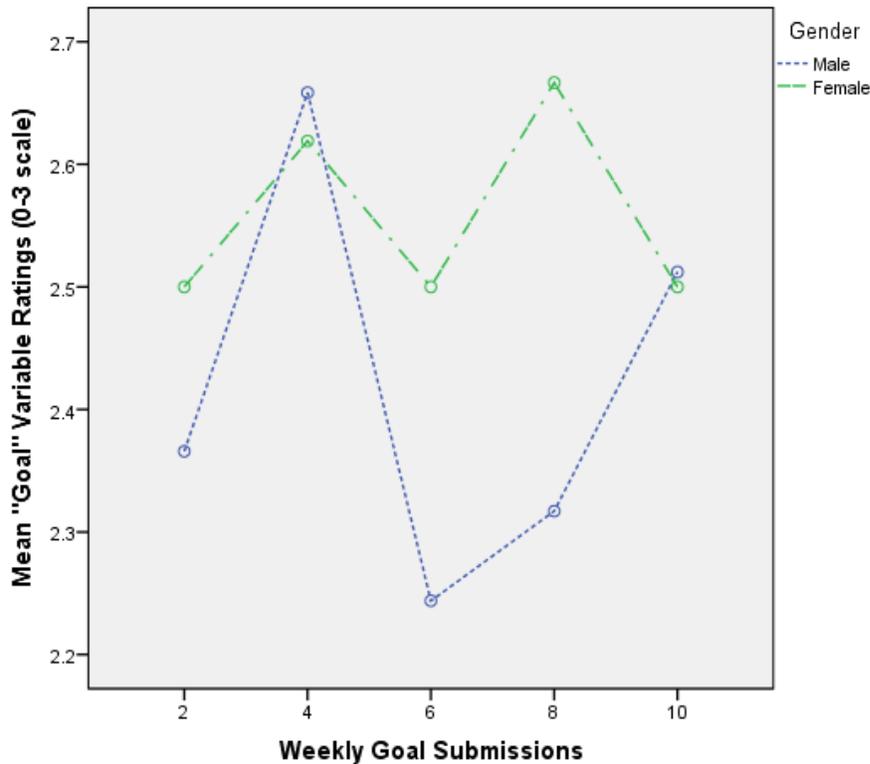


Figure 28. Changes in “Goal” Ratings from Students’ Weekly Goals by Gender.

***Changes in Mastery goals and Performance goals: Gender.***

Men ( $n = 41$ ) increasingly set *Mastery-oriented goals* as they moved through the intervention, while women’s ( $n = 42$ ) focus on mastery dropped off rather dramatically after Goal 6. Repeated measures ANOVA revealed that the *Time x Gender* interaction (shown in Figure 29 below) approached statistical significance  $F(4, 324) = 2.37, p = .053; \eta^2 = .03$ . Further study may be needed to understand the potential causes for the decline in women’s use of mastery goals over time; see Chapter 5 for an in-depth discussion of suggested follow-up research.

Figure 29. Changes in Mastery Ratings by Gender

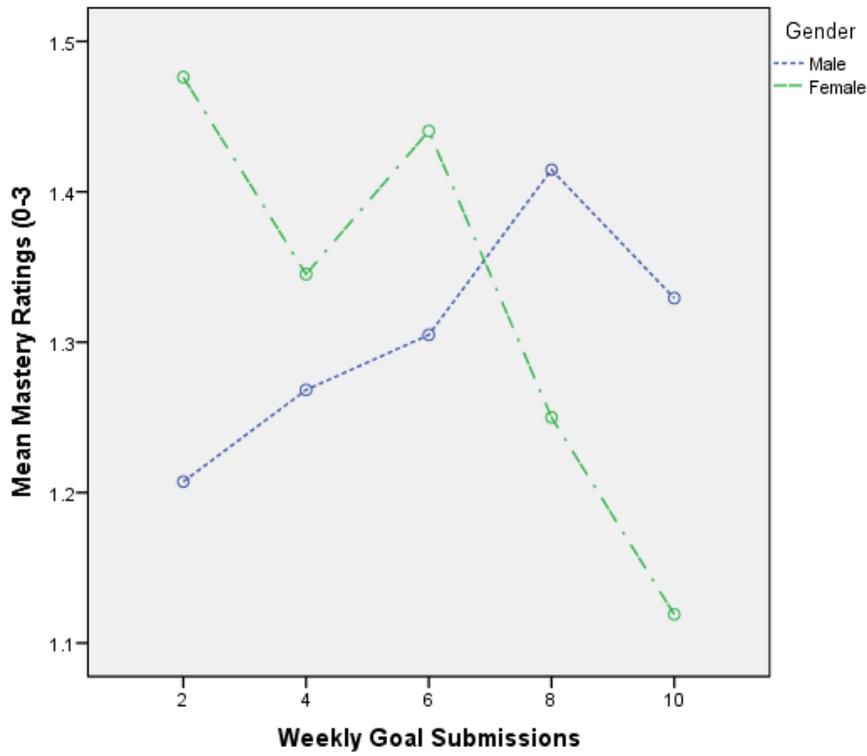


Figure 29. Changes in Mastery Ratings from Students' Weekly Goals by Gender.

While students learned to set goals increasingly geared toward mastery, evidence of their focus on external evaluation of performance appeared to diminish. Using repeated measures ANOVA to study changes by gender in the use of *Performance goals*, the researcher found a statistically significant effect for change within groups over time  $F(4, 324) = 2.83, p = .025; \eta^2 = .03$ . As seen in Figure 30 below, men ( $n = 41$ ) and women ( $n = 42$ ) both set significantly fewer performance goals by the end of the intervention.

Figure 30. Changes in Performance Ratings by Gender

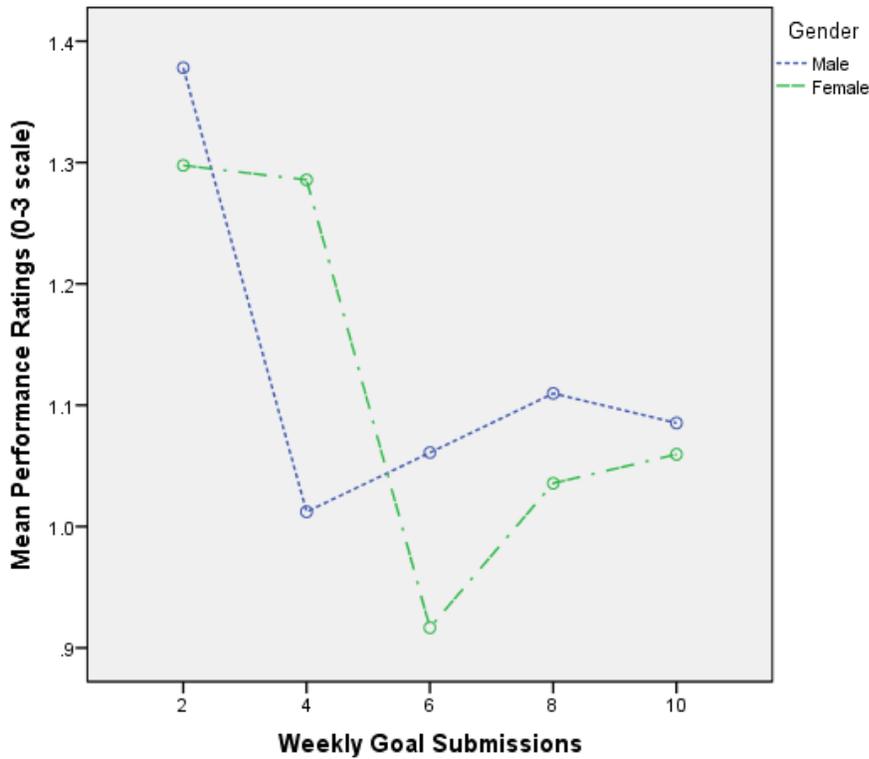


Figure 30. Changes in Performance Ratings from Students' Weekly Goals by Gender.

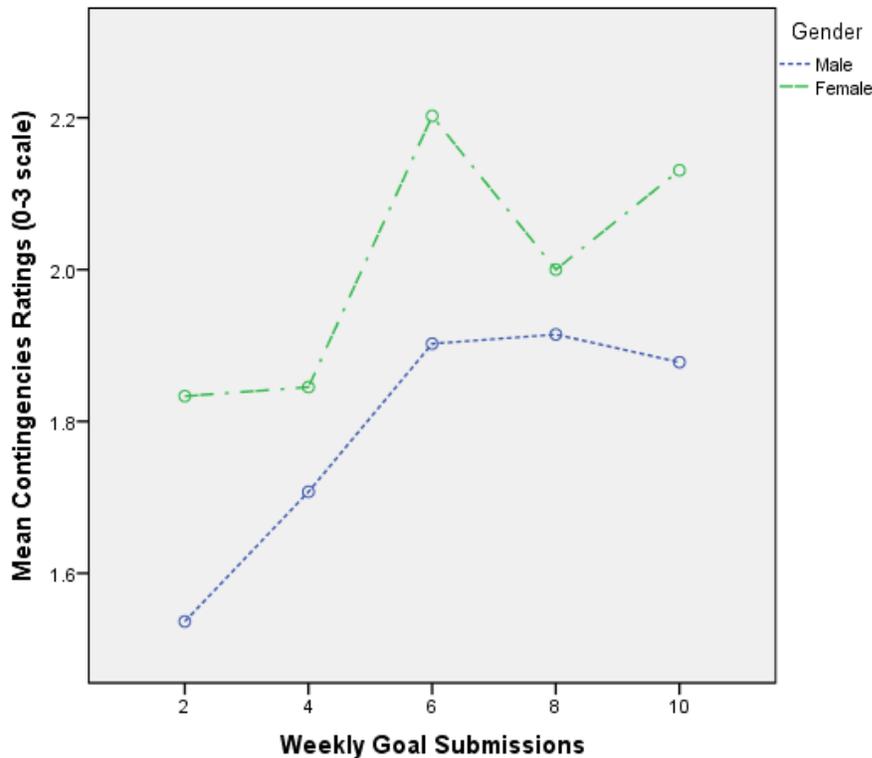
***Changes in Obstacles and Contingencies: Gender.***

While women were rated higher than men in identifying potential *Obstacles*, both genders received higher ratings for this variable over time. Repeated measures ANOVA results indicated the main effect for change over time within gender groups approached statistical significance  $F(4, 324) = 2.18, p = .071; \eta^2 = .03$ . The largest contrast in *Obstacles* ratings occurred between Goal 2 (Men:  $M = 1.45$ ; Women:  $M = 1.58$ ) and Goal 6 (Men:  $M = 1.78$ ; Women:  $M = 1.85$ ), a jump revealed in pairwise comparisons as statistically significant ( $p < .05$ ).

Men and women not only made progress in identifying potential obstacles; they also showed signs of improvement in identifying appropriate *Contingencies*. Men ( $n = 41$ ) and women ( $n = 42$ ) each demonstrated gains in contingency thinking as they moved through the

intervention—changes that were statistically significant based on repeated measures ANOVA  $F(4, 324) = 4.43, p = .002; \eta^2 = .05$ . Gender differences in outlining contingencies approached statistical significance  $F(1, 81) = 3.26, p = .075; \eta^2 = .04$ ; as seen in Figure 31 below, female participants appear slightly more proficient at outlining strategies for dealing with obstacles.

**Figure 31. Changes in Contingencies Ratings by Gender**



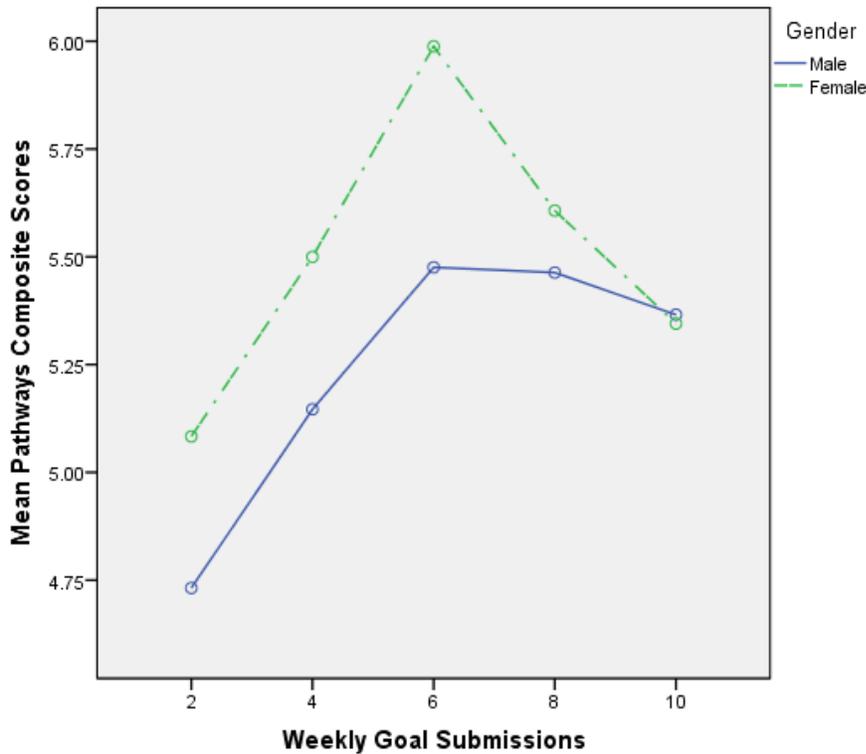
*Figure 31. Changes in Contingencies Ratings from Students' Weekly Goals by Gender.*

***Changes in Pathways Composite scores: Gender.***

Using repeated measures ANOVA to study gender patterns in *Pathways Composite scores*, the researcher found a statistically significant main effect for change over time, with women ( $n = 42$ ) scoring higher than men ( $n = 41$ ) at four of the five assessment periods  $F(4, 324) = 3.86, p = .004; \eta^2 = .05$ . The curvilinear pattern seen in Figure 32 below was also statistically significant  $F(1, 81) = 11.40, p = .001; \eta^2 = .12$ . While men and women both

demonstrated growth in the creation of pathways in their weekly goals, it appears that women were slightly better at identifying effective strategies as roadmaps to goal achievement.

**Figure 32. Changes in Pathways Composite Scores by Gender**



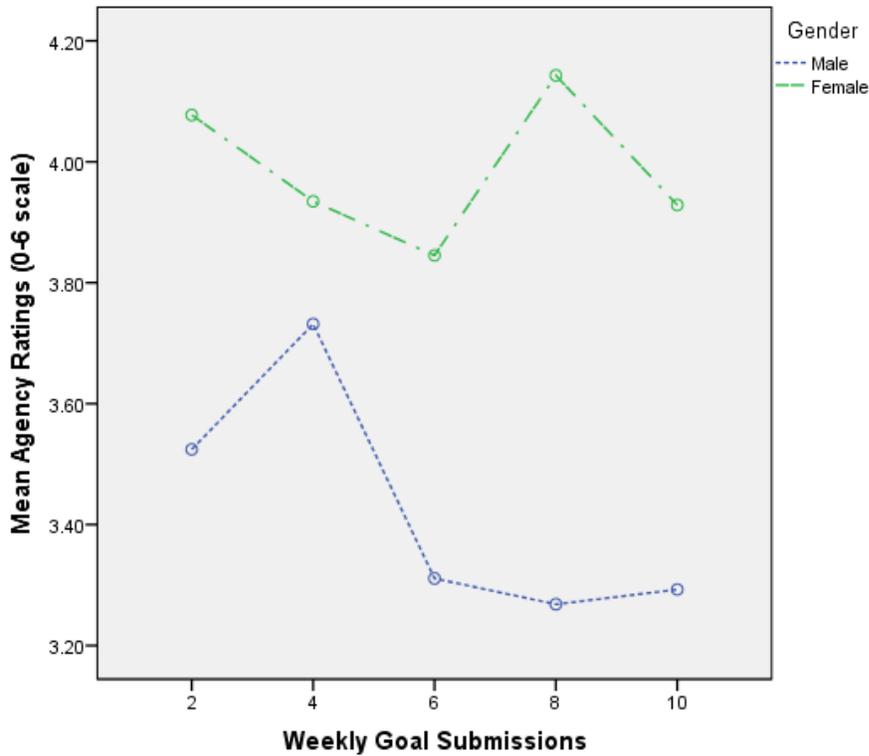
*Figure 32. Changes in Pathways Composite Scores from Students’ Weekly Goals by Gender.*

***Changes in Agency goal ratings: Gender.***

The final variable from students’ weekly goal exercises rated their *Agency*: the degree to which the previous weekly goal was reached, and the thoroughness used to assess efforts and strategies to reach the goal. There were no significant changes over time within gender groups  $F(4, 324) = .60, p = .661; \eta^2 = .01$ . At each time interval, women ( $n = 42$ ) were rated higher in agency than men ( $n = 41$ ), with the largest gaps evident at Goal 8 (Women:  $M = 4.14, SD = 1.39$ . Men:  $M = 3.27, SD = 1.22$ ) and Goal 10 (Women:  $M = 3.93, SD = 1.49$ . Men:  $M = 3.29, SD = 1.59$ ). Repeated measures ANOVA revealed that gender differences were statistically significant

$F(4, 324) = 7.60, p = .007; \eta^2 = .09$ , which mirrors the gender findings for *Agency subscale scores* in Research Question 2.

**Figure 33. Changes in Agency Ratings by Gender**



*Figure 33. Changes in Agency Ratings from Students' Weekly Goals by Gender*

***Changes in goal-derived hope scores: Gender.***

Based on codes derived from the goal rubric, women who participated in the intervention ( $n = 42$ ) demonstrated more evidence of hopeful behaviors in the creation of their weekly goals than did men ( $n = 41$ ). Repeated measures ANOVA results indicated no significant changes *within* gender groups over time  $F(4, 324) = .62, p = .647; \eta^2 = .01$ , but differences *between* gender groups were statistically significant  $F(4, 324) = 4.21, p = .043; \eta^2 = .05$ —a finding that aligns with gender-related trends in hope scale scores from Research Question 2.

Figure 34. Changes in Goal-Derived Hope Scores by Gender

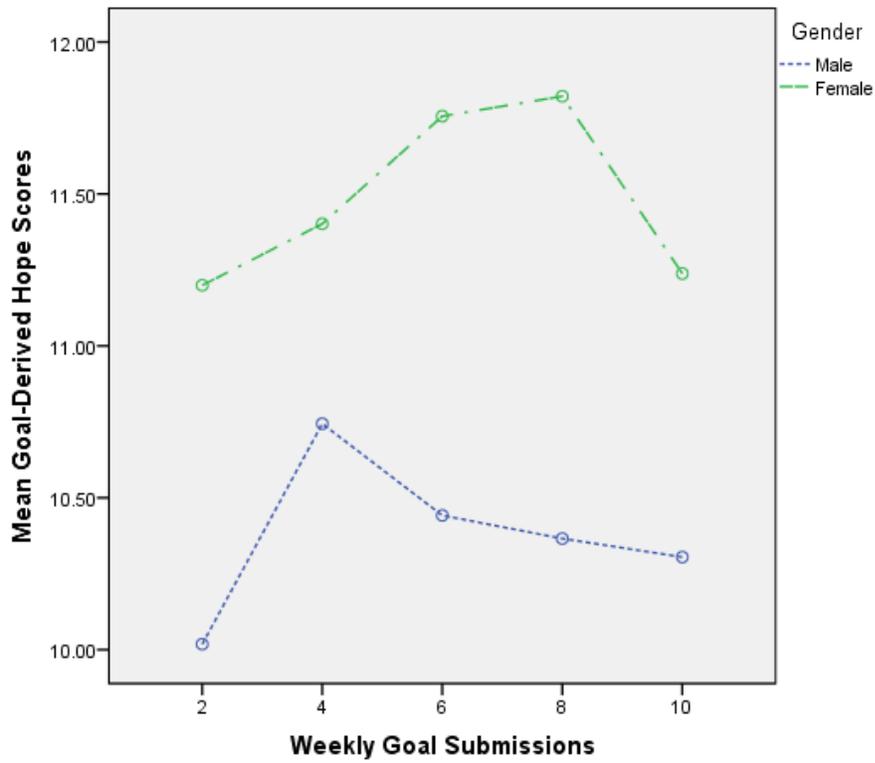


Figure 34. Changes in Goal-Derived Hope Scores by Gender.

### Changes in goal behaviors based on ethnicity.

#### *Overall goal rating: Ethnicity.*

White students ( $n = 53$ ) and students of color ( $n = 23$ ) both received higher *Overall* ratings at Goal 10 compared to Goal 2. White students started out with relatively low mean *Overall* ratings (seen in Figure 35 below), but their global goal ratings closely mirrored their peers' from Goal 6 through Goal 10. Results of repeated measures ANOVA indicated that changes over time within ethnic groups were statistically significant  $F(4, 301) = 2.71, p = .039$  (G-G);  $\eta^2 = .03$ .

Figure 35. Changes in Overall Ratings by Ethnic Group

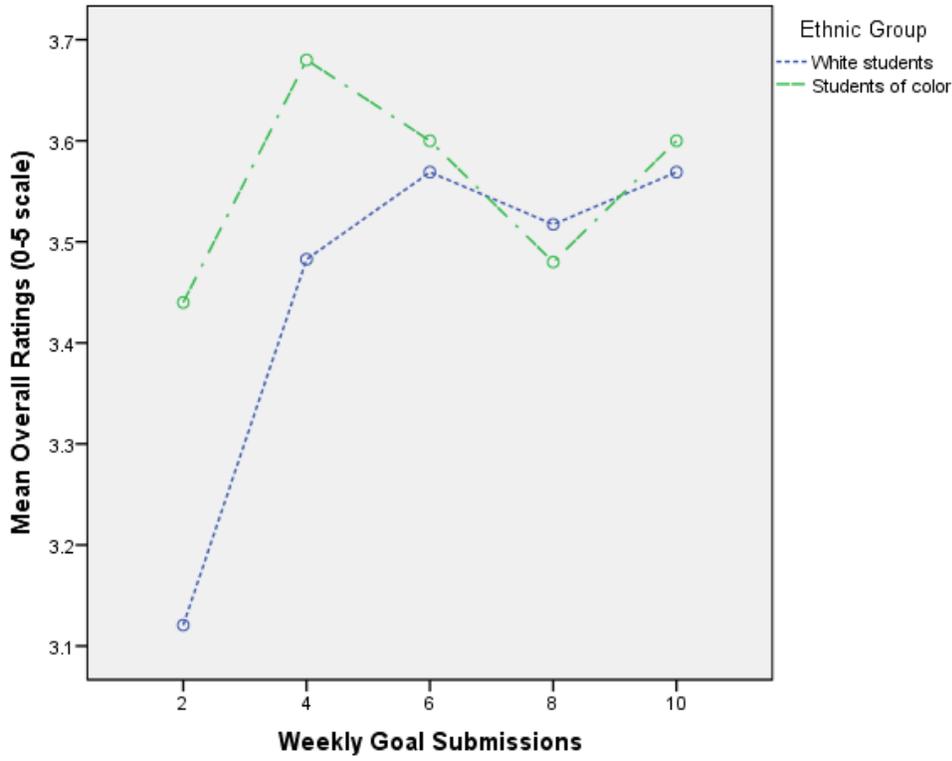


Figure 35. Changes in Overall Ratings from Students' Weekly Goals by Ethnicity.

*Changes in Goal appraisal scores: Ethnicity.*

At three of the five data collection points, students of color ( $n = 23$ ) created goals that were rated as more clearly defined and more reasonable in scope than the goals of white students ( $n = 53$ ). Goal ratings for students of color peaked at Goal 4 and dropped off afterward, with ratings slightly below their white classmates at Goal 10. Repeated measures ANOVA showed changes within ethnic groups over time were statistically significant  $F(4, 324) = 3.15, p = .015; \eta^2 = .04$ . A *Time x Ethnicity* interaction (evident in Figure 36 below) was statistically significant, based on results of repeated measures ANOVA  $F(4, 324) = 2.67, p = .032; \eta^2 = .03$ . Additional effort may be needed within the intervention to retrain students in the practice of framing goals at mid-semester.

Figure 36. Changes in Goal Ratings by Ethnicity

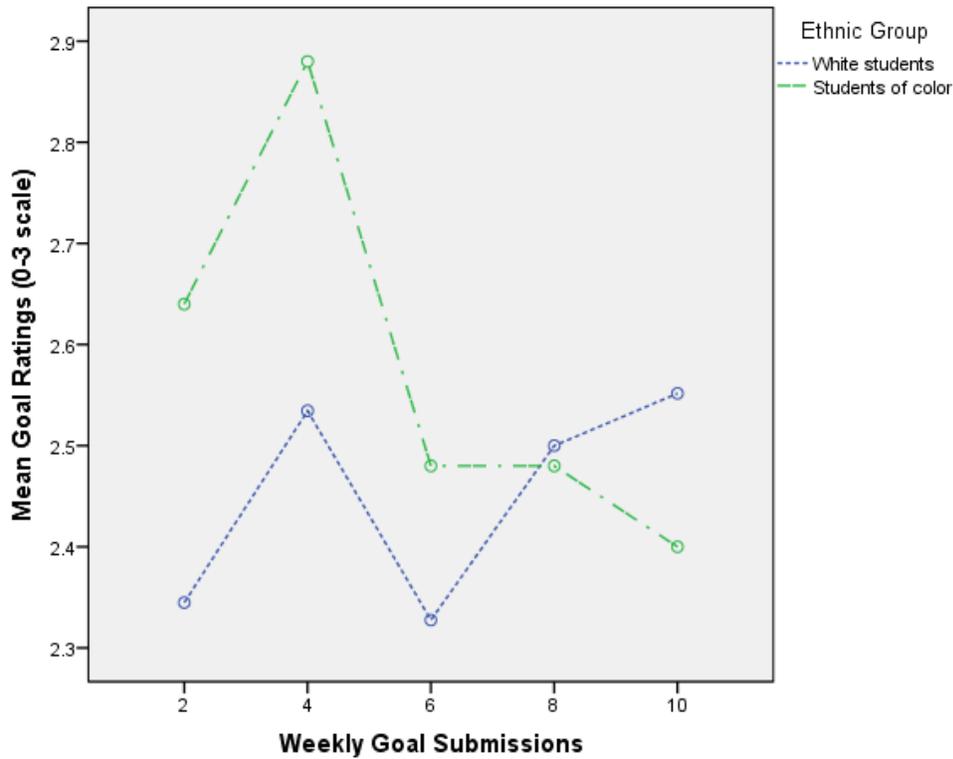


Figure 36. Changes in Goal Ratings from Students' Weekly Goals by *Ethnicity*.

***Changes in Obstacles: Ethnicity.***

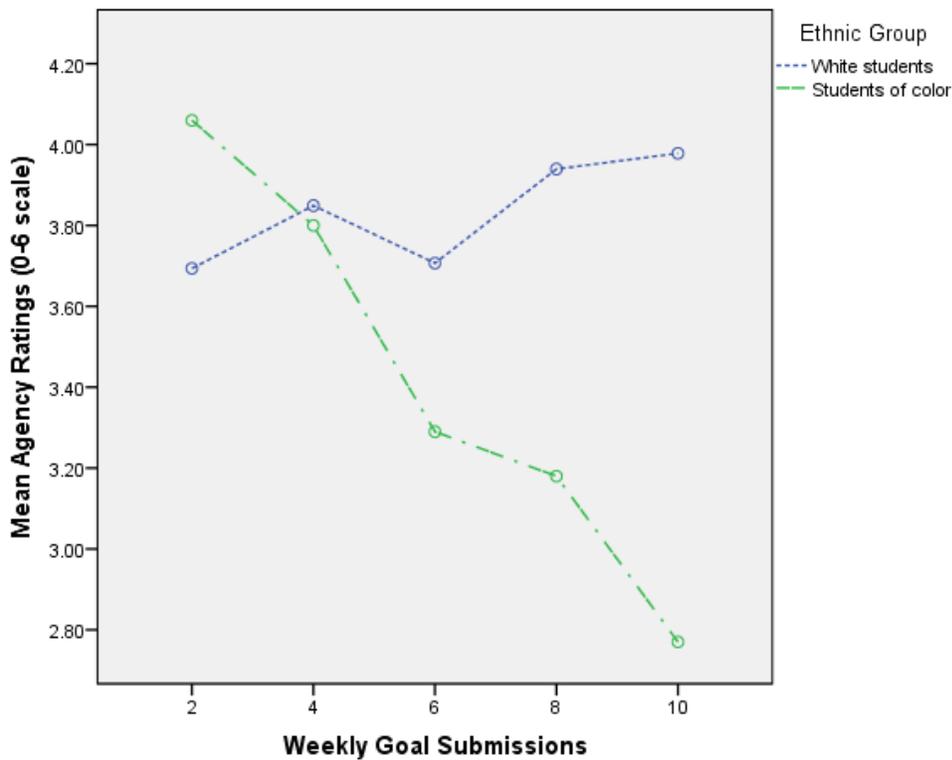
Change over time within ethnic groups for the *Obstacles* variable approached statistical significance  $F(4, 324) = 2.40, p = .05; \eta^2 = .03$ . While each group started out with similar ratings at Goal 2 (white students:  $n = 53; M = 1.53, SD = .88$ ; students of color:  $n = 23, M = 1.50, SD = .97$ ), white students peaked at Goal 6 ( $M = 1.78, SD = .98$ ), while students of color peaked slightly higher at Goal 8 ( $M = 1.94, SD = .77$ ).

***Changes in Agency goal ratings: Ethnicity.***

Students of color ( $n = 23$ ) received high mean *Agency* ratings for their early goals, but those scores *declined* over time. On the other hand, white students' ( $n = 53$ ) goals showed small signs of increasing *Agency* over time. The statistically significant *Time x Ethnic group*

interaction  $F(4, 324) = 3.89, p = .004; \eta^2 = .05$  is evident in Figure 37 below. Repeated measures ANOVA indicated the differences between ethnic groups approached statistical significance  $F(1, 81) = 3.32, p = .072; \eta^2 = .04$ . Declining *Agency* ratings among students of color (Goal 2,  $M = 4.06, SD = 1.38$ ; Goal 10,  $M = 2.77, SD = 1.54$ )—combined with evidence of the same trend in *Agency subscale scores* in Research Question 2—represent a “red flag” signaling potential distress or even despair. This concern is revisited along with other recommendations for future research in Chapter 5.

**Figure 37. Changes in Agency Ratings by Ethnicity**



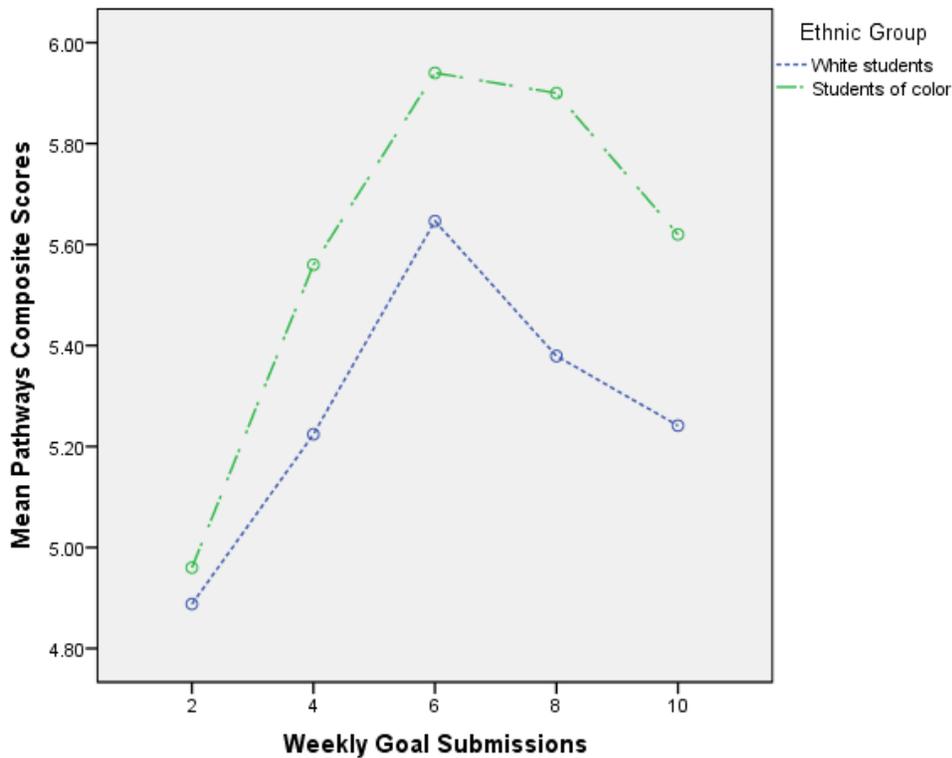
*Figure 37. Changes in Agency Ratings from Students’ Weekly Goals by Ethnicity.*

***Changes in Pathways Composite scores: Ethnicity.***

White students ( $n = 58$ ) and students of color ( $n = 25$ ) had similar Pathways composite scores at Goal 2, but students of color appeared to exert more effort into the selection of effective

strategies for goal attainment over time, as seen in Figure 38 below. Repeated measures ANOVA revealed a statistically significant main effect for change over time  $F(4, 324) = 3.75, p = .005; \eta^2 = .04$ . The curvilinear pattern visible in Figure 38 was also statistically significant  $F(1, 81) = 10.78, p = .002; \eta^2 = .12$ .

**Figure 38. Changes in Pathways Composite Scores by Ethnicity**



*Figure 38. Changes in Pathways Composite Scores from Students' Weekly Goals by Ethnicity.*

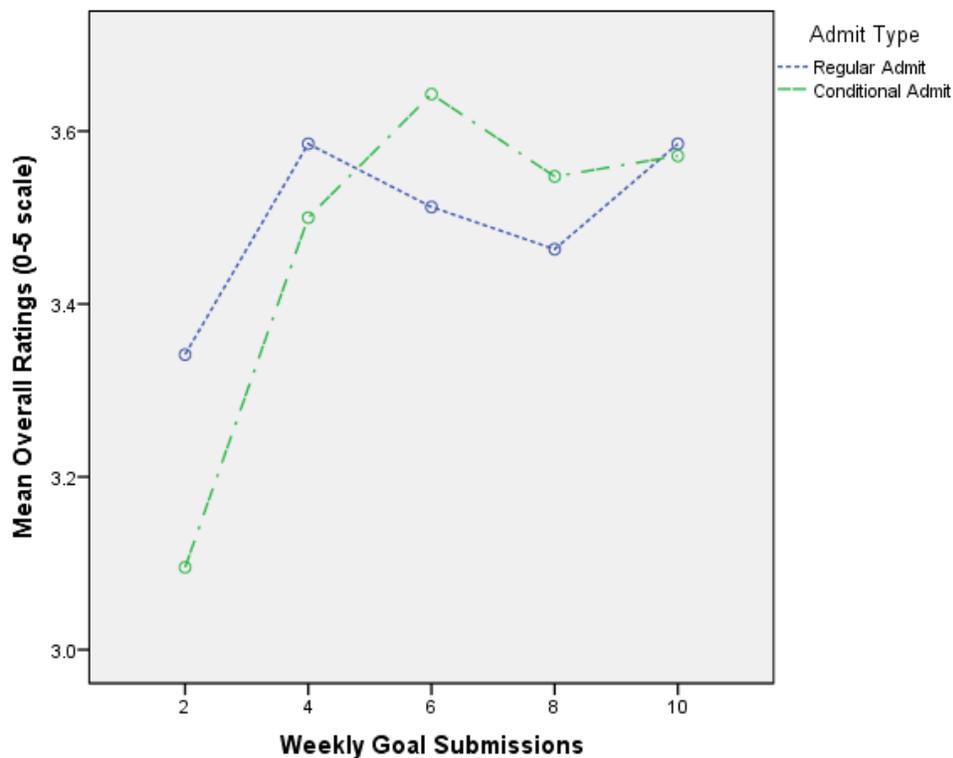
**Changes in goal behaviors based on admit type.**

***Overall goal rating: Admit type.***

Clarity in goals and pathways is especially important for students who receive special admission status. Assessment of *Overall* goal ratings by admit type showed that conditionally admitted students ( $n = 42$ ) initially submitted goals that received lower *Overall* ratings than students with regular admission status ( $n = 41$ ). However, as seen in Figure 39 below, by Goal

10 the gap had closed and conditionally admitted students even slightly outperformed the other group in *Overall* ratings for Goals 6 and 8. Results of repeated measures ANOVA revealed the changes over time within groups were statistically significant  $F(4, 324) = 4.31, p = .041$  (using the lower-bound criterion after violation of sphericity assumptions);  $\eta^2 = .05$ .

**Figure 39. Changes in Overall Ratings by Admit Type**



*Figure 39. Changes in Overall Ratings from Students' Weekly Goals by Admit Type.*

***Changes in Goal appraisal scores: Admit type.***

As with variables reported elsewhere in the study, conditionally admitted students showed signs of struggle when it came to framing their weekly goals. Students who received *regular admission* set goals that were rated as clearer and more realistic in scope compared to the goals of their *conditionally admitted* peers. In addition to statistically significant group differences  $F(4, 324) = 12.49, p = .001; \eta^2 = .13$ , repeated measures ANOVA also revealed a

significant main effect for change over time  $F(4, 324) = 2.74, p = .029; \eta^2 = .03$ , seen in Figure 40 below. Conditionally admitted students' goals were rated lowest at T3 ( $M = 2.12, SD = .10$ ). While they seemed to reengage and show improvement at T4 ( $M = 2.33, SD = .10$ ) and T5 ( $M = 2.41, SD = .09$ ), it seems evident that conditionally admitted students need support—especially mid-semester—to maintain momentum and consistency in goal-setting efforts.

**Figure 40. Changes in Goal Ratings by Admit Type**

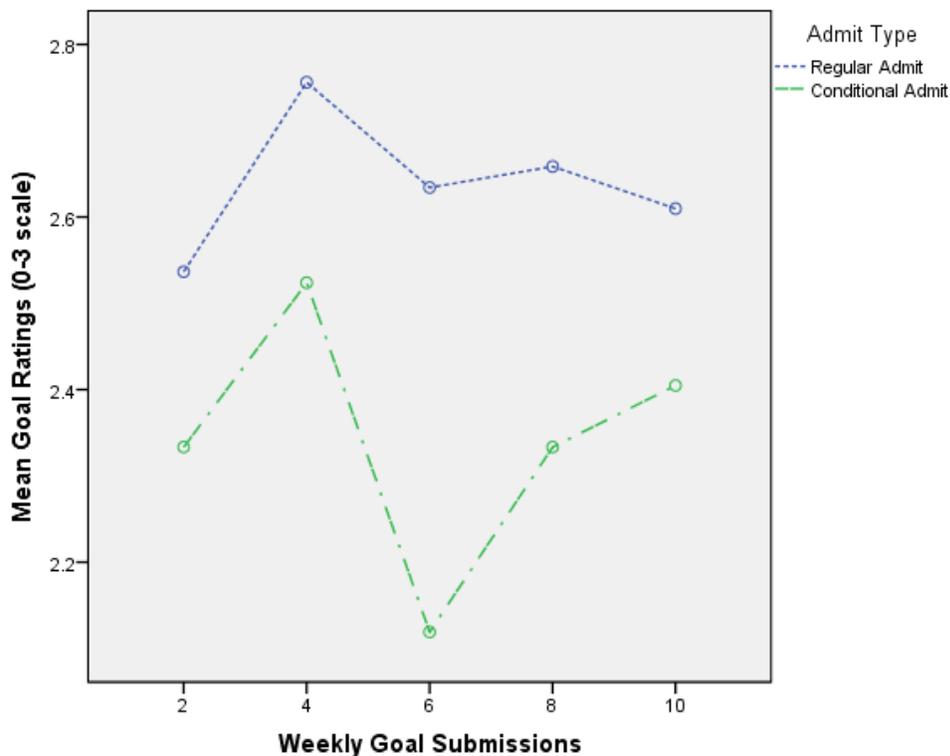


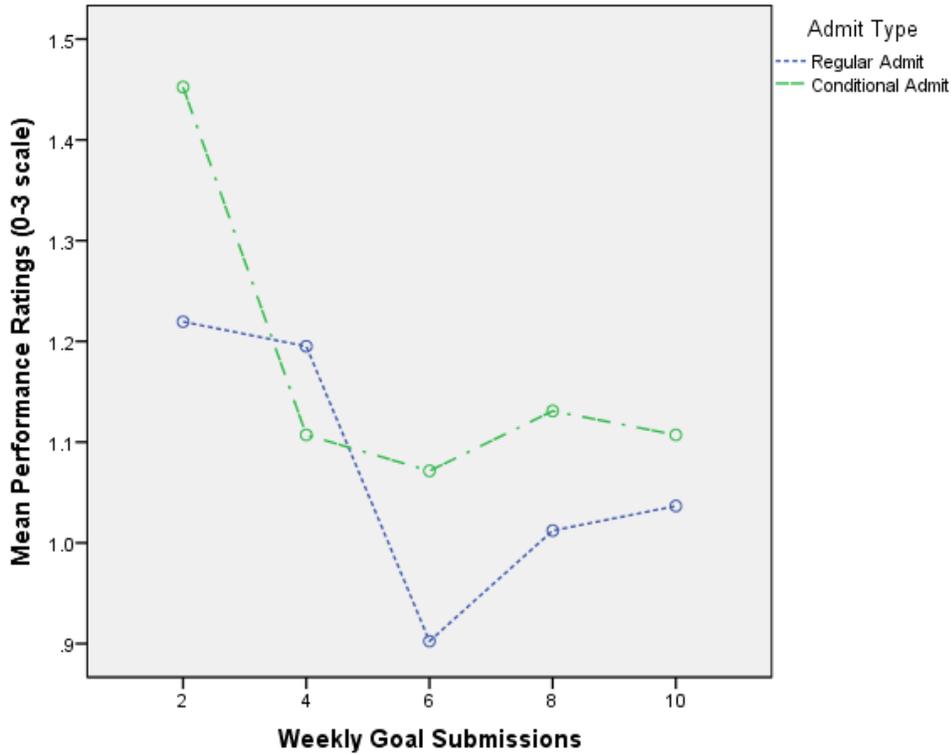
Figure 40. Changes in Goal Ratings from Students' Weekly Goals by Admit Type.

***Changes in Performance goals: Admit type.***

Students in each admit type category set significantly fewer *Performance-oriented goals* by the end of the intervention  $F(4, 324) = 2.82, p = .025; \eta^2 = .03$ . The combination of *performance goals* and *low perceived ability* (which may be common among students with special admission status) often leads to strategy deterioration (Elliott & Dweck, 1988); thus, the

changes in behavior evident here may support the kind of persistence students need to achieve their long-term academic goals.

**Figure 41. Changes in Performance Goals by Admit Type**



*Figure 41. Changes in Performance Ratings from Students' Weekly Goals by Admit Type.*

***Changes in Approach vs. Avoidance goals: Admit type.***

Overall, conditionally admitted students ( $n = 42$ ) tended to set more *Avoidance-focused* goals than their peers who were granted regular admission ( $n = 41$ ). Conditionally admitted students' goals received the highest ratings for their *Approach-focus* at Goal 6 ( $M = 2.89$ ,  $SD = .39$ ), followed by a return to goals rated as slightly less approach-focused. The result was a *Time x Admit type* interaction evident in Figure 42 below approached statistical significance, according to repeated measures ANOVA results  $F(4, 324) = 2.49$ ,  $p = .054$  (G-G);  $\eta^2 = .03$ . Based on these

trends, future instructors may need to consider devoting more time to coaching conditionally admitted students in the formation of approach-centered goals.

**Figure 42. Changes in Approach vs. Avoidance Goals by Admit Type**

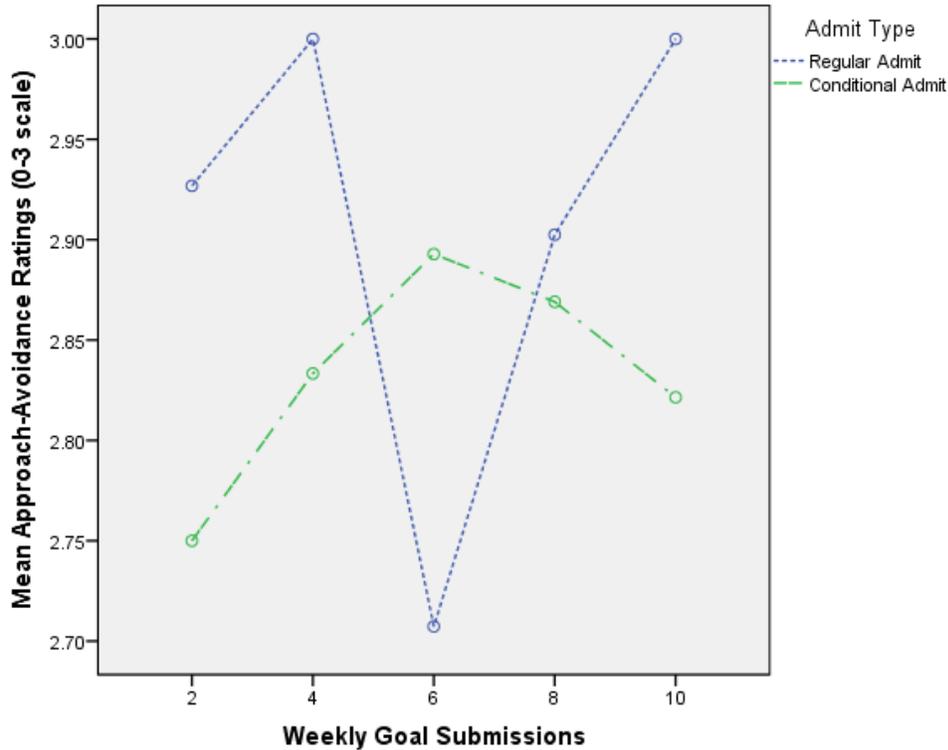


Figure 42. Changes in Approach- vs. Avoidance from Students' Weekly Goals by Admit Type.

***Changes in Obstacles: Admit type.***

Conditionally admitted students ( $n = 42$ ) appeared to devote more sustained effort to identifying potential obstacles that might threaten goal attainment, compared to their peers with standard admission status ( $n = 41$ ). As seen in Figure 43 below, conditionally admitted students were rated higher on the *Obstacles* measure at three of the five data collection points. However, repeated measures ANOVA indicated that changes within groups over time only approached statistical significance  $F(4, 324) = 2.22, p = .066; \eta^2 = .03$ .

Figure 43. Changes in Obstacles Ratings by Admit Type

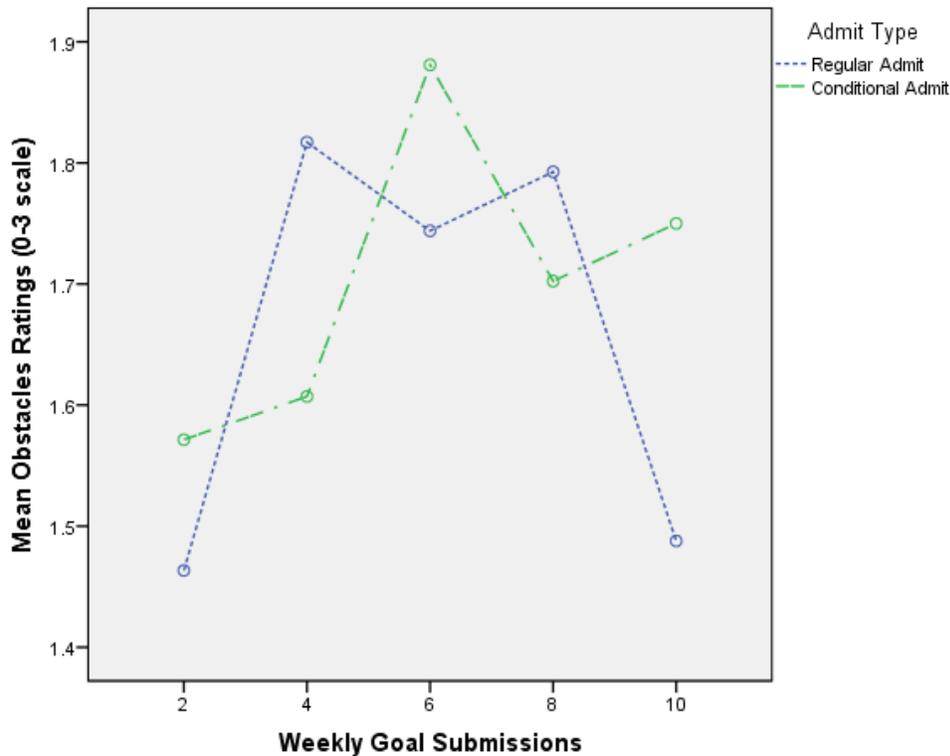


Figure 43. Changes in Obstacles Ratings from Students' Weekly Goals by Admit Type.

***Changes in Contingencies: Admit type.***

Identification of potential obstacles is only helpful if accompanied by strategies for overcoming or preventing them. Students who received regular admission ( $n = 41$ ) showed signs of improvement in contingency thinking, but changes over time were especially evident among conditionally admitted students ( $n = 42$ ). Repeated measures ANOVA results indicated statistically significant change over time within groups  $F(4, 324) = 4.40, p = .002; \eta^2 = .05$  and a significant *Time x admit type* interaction  $F(4, 324) = 2.75, p = .028; \eta^2 = .03$ . The gains in contingency thinking shown in Figure 44 below suggest that the intervention may be helpful in equipping students with tools needed to respond effectively to challenges and setbacks.

Figure 44. Changes in Contingencies Ratings by Admit Type

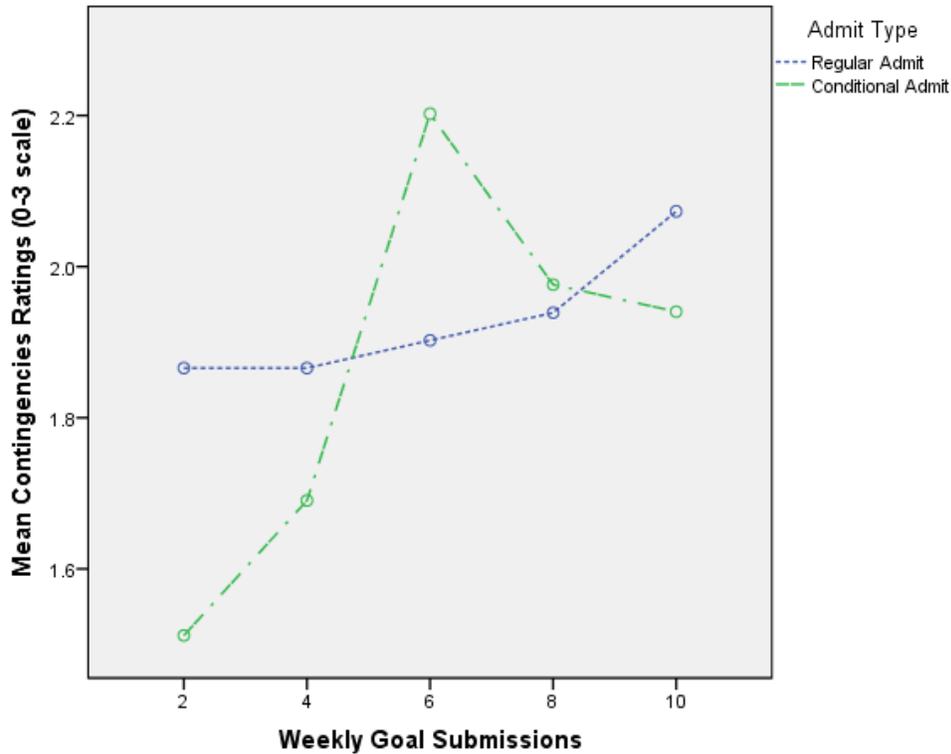


Figure 44. Changes in Contingencies Ratings from Students' Weekly Goals by Admit Type.

***Changes in Pathways Composite scores: Admit type.***

Conditionally admitted students appeared to particularly benefit from the creation of plans for reaching their weekly goals, as seen in the *Pathways Composite score* comparisons by *Admit type* shown in Figure 45 below. Repeated measures ANOVA revealed a statistically significant main effect for change over time  $F(4, 324) = 3.87, p = .004; \eta^2 = .05$ . A test of the curvilinear pattern evident in Figure 45 revealed that it was also statistically significant  $F(1, 81) = 11.51, p = .001; \eta^2 = .12$ .

Figure 45. Changes in Pathways Composite Scores by Admit Type

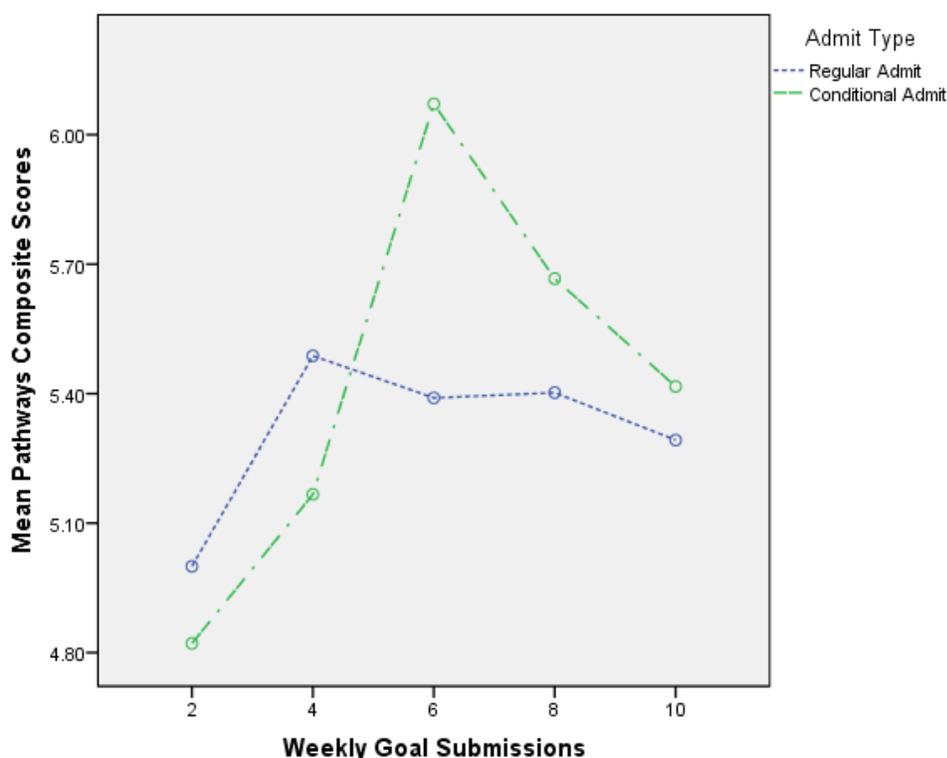
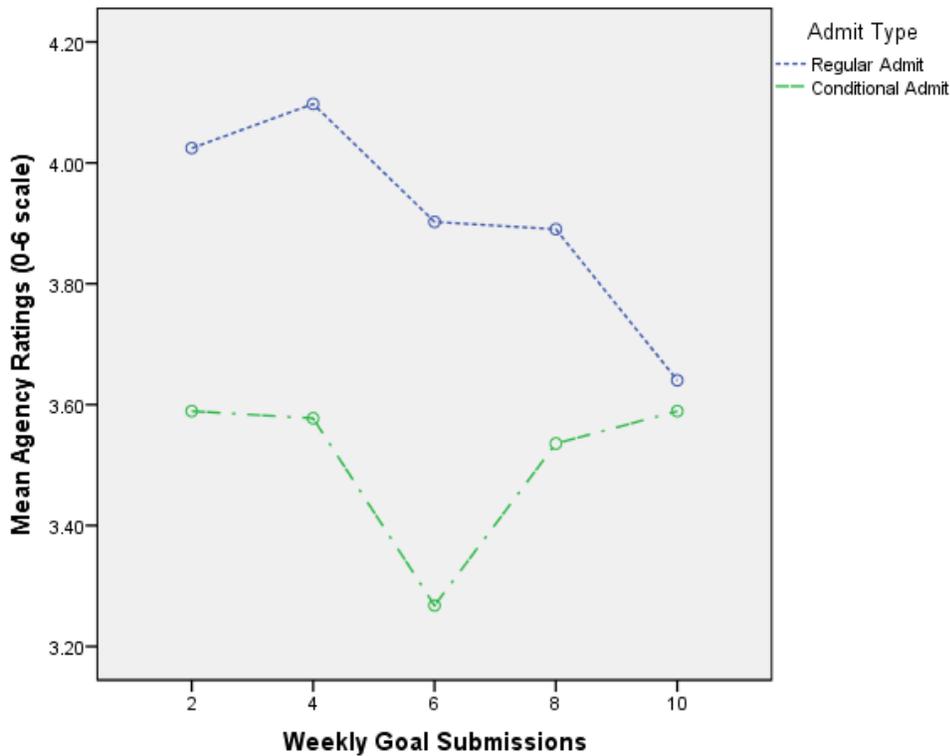


Figure 45. Changes in Pathways Composite Scores from Students' Weekly Goals by Admit Type.

***Changes in Agency goal ratings: Admit type.***

Despite gains in other goal-related variables, conditionally admitted students' goals reflected fewer signs of *Agency* than the goals of their peers. Repeated measures ANOVA showed that differences between groups (seen in Figure 46 below) approached statistical significance  $F(4, 324) = 3.69, p = .058; \eta^2 = .04$ . Students need agency to maintain momentum toward long-term goals; further study may be needed to identify means of encouraging agentic thinking and behavior among all students, regardless of admission status.

**Figure 46. Changes in Agency Ratings by Admit Type**



*Figure 46. Changes in Agency Ratings from Students' Weekly Goals by Admit Type.*

**Changes in goal behaviors based on first-generation status.**

***Overall goal rating: First-generation.***

First-generation students' *Overall* goal ratings suggested steady effort invested in the refining of goal-setting and planning processes. Using repeated measures ANOVA to study patterns based on first-generation status, the researcher found a significant main effect for change over time  $F(4, 324) = 4.04, p = .003; \eta^2 = .05$  (shown in Figure 47 below). Assumed growth represented by changes over time in first-generation students' *Overall* goal ratings may have directly contributed to apparent benefits described in Research Question 2, including increased optimism and positive emotion.

Figure 47. Changes in Overall Ratings by First-Generation Status

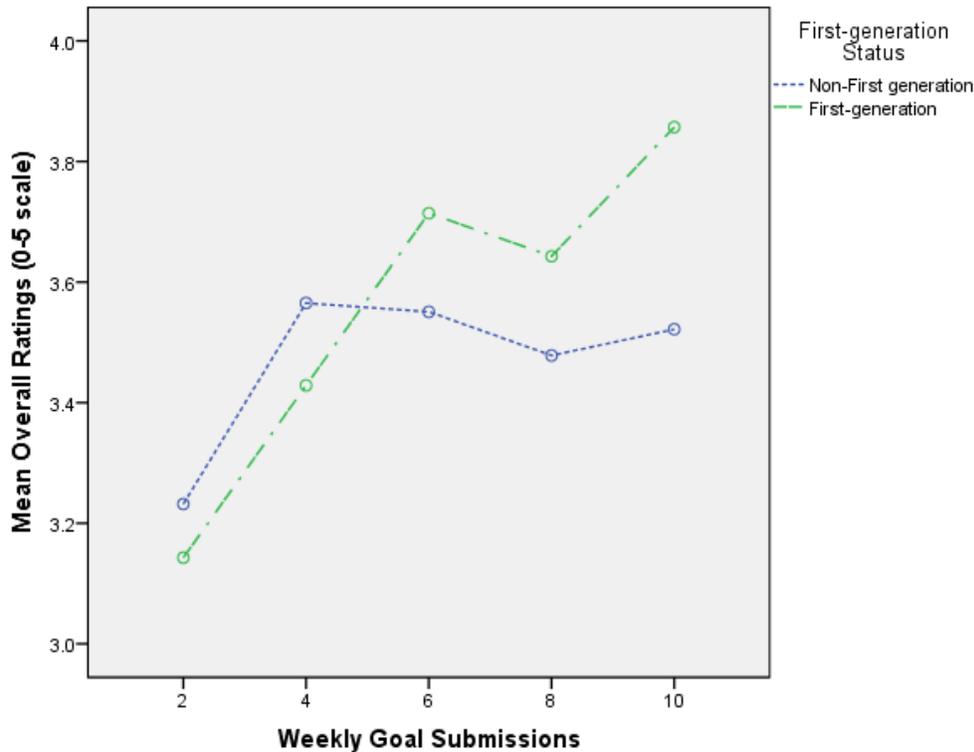
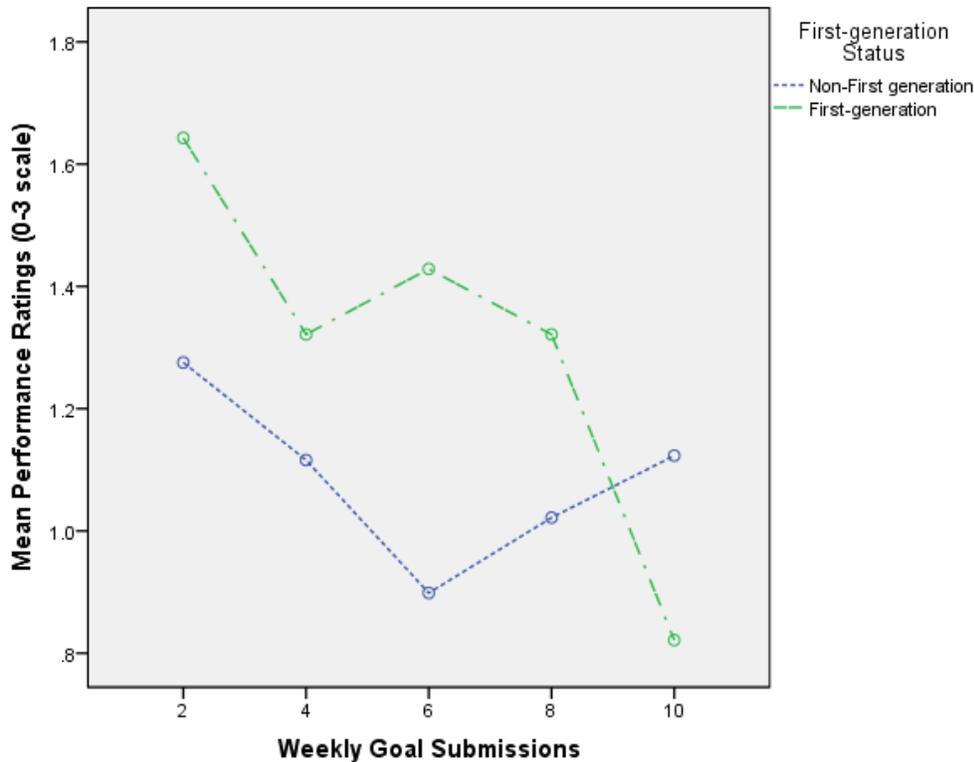


Figure 47. Changes in Overall Ratings from Students' Weekly Goals by *First-Generation Status*.

***Changes in Performance goals: First-generation.***

Compared to their non-first generation peers ( $n = 69$ ), changes in the use of *Performance goals* were more evident among first-generation students ( $n = 14$ ), whose mean ratings dropped from Goal 2 ( $M = 1.64$ ,  $SD = .99$ ) to Goal 10 ( $M = .82$ ,  $SD = .72$ ). Repeated measures ANOVA revealed the changes within groups over time were statistically significant  $F(4, 324) = 2.80$ ,  $p = .026$ ;  $\eta^2 = .03$ . As students think less about others' evaluation of their performance and instead shift their focus toward developing *mastery* of skills and concepts, they may experience less anxiety and more satisfying outcomes resulting from their efforts.

**Figure 48. Changes in Performance Ratings by First-Generation Status**



*Figure 48. Changes in Performance Ratings from Students' Weekly Goals by First-Generation Status.*

### Summary of Results for Research Question 3

In Question 3, the researcher set out to assess how students' goals may have changed or evolved over the course of the semester, and what those potential changes suggested about the success of the intervention. Results indicated that students' goals did show signs of change over the course of the intervention, though patterns of change varied across groups in the sample and across the nine goal-related variables. Signs of growth were most evident in the *Overall* ratings assigned to students' goals, but the researcher also observed positive changes in the framing of goals (*Goal* variable) and decreasing utilization of *Avoidance* goals and *Performance* goals. Finally, goal analysis showed increasing evidence of students' ability to effectively generate

pathways and identify and address obstacles (seen in *Obstacles, Contingencies, and Pathways composite scores*) by the end of the intervention.

As in Research Question 2, the researcher was interested in identifying *which* students seemed to benefit most from setting weekly goals. Results of goal analyses revealed that several groups often considered “at risk” were among those who appeared to benefit most from this part of the intervention—including *First-generation* students and *Conditionally admitted* (academically underprepared) students, who demonstrated statistically significant positive change over time in the *Overall* ratings used to evaluate their weekly goals. Men in the sample also seemed to benefit from the intervention, reflected in part by increasing evidence of attention to *Mastery* in their goals over time. Students of color seemed to benefit in particular from the weekly practice in developing *Contingency* plans.

As part of the process of analyzing students’ goals, it was important to note whether some students in the sample seemed to be reaching *more* of their goals than others. Using the *Agency* variable—in which students self-reported the extent to which goals were met *and* evaluated the quality of their efforts (regardless of whether the goal was reached)—it appeared that, compared to their male classmates, women were more regularly reaching their goals and more thoroughly assessing their efforts afterward. Some groups seemed to struggle *more* in reaching their goals as the semester went on: in particular, *conditionally admitted* students and *students of color* showed fewer signs of *Agency* over time. However, the design of this portion of the rubric may have obscured a definitive view of goal attainment, because it also rated students’ efforts used to assess the strategies that contributed to the previous goal’s outcome—a step which several students skipped altogether.

The evidence of skill development and adaptive changes in students’ ways of thinking described in the results for Research Questions 1, 2, and 3 yielded helpful insights about the intervention’s effectiveness, but they also provide context for Research Question 4—a series of investigations designed to assess its potential long-term effects. Results for Research Question 4—evidence of any *lasting* positive effects among intervention participants—could strengthen the aforementioned assertions about the intervention’s effectiveness not only in boosting students’ hope and well-being, but also in supporting their overall success at the institution.

**Research Question 4: Do Longitudinal Data Suggest that the Intervention Has Positive Long-Term Effects?**

The fourth and final research question is intended to fill the need for evidence that positive effects such as those suggested in Research Questions 1, 2, and 3 may be lasting (beyond completion of the intervention and the course), starting with comparisons of Group A (the previous course model) and Group B (the current intervention). Comparisons centered around three major variables: *overall* institutional grade point average (GPA); GPA for credit hours earned *since* completion of the course; and mean credit hours earned since course completion.

When viewing pre-college characteristics of students who took either version of the course, the researcher discovered that mean ACT and SAT scores for each cohort *decreased* each year from 2009 to 2012 (shown in Table 13 below).

Table 13

*Longitudinal Sample, Groups A and B: ACT/SAT Scores, 2009-2012 cohorts*

	Fall 09		Fall 10		Fall 11		Fall 12	
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>
ACT	48	21.77 (2.88)	85	21.35 (3.27)	69	21.1 (3.66)	86	20.85 (2.72)
SAT	17	1025.29 (88.04)	35	1024.86 (127.36)	23	989.13 (147.46)	46	951.96 (114.32)

Assuming that ACT and/or SAT scores are reliable predictors of college success, it is presumable that each successive cohort of students enrolled in the course were slightly *less academically prepared* than the ones who preceded them. In an effort to control for differences in entering characteristics, the researcher used ACT scores and high school GPA as covariates in assessing each dependent variable. Results of the ANCOVA are summarized in Table 15 below.

Table 15

*Group A vs. Group B Comparisons, Post-BEP GPA, Overall GPA, and Average Hours Earned per semester after course completion*

	Group A/Cohort			Group B/Cohort		
	2009 (n = 22)	2010 (n = 39)	2011 (n = 16)	2009 (n = 18)	2010 (n = 36)	2011 (n = 42)
Post-BEP GPA <i>M (SD)</i>	2.28 (.19)	2.52 (.15)	2.62 (.23)	2.92 (.21)	2.81 (.15)	2.37 (.14)
Overall GPA <i>M (SD)</i>	2.28 (.14)	2.54 (.10)	2.71 (.16)	2.61 (.15)	2.57 (.11)	2.35 (.10)
Average hours/semester <i>M (SD)</i>	9.14 (1.1)	9.95 (.83)	10.73 (1.3)	11.54 (1.21)	13.26 (.86)	12.02 (.80)

*Note.* HS GPA and ACT used as covariates; ACT value = 21.21, HS GPA value = 3.09.

As seen in Table 15 above, students taking the course in the current intervention model (Group B) fared better in nearly every comparison, with the exception of students from the 2011 cohort. The 16 students from that cohort who took the course in its earlier format (during their first semester) earned higher grade point averages than students from the same cohort who took it under the new model (which was implemented for the first time *after* their first semester of enrollment, during which they may have performed poorly).

Because earning credit hours implies that students are passing attempted courses while also making progress toward degree completion, the researcher created a new variable—*Average hours earned per semester*—to enable fairer comparisons since some students took the course

earlier than others and thus had more time to acquire credits. In spite of having slightly lower grade point averages than their counterparts in Group A, Table 15 shows that Group B members from the 2011 cohort earned (on average) more hours per semester after completing the course. The same analyses used to generate the adjusted means reported above revealed that the differences between Group A and Group B for each dependent variable were statistically significant. *Post-BEP UA GPA*:  $F(1, 411) = 1.69, p = .024; \eta^2 = .13$ . *Overall institutional GPA*:  $F(1, 411) = 2.13, p = .002; \eta^2 = .16$ . *Average hours earned per semester*:  $F(1, 411) = 11.18, p = .001; \eta^2 = .04$  (Group A overall  $M = 9.6, SD = .49$ ; Group B overall  $M = 11.64, SD = .36$ ).

To build a broader understanding of students' academic performance, the researcher created a frequency table to view the distribution of students from each group whose overall GPA fell into specified ranges. The top two rows in Table 16 below include all students from Groups A and B, while the lower half of the table focuses specifically on conditionally admitted students. Upon earning at least 91 credit hours at the institution, students are expected to maintain at least a 2.0 GPA (with requirements slightly lower for students with fewer earned credit hours) to remain in good standing. Among Group A's *conditionally admitted* students, 18 of 60 (30%) had cumulative GPA < 2.0. The proportion of conditionally admitted students in Group B with cumulative GPA < 2.0 was slightly less (32 of 122 or 26.2%), but a z-test for proportions indicated that the difference in proportions was not statistically significant. Semester-by-semester comparisons revealed that 11 of 22 (50%) conditionally admitted students who took the course in Fall 2011 (Group A) had overall grade point averages < 2.0 at the time of data collection, while a significantly smaller proportion (24 of 94 or 25%) from Fall 2012 (Group B) failed to reach the 2.0 mark,  $z = 2.25, p = .024$ . That proportion (5 of 20, or 25%) held steady among the conditionally admitted students who took the course in Spring 2013 (also Group B).

Table 16

*Longitudinal Sample—Group A vs. Group B, Overall GPA Range (through Fall 2013)*

GPA range	Group A		Group B	
	Conditional Admit ( <i>n</i> )	Overall ( <i>n</i> )	Conditional Admit ( <i>n</i> )	Overall ( <i>n</i> )
0.0-0.5	5	6	4	8
.51-1.0	0	3	6	9
1.01-1.5	4	12	4	19
1.51-2.0	9	27	18	50
2.01-2.5	12	32	31	68
2.51-3.0	16	36	34	87
3.01-3.5	11	32	19	47
3.51-4.0	3	14	6	20
Total <i>n</i>	60	162	122	308

After completing the course, 85 of 165 Group A students (51.5%) earned an average of *less than* 12 hours per semester, compared to just 37.5% (118 of 315) in Group B—a difference in proportions that was statistically significant,  $z = 2.96$ ,  $p = .003$ . A comparison of *conditionally admitted students* who earned an average of *at least* 12 hours per semester after course completion revealed proportions of 33.9% (20 of 59) and 44.5% (53 of 119) for Groups A and B respectively, but the z-test for proportions indicated the differences were not statistically significant. Some conditionally admitted students struggled to earn an average of even *10 hours* per semester; those students were more prevalent in Group A (32%, or 19 of 59) than in Group B (26.9%, or 32 of 119), but z-test for proportions again indicated the difference in proportions was not statistically significant.

While it could reasonably be expected that students receiving conditional admission might struggle academically, data reported in Table 16 also suggest that a number of students who received *regular* admission had cumulative institutional grade point averages  $< 2.0$  ( $n = 84$ ).

Perhaps even more surprisingly, 13 of 20 (65%) students who had overall GPA of 0.0 entered the institution without any special admission status. While there are no immediate explanations apparent in the data to account for these students' difficulties, the struggles of students who did not receive an early "at-risk" flag are addressed among the conclusions and recommendations for course improvements and future research in Chapter 5.

### **Summary of differences observed between Groups A and B.**

Based on results of the analyses reported above, the new course model appears to be more effective at helping students succeed academically than the course model it replaced. Group B (students who took the course in the intervention format) tended to have better outcomes in terms of *grades earned after completing the course* and in *progress toward earning their degrees*. The positive effects of the intervention seem to be more evident in the *hours earned since completion of the course* variable than in student's grade point averages—an effect perhaps due, in part, to the timing of the intervention.

### **Extending comparisons: Intervention vs. other course or no course.**

The preceding section detailed a series of comparisons used to study differences in student outcomes for old and new versions of the *Introduction to Learning Strategies and Skills* course. The sections that follow detail comparisons of Groups A and B with two comparison groups. Group C was made up of students who took *another* student-success course (AS 101, NEW 222, HES 100, BCE 101, or FLC 101—all described in Chapter 3), while Group D was comprised of students who did not take *any* type of student-success course. Mean grade point averages for groups A, B, C, and D—overall and for conditionally admitted students in particular—are listed in Table 17 below.

Table 17

*Longitudinal Sample—Groups A, B, C, and D: UA GPA Comparisons*

Overall Sample <i>M (SD)</i>								
	A	B	AS 101	NEW 222	HES 100	BCE 101	FLC 101	None
<i>n</i>	165	315	448	817	765	644	451	9866
	2.43 (.86)	2.40 (.80)	2.83 (.93)	2.43 (.89)	2.90 (.86)	2.55 (.89)	3.01 (.88)	2.92 (.91)
Conditionally admitted students <i>M (SD)</i>								
	A	B	AS 101	NEW 222	HES 100	BCE 101	FLC 101	None
<i>n</i>	61	124	22	494	272	337	17	310
	2.31 (.92)	2.37 (.79)	1.92 (1.2)	2.26 (.90)	2.38 (.92)	2.24 (.85)	2.18 (.90)	2.24 (.97)

As seen in Table 17 above, there were noticeable differences in academic performance based on the student success course version students chose—among the groups as a whole and among conditionally admitted students, who are *required* to take one of the courses. To assess whether the differences in GPA were statistically significant, the researcher conducted a one-way ANOVA with *Course taken* used to group participants. Students who participated in the intervention ( $n = 315$ ) earned slightly lower GPA, on average ( $M = 2.40$ ,  $SD = .80$ ), compared to other groups in the sample. One-way ANOVA indicated the differences in GPA were statistically significant  $F(7, 13463) = 62.26$ ,  $p = .000$ , but the sample includes *all* students enrolling in Fall 2009 and Fall 2011 (including those who would not be considered “at risk”).

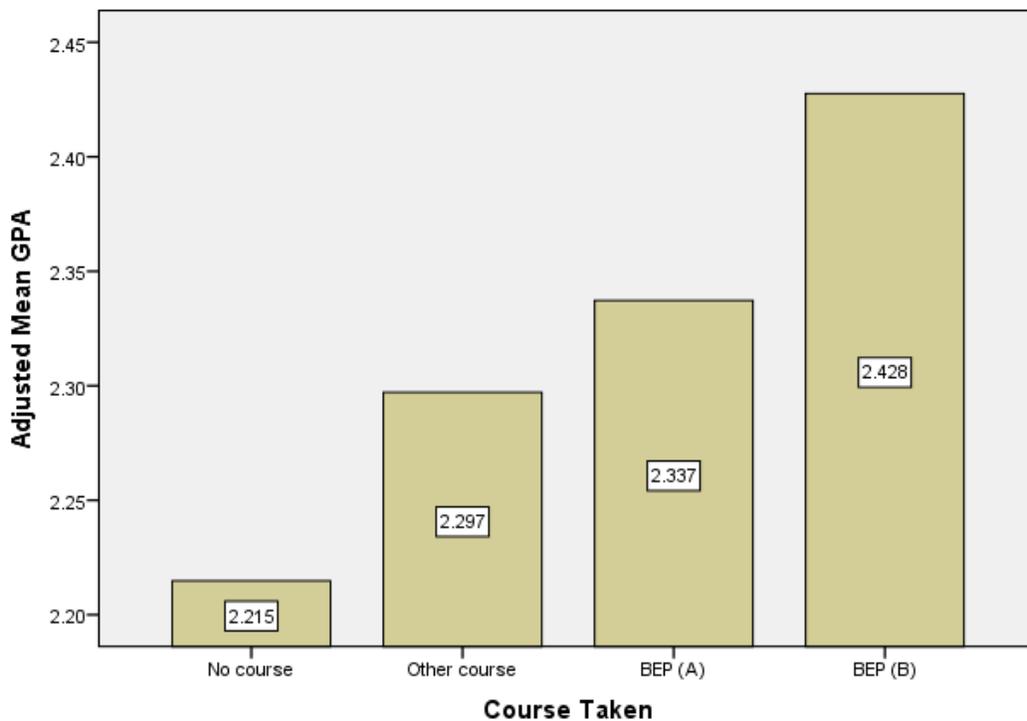
To isolate effects among the intervention’s target population, the researcher used one-way ANOVA to compare mean GPA among *conditionally admitted* students ( $n = 1463$ ). There, students who participated in the intervention outperformed nearly every group ( $n = 124$ ;  $M = 2.37$ ,  $SD = .79$ ), but the mean differences were not statistically significant from one another. Post-hoc pairwise comparisons revealed that conditionally admitted students fared significantly

better in the intervention (n = 124) than in the pass/fail, one-credit course numbered AS 101 ( $M = 1.92, SD = 1.15$ ),  $p < .05$ .

**Comparing Groups A, B, C, and D: Controlling for entering characteristics.**

To build upon what was learned from the one-way ANOVA above, the researcher set up a comparison that would control for students' entering characteristics (ACT scores and high school grade point averages), similar to the A vs. B analysis reported earlier. To increase the power of the statistical analysis, she created a *Course Reduced* variable, combining all the *Group C* courses into one category. In an attempt to isolate the effects of the course, the researcher started by using high school GPA as a covariate in the analysis of outcomes for *conditionally admitted* students. Results of the analysis are pictured in Figure 49 below.

**Figure 49. GPA Comparisons based on Course Taken (Conditionally Admitted)**



Covariates appearing in the model are evaluated at the following values: High School GPA = 2.9288

**Figure 49. Results of ANCOVA: GPA Comparisons based on Course Taken (Conditionally Admitted Students only; High School GPA used as co-variate)**

Using a value of 2.96 for high school GPA, results revealed the following *adjusted* mean UA grade point averages: Course A:  $M = 2.33$ ; Course B:  $M = 2.43$ ; Course Group C:  $M = 2.35$ ; Group D (no course):  $M = 2.22$ . When controlling for students' high school grade point averages, Group B's adjusted grade point averages were higher than any other group in the sample, but differences in mean GPA only approached statistical significance  $F(3, 13016) = 2.52, p = .056; \eta^2 = .005$ .

#### **Summary of Results for Research Question 4**

Examination of trends in longitudinal data suggest that the intervention provides more positive benefits than the course model that preceded it, as seen in the comparisons of students' grade point averages and progress toward degree completion. Results of multiple analyses using the same outcome variables also suggest that for the target population of underprepared students, the intervention may be more effective than other institutional course offerings in promoting achievement and persistence.

#### **Triangulating Results from Research Questions 1-4**

Taken together, the results from the study's four research questions suggest that the intervention's unique approach yields success by some measures and mixed results in others. Analyses within each of the four research questions suggest that the benefits of the intervention seem to be uneven: some populations appear to benefit more than others from their participation. Results of Research Questions 1 and 2 suggested that the intervention enhances factors related to students' hope and well-being. Some populations considered most vulnerable to failure or drop-out (conditionally admitted students, first-generation students, and students of color) appeared to benefit specifically in terms of increasing *Optimism*, *Positive Affect*, and improved methods of coping such as *Positive Reframing* and *Instrumental Support*.

Research Question 3 results provided insight about potential mechanisms that may *drive* changes that support greater hope and well-being, such as learning to anticipate obstacles in advance and activating contingencies to recover from setbacks. Some participants—again, typically those considered most vulnerable—appeared to benefit more than others from the practice of setting and tracking progress toward weekly goals. Research Question 4 examined long-term outcomes for students who participated in the intervention compared to students with similar entering characteristics who took a *different* student success course or who did not enroll in a student success course at all.

Results of longitudinal analyses suggested that compared to similar courses at the institution, the intervention appears to contribute to a more favorable academic outlook for students who have completed it since 2012. Because data in the study were drawn from two independent samples, it is impossible to infer with certainty that the students who participated in the intervention had better outcomes *because of* its focus on hope and well-being. However, the evidence that participants not only fared better than some who completed similar courses at the institution, but also better than students who took the course in its *previous* model suggests it as a strong possibility. That evidence means even more considering the fact that from 2009-2012, each cohort's conditionally admitted students were less qualified than the ones who preceded them. The evidence of better academic performance over time suggests that the boosts related to hope and well-being may be lasting—that changes in students' thinking, behaviors, and habits support greater achievement and increased likelihood of retention and persistence to graduation. In the upcoming chapter, the researcher concludes with an elaborated discussion of the study's implications as well as recommendations for future research.

## CHAPTER 5

### DISCUSSION

The purpose of this study was to evaluate the effects of an intervention designed to boost students' chances for success in college by enhancing their levels of hope and well-being. The intervention combined instruction on the use of evidence-based learning strategies with a special focus on facilitating students' efficacy in the three types of thinking related to hope: goals thinking, pathways thinking, and agency thinking. As students did so, they had the opportunity to practice behaviors linked to effective coping, problem-solving, and overall persistence in academics. Analysis of the study's three data sources provided insight not only about the experiences of participants within a single semester, but also about whether any benefits received from the intervention appeared to affect their long-term success at the institution.

#### **Support for Hypotheses**

Taken together, results from Research Questions 1, 2, 3, and 4 offer some support for the overall hypothesis that the intervention is effective in equipping students with knowledge and skills that enhance both personal and academic outcomes. While the Fall 2013 data did not indicate significant changes in hope and well-being across the sample as a whole, the overall findings masked some subgroup variations, suggesting that some students benefitted *differently* than others from the course. The longitudinal data provided some evidence in support of the researcher's hypothesis that its benefits continue beyond the conclusion of the intervention. Such benefits were evident as intervention participants went on to earn higher grade point

averages and move more quickly toward degree completion compared to some groups of students who had similar qualifications, but did not receive the intervention.

### **Inferences and Conclusions drawn from the Results**

#### **Intervention format addresses previously unmet needs.**

Compared to other existing student success courses offered within the institution and elsewhere, the intervention format is unique in that it is built on the following notions: information *alone* does not drive learning, and *preventing failure* does not equate to *promoting success*. Emotion and motivation are powerful, complex constructs that influence behavior and effort (Dweck & Leggett, 1988; Folkman & Moskowitz, 2004; Pekrun & Linnenbrink-Garcia, 2012). While most other student-success courses have study skills as their focus, the intervention integrates cognitive skill development with equal parts metacognitive and emotional development. In so doing, it seems to fill a need for greater *fit* between students' psychological needs and the educational environment (Cleary & Zimmerman, 2004; Vance, 2001). For instance, by the end of the intervention, students demonstrated statistically significant increases in *Positive Reframing*. According to Alexander and Onwuegbuzie (2007), learning to reappraise academic challenges may help curb procrastination behaviors over time, while also allowing students to feel a greater sense of personal control in the midst of the challenges.

Through the creation of weekly goals, students received coaching designed to help them translate new ways of thinking into new *approaches* for setting goals and completing academic tasks. Instructors not only taught students about the *kinds* of intellectual effort that are likely to result in goal attainment, but they also offered frequent feedback and support to guide students' planning and problem-solving efforts. Students' *Overall* goal ratings reflected statistically significant improvement in the quality of their plans and the processes used to select, implement,

and evaluate their own learning strategies. Such changes were especially evident among conditionally admitted students and first-generation students—populations often considered most in need of this type of skill development and support (Alfassi, 2004; Boylan & Saxon, 2005; Daly et al., 1997; Schwarzer & Knoll, 2007; Turner & Husman, 2008; Turner, Husman, & Schallert, 2002).

### **Goal appraisal important for motivation and persistence.**

Results from the current study support the idea of a causal relationship between goal orientation and behavioral response (Feldman et al., 2009; Snyder et al., 2002), as well as the connections between self-conceptions, goals, and patterns of response described by Dweck and Elliott (1988). The intervention showed some success in helping students move from a fixed mindset to a growth mindset—evidenced by the significant reduction in students’ use of *Performance*-based goals over the course of the intervention. Male students and first-generation students seemed to particularly benefit from the shift in emphasis from performance to mastery, shown in the marked increase in *Mastery* goals for men and the sharp decline in *Performance* goals observed in both groups.

Helping students frame their goals based on realistic expectations stood out as a key consideration for delivering the intervention’s intended benefits. Results supported Lopez’ (2013) assertion that *false* optimism can actually undermine hope: in the intervention, students who learned to realistically evaluate potential *Obstacles* and develop effective *Contingency* plans for addressing them were more likely to reach their goals. For example, throughout the intervention, women’s goals reflected greater signs of *Agency* than men’s; not coincidentally, women’s goals were also rated higher on both the *Obstacles* and *Contingencies* variables.

Changes over time in *Pathways* composite scores reflected evidence that overall, students felt increasingly confident saying “I can get there from here,” even while facing obstacles.

**Areas in which students showed the most improvement.**

Instructors helped facilitate shifts in students’ attitudes about learning, ability, and effort while normalizing setbacks and failures as regular parts of the learning process. This was evident not only in students’ increasing use of adaptive coping strategies such as *Positive Reframing*, but also in significantly higher levels of *Positive Affect* by the end of the intervention. Significant changes in experiences of positive emotion were particularly evident among men, students of color, and first-generation students. According to Bowers and Lopez (2010), positive emotions result from perceived success in goal pursuits and fortify enduring personal resources for dealing with future challenges. Thus, the indicators of growth seen in students’ goals may contribute directly to the increases in positive emotion they reported at the close of the intervention. The significant decrease in *Negative Affect* observed among first-generation students may reflect reduced anxiety about school performance, which has been linked to cognitive processing interference (Ashcraft & Kirk, 2001).

Students of color and conditionally admitted students seemed to benefit in many ways from the intervention, including their rise in *Pathways* composite scores—an encouraging signal that students gained traction in skill sets crucial for their future success (Darche & Stam, 2012; Lopez et al., 2009; Parks-Stamm et al., 2010; Shorey et al., 2007; Snyder et al., 2002). Assuming that goal ratings serve as valid tools for evaluating students’ strategic learning efforts (and assuming that apparent growth trends indicate progress toward mastery), resulting cognitive and behavioral changes may bolster participants’ chances of success if the changes become habits that are maintained over time.

### **Intervention helps identify and “treat” students not otherwise flagged as “at risk.”**

In addition to benefiting groups like the ones mentioned above who may need the most support, results from the study also suggest there may be students at risk for failure who do not bear the traditional “at risk” labels. For example, some students who received regular admission ended up on academic probation and were ultimately suspended. To improve retention, institutions may need to do more to identify and assist other potential “at risk” populations aside from the conventional categories tied to basic pre-college characteristics (entrance exam scores and high school grades). While there may be legitimate reasons to consider other “at risk” populations and how they may benefit from a course such as this one, there was evidence in this study that the intervention might be more effective if enrollment were restricted to conditionally admitted and readmitted students. Participants without those designations had different needs, tended to be less invested, and potentially altered the climate of the course.

### **Theoretical or Practical Consequences of Results, including Generalizability**

#### **Study adds to existing knowledge of hope, cognitive psychology, and student retention.**

This quantitative intervention analysis serves as a contribution to the available literature describing successful hope interventions. It not only spans an entire 15-week semester (in contrast to most other interventions which, up to this point, are typically of shorter duration), but it integrates an analysis of gradual evolution in students’ goal-directed cognitions and behaviors that provided insight beyond that available from questionnaire data. For instance, even some students whose hope scale scores went *down* nevertheless showed improvement and increasing evidence of hopeful behaviors in their weekly goals.

In terms of its value in higher education, results from the study offer new ways of looking at traditional student success courses. Evidence of increasing utilization of hopeful cognitions and behaviors in students' goals provide a direct contribution to current conversations about "intellectual virtues" and "productive dispositions" needed to thrive in college, including a *shared responsibility* for learning between teacher and student (Berrett, 2012; Fowler & Boylan, 2010; Hoffman & Webb, 2010; Hooker & Brand, 2010). The intervention's emphasis on both the *role* of effort and the specific *types* of effort that yield successful learning outcomes (evident in improved *Pathways* composite scores and changes in positive coping) support Doyle and Zakrajsek's (2013) contention that "the one who does the *work* does the learning."

The intervention stresses the centrality of self-determination—an ingredient essential for resolving gaps between students' learning-related expectations and the discouraging realities they often encounter in college classrooms (Blinn-Pike et al., 2008; Bowman, 2010; Darche & Stam, 2012; Ryan et al., 2008). The course opens candid conversations about the student's role in forging pathways, mindfully incorporating strategies for staying on course, and enlisting help and support when needed. In addition, students develop the practice of articulating links between daily actions and their long-term consequences, all while receiving feedback intended to help them make more informed choices. Informed decision-making—combined with greater resilience and knowledge of effective learning strategies—may make the difference between dropping out and persisting to graduation, especially for vulnerable populations (Allman et al., 2012; Bergeron, 2013; Kinzie, 2012; Padgett et al., 2012; Stage et al., 1998).

**Limitations or threats to internal validity.**

***Participation patterns and differences in intervention delivery.***

The number of students who completed both parts of the survey and submitted at least seven weekly goals was much lower than the overall enrollment ( $N = 180$ ) across the six course sections. With participation levels lower than expected, valuable data concerning some participants' experiences in the course was missing from the analysis. In addition, an instructor's oversight caused an inconsistency in the incentives for participation: instead of making participation part of students' regular grading calculations, her section was offered extra credit for survey completion, which may have affected the number as well as the types of students who chose to participate from those sections.

Secondly, differences in instructor interpretation and delivery of the course model may have led to slightly different outcomes for students. While some variation is expected any time multiple individuals are involved in administering an intervention, some inconsistency in the "treatment" was evident despite training and monitoring efforts. These issues could be overcome by providing more front-end instruction and ongoing manipulation checks throughout the program to minimize these problems.

***Imprecision of measures and/or missing data.***

In addition to being self-reported and subjective, data collected through surveys tends to be skewed in some ways based on social desirability. However, its inherent subjectivity may be offset to some extent by the other sources of data used in the study. Secondly, the institution was hesitant to include race and gender information in the longitudinal dataset. This limited the types of analyses possible using the long-term sample; if that information had been available, the

researcher could have tested an assumption that various demographic groups who appeared to benefit within a single semester were equally likely to retain lasting benefits afterward.

### **Goal rubric as measurement tool.**

As shown by the weak correlations between hope scale scores and those derived from students' goals, the rubric used to code the goals may need additional work to improve its internal validity. Specifically, the portion used to rate *Agency* could be revised for additional clarity to include two separate measures: extent to which the goal was reached, and extent to which students assessed and made rational attributions about effort and outcomes.

While it was mentioned above that the coding analysis drawn from students' weekly goals provided insight beyond that available from conducting a survey, it is also possible that some students may have inflated their goal ratings out of a desire for favorable evaluations of their work. It is impossible to know the degree to which their efforts translated beyond the page and into their lives. However, when combined with the longitudinal data, it does seem that some of the attitudes, behaviors, and skills practiced throughout the course made a lasting difference.

### **Recommendations for Future Research**

While several potentially meaningful positive changes have been noted among groups typically considered at risk for failure in college, concerns about reaching certain vulnerable populations remain. For instance, first-year students' *Agency* subscale scores went down under three of the four instructors; agency is obviously linked to retention because it relates to sustaining effort. While a great deal of research is available regarding the needs of first-year students and the potential reasons for attrition among them, specific inquiry into agency-building approaches targeted toward first-year students may be needed (Berrett, 2012; Kinzie, 2012).

The gaps in *Agency* also raise concerns about agency among men and students of color. In recent decades, women have surpassed men in college completion rates (Lopez & Gonzalez-Barrera, 2014; Marrs & Sigler, 2012), and graduation rates for black students (39%) lag behind degree attainment rates for white students, which are around 58% (Casselmann, 2014; Maramba & Velasquez, 2010). Institutions devote significant resources to recruiting a diverse student body, but these statistics indicate that access to higher education does not automatically result in success. Thus, it may behoove institutions to examine particular avenues of support designed to build agency among men and students of color in order to increase their rates of persistence.

First-year, first-generation students in the sample started out reporting high feelings of competence, but dropped off sharply by T2. While it might be true that many first-year students could rebuild a sense of competence on their own after making mistakes or experiencing setbacks in the first semester (or even the first year), the 40% graduation rate among first-generation students indicates they may be at higher risk than their peers (Ward et al., 2012). If, early in college, a student overestimates ability and then fails, the disappointment or shame could be crippling, especially in the absence of strong support systems for getting back on track and adjusting expectations and habits (Turner & Husman, 2008; Turner et al., 2002; Twenge, Zhang, & Im, 2004). Ongoing research may be needed to better understand competence perceptions among first-generation students and the resulting implications in terms of effort needed to manage various aspects of academic life.

### **Concluding Comments about Study Implications**

One of the aims of the intervention described herein is to help students realistically appraise their own abilities and shortcomings and develop realistic expectations about what it takes to be successful. Educators have a responsibility to help frame students' beliefs and

expectations about learning, especially those surrounding the role of effort. Hope theory seems to provide a useful language for understanding individual differences in motivation and effort among students—especially students who belong to one or more populations considered at risk for academic difficulty. Evidence from the study suggests the intervention is effective in equipping students with the skills needed to map out workable pathways and persist more effectively in challenges.

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## Appendix A: Course Objectives

**Objectives:** *Students who fully participate in assignments/discussions will be able to:*

1. Develop new concepts & perspectives about oneself as a learner and processes involved in learning;
2. Clearly articulate personal strengths and areas for growth in academics;
3. Implement effective goal-setting strategies; gain confidence and consistency in setting and monitoring meaningful progress toward goals;
4. Increase levels of autonomy and personal responsibility for daily actions, drawing clear connections between those actions and “big picture” outcomes;
5. Identify and practice strategies for maintaining hopeful attitudes, exercising positive coping skills, and sustaining high levels of motivation needed to promote achievement of short- and long-term goals;
6. Utilize appropriate resources to improve skills in writing, planning, organization, concentration, communication, career planning, time management, managing anxiety and other emotions, and other skills and tools vital to the pursuits of personal & professional purpose, success, & well-being.

## Appendix B: Excerpts from Instructor Training Materials

Welcome to BEP 110! This important course has the potential to alter the course of students' academic trajectories, leading to greater retention and graduation rates. In an effort to help you prepare to teach it for the first time, this packet has been compiled as a "pre-training primer" to help you familiarize yourself with the philosophical framework and course curriculum. Of course, there is always room for improvement within course design, so please review these materials with the mindset that there is not *one* correct way to accomplish the goals of the course. While the underlying framework will remain consistent across all course sections, there will be some flexibility in the means by which the goals and objectives can be achieved. As you read through the following materials, please use your creativity to think of ways to draw from your own expertise and experiences in order to communicate and teach the principles of strategic learning, hope, and well-being in ways that feel natural and authentic for you.

### **BEP 110 Purpose and Philosophical Approach**

In addition to the syllabus, it may be helpful for you to read some of the original research which guided the development of the current BEP 110 framework. (*A separate page included a full list of references that influenced decisions about the course's theoretical framework.*)

BEP 110 is not just about teaching study skills. Another major goal of the course is to activate and nurture the affective and behavioral components that intertwine with students' cognitive abilities to foster success. The following sections are meant to provide additional insights and guidelines useful for creating a classroom atmosphere and overall experience which provides optimal support and guidance.

### **Goals for BEP 110** (*adapted from syllabus*):

- **Help students acquire and practice strategies for "deep learning" and critical thinking** (*reshaping students' views of what "learning" is; assisting them in acquiring strategies needed to move away from rote memorization of disconnected facts and toward a more cohesive understanding of how concepts and ideas relate to one another, thereby increasing likelihood for knowledge/skill transfer to new settings*)
- **Help students develop confidence and self-awareness** through self-assessment and reflection (*emphasis on goal-setting as a way for students to critically evaluate their habits and degree of effort needed to accomplish tasks with excellence*)
- **Encourage students' use of mastery-oriented, approach goals** (*vs. over-reliance on performance-focused and avoidance goals*) **as well as positive coping strategies** (*using task-focused coping vs. emotion-centered or avoidance coping styles*) as part of overall efforts to build students' hope, well-being, motivation, and persistence

(Appendix B, continued)

- Assist students in becoming more **autonomous and aware of the impact of their own choices** when it comes to setting goals and managing time, through strategies such as:
  - Writing down weekly goals and plans for accomplishing those goals
  - Breaking large tasks into several small steps (*learning to navigate complex academic tasks*)
  - Generating realistic expectations and estimates for time needed to accomplish tasks
  - Taking responsibility for keeping oneself on track (*self-regulation and metacognition skills*)
- Give students practice in developing more sophisticated **organizational and communication skills**, as well as general knowledge useful for understanding and navigating academic culture and utilizing available resources

***General tips for teaching BEP 110:***

- ***Set the tone*** on the first day. If you want the class to be interactive, do some kind of activity to get them talking on the first day. Suggestion: don't get bogged down in details by reading the syllabus to them on the first day. Assign them to read it for the next class.
- ***Find out something about your students*** and learn their names (questionnaire)
- It's helpful to share a ***set of objectives*** at the beginning of every class; that way, students can anticipate what they'll take away from the day's discussion. Along with the day's objectives, it's also beneficial to conduct a brief recap of the topic(s) recently covered, intentionally pointing out ***connections*** between prior and current topics (how one builds on the other).
- Instead of trying to cover every conceivable application of each study strategy, the current curriculum model instead focuses on the ***fundamental aspects of authentic learning*** (*mindset, planning and organizational skills, metacognitive skills needed to build deep understanding, etc.*). Ultimately, if students feel more in control and more hopeful about their prospects for success (once they are exposed to—and have developed some level of comfort in using—a broader repertoire of study strategies), they will eventually be able to apply, tweak, and perfect the habits independently.
- I find it worthwhile to talk with students about ways to enhance their ***understanding of and adjustment to the academic environment***, including professors' expectations, etiquette, etc.
- Try to use ***formative assessment*** as much as you can (check for understanding and ability to apply what they're learning; ask open-ended questions, use group activities, ask them to recap main points, write about "muddy points", and so on. We'll discuss specific ways to do this in our upcoming training.)

(Appendix B, continued)

**The Small-Group Coaching Model: Making it work**

The BEP 110 small-group coaching model was developed as an effort to help reinforce course concepts, habits, and skills on individualized level, while providing an atmosphere in which students can also learn from one another and provide mutual support. Tips for making the most of these sessions:

- Explain clearly the **purpose** of the groups and how you expect students to prepare for each group session.
- Divide students into 6 groups of 5 students each. Recommended to place according to classification (FR, SO, etc.)
- Give students the opportunity to meet each other in class before they meet for the first time in their small groups (you might want to use some kind of get-to-know-you activity both the first time they are introduced and during the first small-group meeting; *sense of belonging* a major predictor in retention AND well-being)
- Use the small group meeting time effectively by having a plan of what you hope to accomplish. Make the small group meetings as interactive as possible, giving each student a chance to weigh in through participation in a planned activity, sharing individual progress on goals, and/or asking questions for clarification.
- Try to draw out quieter members of the group (and do your best not to let one student dominate). They will usually feel safer speaking up in the small group than in the larger class.
- **Social support** is especially important for first generation students, students of color (at PWI's), first-year students, working students who are juggling multiple demands and sometimes families.

**Appendix C: Goal Worksheet**  
BEP 110 Weekly Goal Worksheet

**Update on last week's goal:**

Goal: \_\_\_\_\_

Was the goal accomplished? Why or why not?

\_\_\_\_\_  
If the goal has not yet been accomplished, what new strategies are needed (or how could I approach a similar goal in the future)?

\_\_\_\_\_  
**Goal for this week** (Remember to articulate goals that are *SMART*, approach-focused, and geared toward mastery):

\_\_\_\_\_  
**My pathway to this goal includes the following steps** (list *specific*, observable action steps you will take to accomplish the goal and **when** you plan to have each step completed):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Roadblock(s) I might encounter** or things that may threaten my progress toward this goal:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Strategies I can use to proactively deal with each of the potential roadblock(s) listed above:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**I will know when I've reached my goal because** (If your goal is clearly measurable, what will be the indicator that you've accomplished it?)

\_\_\_\_\_

### Appendix D: Goal Coding Rubric

BEP 110 Goal Rating Criteria

Student # \_\_\_\_\_ Week # \_\_\_\_\_

1. Overall Rating						
0	No goal stated					
1	Does not follow template or give adequate detail in steps and/or contingency plans					
2	Meets most criteria, but does not reflect detailed or in-depth thinking about strategies used in steps and/or contingency plans; insufficient practical measures for progress					
3	Meets minimum criteria, but represents a weak attempt in one or more of the following areas: appears to be a "lazy" goal requiring little effort or challenge; goal is broad, scattered, or unfocused; contingency plans do not adequately address roadblocks; steps insufficient to accomplish goal					
4	Goals match criteria given in template, but could benefit from more detail in steps and contingency plans					
5	Carefully considered; follows template criteria; includes detailed steps, contingency plans, and report on previous goal					
2. Goal Rating and Goal Orientation (2a)						
Criterion	0	1	2	3	Multiplier	Score
2. <b>Goal:</b> Stated clearly with realistic scope (based on timeframe)	No goal stated	Extremely vague; impossible to measure and/or accomplish in 1 week	Vague or unfocused; could be difficult to measure and/or accomplish in 1 week	Clear & measurable; can realistically be accomplished within 1 week	<b>Key:</b> G3 = 1 G2 = .75 G1 = .5	
2a.1 <b>Mastery</b>	No goal stated	No reference to mastering concepts or skills	Reflects some attention to mastery	Focused on gaining competence, building mastery	X ____	
2a.2 <b>Performance</b>	No goal stated	No reference to others' evaluation of performance	Reflects some attention to gaining favorable evaluations	Focused primarily on earning positive evaluations from others	X ____	
2a.3 <b>Approach-Avoidance</b>	No goal stated	Clearly stated as an avoidance goal	Contains both approach and avoidance components	Clearly stated as an approach goal	X ____	
Goal Thinking--Hope (2b)						
2b.1 <b>Pathways articulated</b>	Steps not included	Steps listed are illogical or impossible to measure; may not reflect actual steps needed to reach goal	Steps are logical but difficult to measure; weak strategies unlikely to promote goal attainment	Steps are measurable, logical, and reflect usage of sophisticated strategies	X ____	
2b.2 <b>Pathways: Potential obstacles</b>	Potential obstacles not listed	Potential obstacles listed are partially articulated and/or vaguely defined	Potential obstacles are more specific, but lack depth of analysis	Obstacles listed reflect self-awareness & proactive, critical thinking about the goal	X ____	

<b>2b.3 Pathways: Contingencies</b>	Strategies for overcoming obstacles not listed	Strategies given are vague; unclear how they will address obstacles	Strategies appear inadequate for meaningfully addressing obstacles	Strategies reflect critical thinking; well-suited for dealing directly/proactively with potential obstacles	X ____	
<b>Pathways Score total (2b.1 + 2b.2 + 2b.3) = ____</b>						
<b>2b.4 Agency: Progress on previous week's goal</b> <i>(Was the goal reached? Did the student evaluate strategies used to reach the goal?)</i>	0	Not included				
	1	Didn't accomplish or assess	X ____			
	2	Didn't accomplish, partially assessed	X ____			
	3	Partial accomplishment, no assessment <b>OR</b> Didn't accomplish, but fully assessed	X ____			
	4	Partial accomplishment, partial assessment <b>OR</b> Accomplished, no assessment	X ____			
	5	Partial accomplishment, full assessment <b>OR</b> Accomplished, partial assessment	X ____			
	6	Accomplished & fully assessed	X ____			
(Agency x 1.5) + Pathways = Overall Hope (____ x 1.5) + ____ = _____						

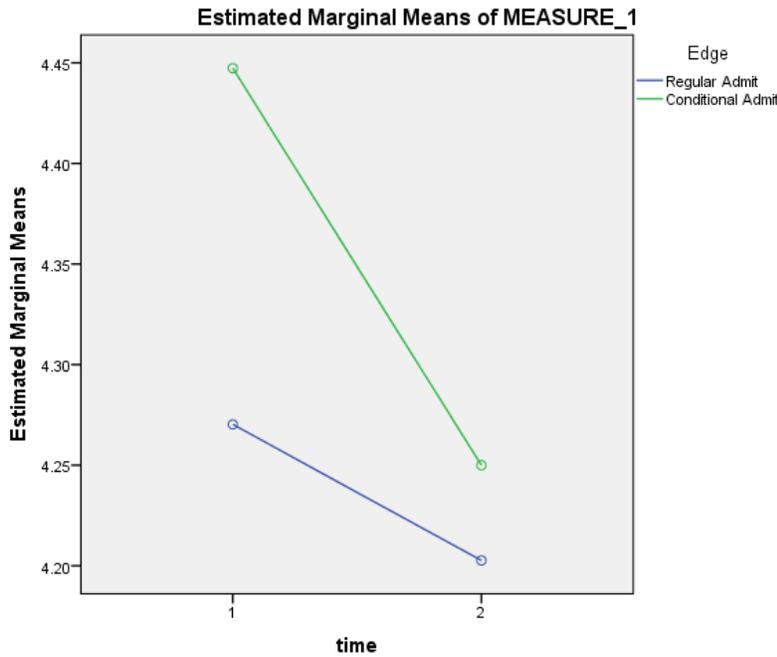
## Appendix E: Additional Results from Data Analyses

The sections below contain results that were not essential to addressing the research questions, but provided additional insights about the populations targeted in the intervention.

### Changes in Perceived Competence: Admit type

Regularly admitted students ( $n = 37$ ) showed a slight drop in perceived *Competence* from T1 ( $M = 4.27$ ,  $SD = .53$ ) to T2 ( $M = 4.2$ ,  $SD = .67$ ), and mean scores of conditionally admitted students ( $n = 38$ ) also demonstrated a decline over the same period (T1,  $M = 4.45$ ,  $SD = .79$ ; T2,  $M = 4.25$ ,  $SD = .85$ ). As seen in Figure E.1 below, the line slopes show that the patterns of change differed within each group; however, neither the interaction  $F(1, 73) = .50$ ,  $p = .482$ ;  $\eta^2 = .01$  nor the main effect for change over time  $F(1, 73) = 2.08$ ,  $p = .154$ ;  $\eta^2 = .03$  were statistically significant. While the changes in perceived *Competence* were not significant, the decrease in perceived competence among conditionally admitted students may help explain observed changes in their *hope scale scores* (only 40% of the conditionally admitted students in the sample had higher hope scores by T2). Conditionally admitted students may become discouraged (and gradually reduce their levels of effort) if they perceive themselves as less competent or less prepared than their peers. Based on this possibility and the higher degree of variance in perceived competence among conditionally admitted students, it seems particularly relevant to provide targeted support in building competence to increase their chances of success.

Figure E.1: Fall 2013 Sample—Changes in Perceived Competence (Admit type)



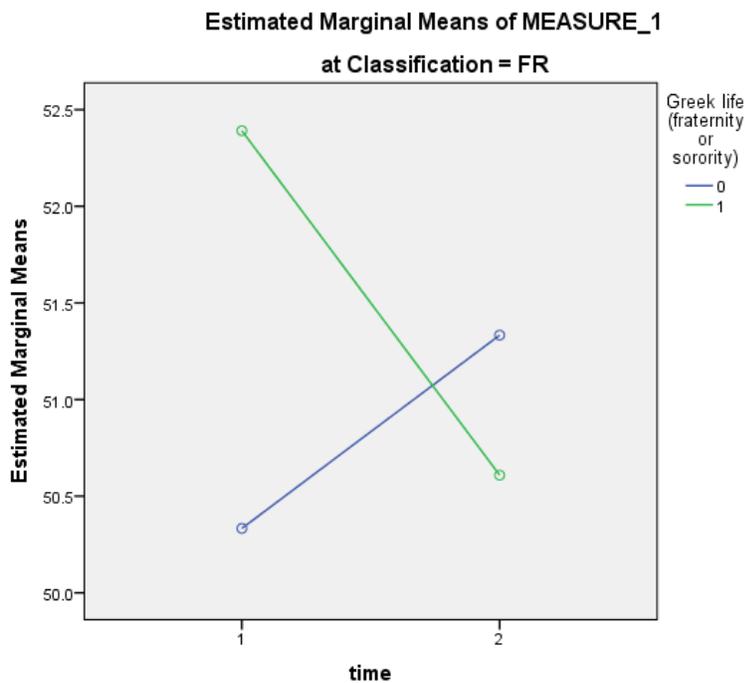
### Did Greek Membership Moderate Changes in Hope?

The data collection site is an institution known for its large Greek system (nearly 30% of undergraduates are members of Greek-letter fraternities or sororities). The Fall 2013 sample was roughly half Greek, and half of those were first-year students involved in the pledging process (intake of new members, which typically runs through early November). While Greek organizations offer many potential benefits including social development and friendships, valuable connections to alumni, and the support of a close-knit community, results among Greek freshmen in the sample were striking.

In contrast to non-Greek freshmen ( $n = 15$ ), the hope scores of 76% of Greek freshmen ( $n = 19$ ) either *decreased* or *did not change* from T1 to T2 (Non-Greek first-year students:  $M, T1 = 50.33, SD = 5.33; M, T2 = 51.33, SD = 8.21$ . First-year students affiliated with the Greek system:  $M, T1 = 52.39, SD = 5.85; M, T2 = 50.61, SD = 5.66$ .) Thus, on average, students not affiliated with the Greek system (represented by the blue line in Figure E.2 below) appeared

more hopeful at T2, while Greek first-year students (green line in the figure) reported feeling *less* hopeful at the end of their first semester. The trend in hope scale scores among Greek first-year students ran counter to the researcher’s expectations, and may warrant additional exploration in a future study with a larger sample.

Figure E.2: Change in Hope Scale Scores, Greek vs. Non-Greek Freshmen



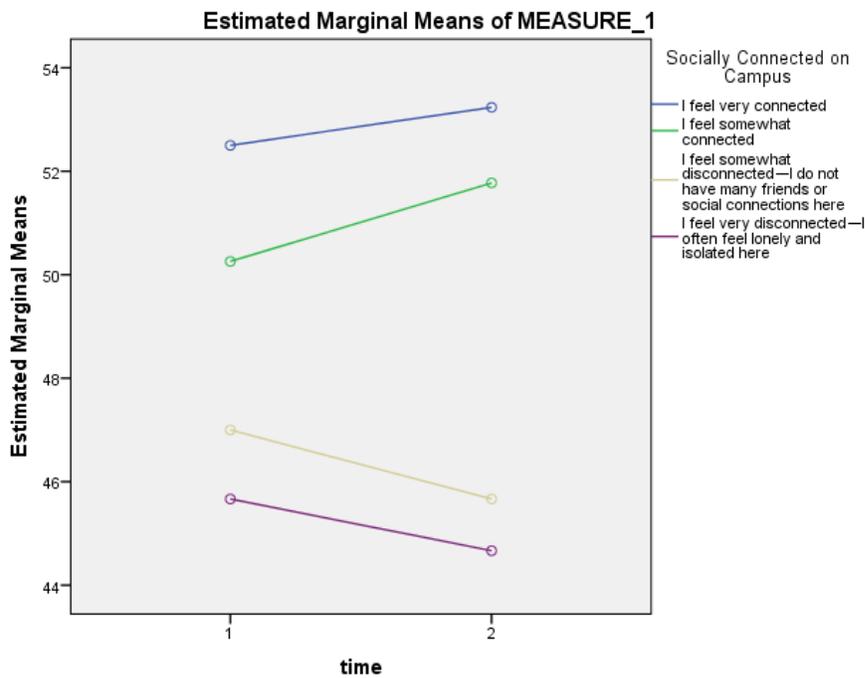
### Social Support and Hope

Among participants whose hope scores *decreased* or *did not change* from T1 to T2 ( $n = 38$ ), only six reported feeling “somewhat disconnected” or “very disconnected” on campus. On the other hand, within the group of students whose hope scores showed an *increase* from T1 to T2 ( $n = 36$ ), 33 reported feeling “very connected” or “somewhat connected” on campus. Thus, the positive influence of social connections seemed more apparent among the latter group.

While repeated measures ANOVA revealed that changes over time within groups were not statistically significant, groups were significantly different from one another  $F(3) = 4.26, p =$

.008;  $\eta^2 = .15$ . Students who felt “very connected” or “somewhat connected” (represented by the blue and green lines in Figure E.3 below, respectively) scored higher overall, with slight increases from T1 to T2. Students who felt “somewhat disconnected” or “very disconnected” scored significantly lower on the hope scale, and their scores went in the opposite direction (decreasing slightly from T1 to T2).

Figure E.3: Fall 2013 Sample—Changes in Hope Scale Scores (Social Connection)



November 4, 2013

Office for Research

Institutional Review Board for the  
Protection of Human Subjects



Corrie Lake  
Educational Psychology  
Department of ESPRMC  
College of Education  
Box 870231

Re: IRB # 13-OR-335: "Hope for Success: Effects of an Academic  
Intervention for At-Risk College Students"

Dear Ms. Lake,

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted a waiver of parental permission. Approval has been given under expedited review category 7 as outlined below:

*(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, humanfactors evaluation, or quality assurance methodologies.*

Your approval will expire on November 3, 2014. If the study continues beyond that date, you must complete the eProtocol Renewal Form. If you modify the application, please complete the eProtocol Revision Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the eProtocol Final Report Form.

Please use reproductions of the IRB-stamped consent/assent form.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB approval number.

Good luck with your research.

Sincerely,

A large black rectangular redaction box covering the signature of the Director &amp; Research Compliance Officer. A blue ink scribble is visible to the right of the redaction.

Director & Research Compliance Officer  
Office for Research Compliance  
The University of Alabama

cc: Dr. Stephen Thoma



358 Rose Administration Building  
Box 870127  
Tuscaloosa, Alabama 35487-0127  
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Office for Research

Institutional Review Board for the  
Protection of Human Subjects



January 27, 2014

Corrie Lake  
ESPRMC  
College of Education  
The University of Alabama

Re: IRB # EX-14-CM-008 "Hope for Success: Effects of an Academic Intervention for At-Risk College Students (Part 2 of 2)"

Dear Ms. Lake:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your protocol has been given exempt approval according to 45 CFR part 46.101(b)(4) as outlined below:

*(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.*

Your application will expire on January 26, 2015. If your research will continue beyond this date, complete the relevant portions of Continuing Review and Closure Form. If you wish to modify the application, complete the Modification of an Approved Protocol Form. When the study closes, complete the appropriate portions of FORM: Continuing Review and Closure.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number.

Good luck with your research.

Sincerely,



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